

INDIVIDUAL LIFE PREMIUM SYSTEM



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BY

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Abstract

The nature of business is based on overpowering the firm's opponents so to acquire high yield in all fields involved. Interviews, observation and questionnaires were the gears used in collecting the essential data with the aim of trying to observe how the modern system worked. This system targets at helping Zimnat Premium Policy clients in getting accredit premium payoffs and replaces the manual processes involved in the collection of client details and capturing transactions. The cashier has the access to the premium payment procedures and the rest of the users at the firm can participate in the chatting platform. Some of the tools which were used to come up with this system involved PHP and MySQL, mostly in the Databank designing. After a thorough analysis and the actual creation of the system, the scheme was introduced using the direct changeover approach. However, it is greatly and highly recommended to proceed with the upgrading of the system, so to add features which would in-turn benefit the firm's customers and the management so to properly manage its commodities.

Declaration

I EMMANUEL MUPOTARINGA(R153651H) affirm that I am the sole instigator of this thesis. In return, I approve the Midlands State University to impart this thesis to other establishments or persons for the determination of scholarly exploration.

Signature _____ Date _____

Approval

This study permits “ZIMNAT INDIVIDUAL LIFE PREMIUM SYSTEM”, composed by EMMANUEL MUPOTARINGA, to come across the guidelines governing the award of the degree of BSc Honors in Information Systems of the Midlands State University and is permitted for its influence to acquaintance and literal demonstration.

Supervisor

Date

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Let me also outspread my thanks to the **Zimnat Individual Life** staff that assisted in all my research work and systems investigation. I justly escalate having worked with my fellow colleagues and friends for offering assistance, reassurance and backing.

Dedication

I devote this project to my brothers and friends, who remarkably contributed to the laying of the groundwork on which I stand and whose stimulation is my source of enthusiasm. May the noble Lord Almighty endure to bless them.

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List of Acronyms

SQL	Structured Query Language
DFD	Data Flow Diagram
NPV	Net Present Value
HTML	Hypertext Mark-Up Language
CBA	Cost Benefit Analysis
ICT	Information Communication and Technology
PBP	Payback Period
SAD	System Analysis and Design
IL	Individual Life

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CHAPTER ONE: INTRODUCTION

1.1 Introduction

The Individual Life Assurance Premium System is a collaborative system which provides the users/employees of Zimnat an internal communication platform, aid in producing reports, it manages client payments and the capturing of the data needed pertaining to the payment of Premium policies for Life Assurance. The system allows a profile tracking system to accredit premium payoffs. This system allows the Zimnat employees to acquire governed access to their premium payments history and allows them to produce a stratified report of its clients across all branches within the country. The data gathering and application tools to be used will be described and particular the aim of this study.

1.2 Background of the study

The Zimnat firm has many departments followed by a large number of employees. The communication channels for these workers tend to be very limited due to mainly the geographical distance acting as a barrier. Thus only the top management officials of these branches communicate and not the employees themselves, thus there is little communication amongst the workers themselves to act as a motivational factor. There is the procrastination of the introduction of the simplified, modernised and automated premium system for the Finance and Individual Life Departments to use since the traditional paper pen approach for the day to day operations is still being used. Therefore, the current system fails to consider the time needed in capturing, referencing, report presentation of the data, the client details, and above all, does not enable real time messaging, for communication between the workers through general interaction of both business and social activities, after paying much attention to the financial merit attached to it.

1.2.1 Background of the Organisation

Zimnat Group Holdings (2015) previews that the Zimnat Life Assurance Firm Limited a maintained and provides life assurance commodities in Zimbabwe firm, whilst being a subsidiary of the TA Holdings. It formally known as the ICR prior to its renaming by TA Holdings in 1981 after TA Holdings acquired the remaining 51% from its initial 49% investment stake in ICR in 1961. In the year of 1984 the Zimnat firm got unified after the division of the amalgamated organisation license parting Zimnat Lion Insurance and Zimnat Life Assurance firm. The firm was formally known as ICR prior to its renaming by TA Holdings in 1981 after TA Holdings acquired the remaining 51% from its initial 49% investment stake in ICR in

1961. Zimnat, concluded the previous 15 years and has finally accomplished to diversify into the asset administration, micro finance and medical aid respectively.

1.2.2 Organisational Structure

Buchman and Huczynski (2004) characterized a firm's structure as a system that announces the connections and activities that control, arrange and persuade the representatives co-operating so to accomplish authoritative objectives. Wolf (2013) mentioned the three main types of organisational structures namely, the functional organisation structure which is usually called the bureaucratic organizational structure, which creates divisions within the firm based on specialty, also the divisional company structure which refers to firms that structure their leadership according to different commodities or projects or allows for much more autonomy among groups within the organization and lastly the matrix organisational structure which groups workers by function and commodities simultaneously and also it frequently makes use of teams of employees to get the work done, so to take merit of their strengths, and also overcoming their weaknesses, of decentralized and functional forms. The accompanying graph is the functional, hierarchical diagram for Zimnat Life Company.

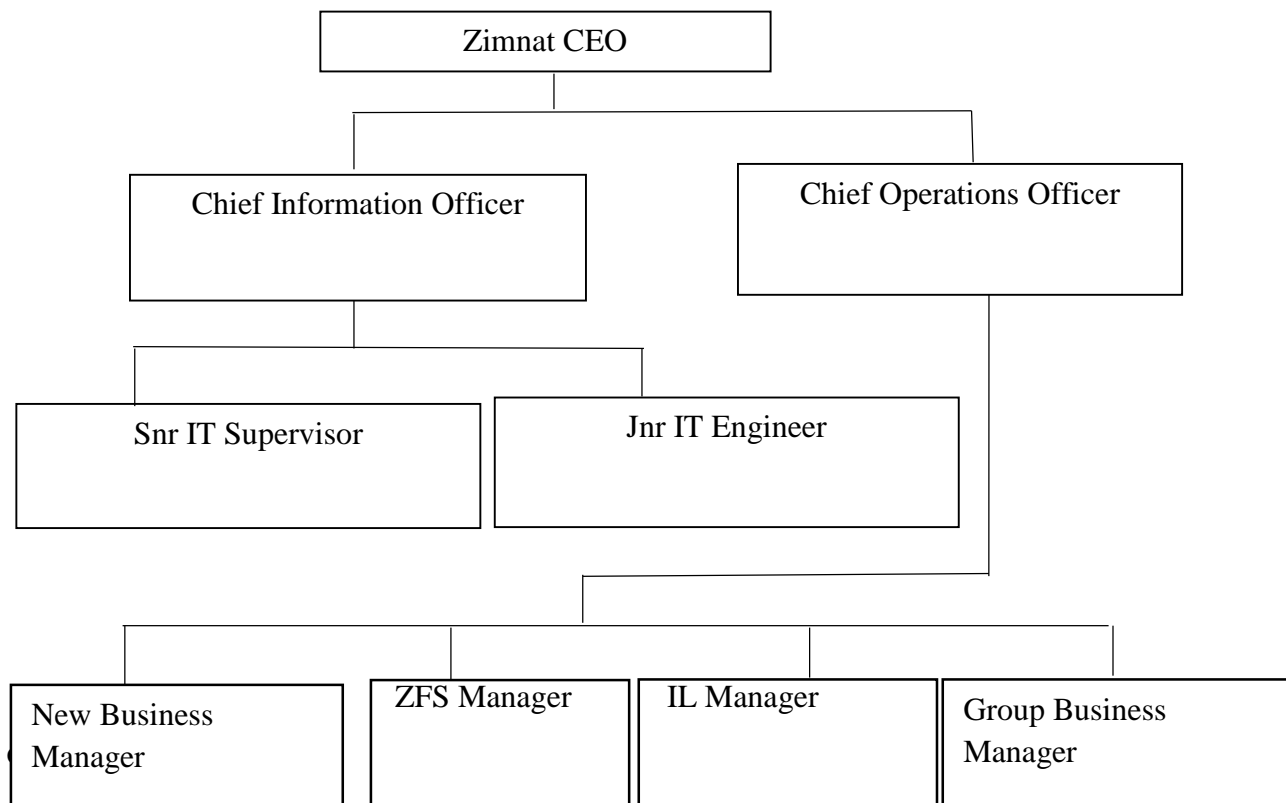


Figure 1.1 Organizational Structure

a) Vision Statement

Top Non-profits (2011) defined a company vision as a statement or term that describes the clear, inspirational, medium-term and long-term desired change that results from the organisation’s or program’s work as a whole. The vision for Zimnat Group clearly is to be the energy brand of choice every day in Zimbabwe, the region and beyond.

b) Mission Statement

Holland and Kelly (2007) defined the mission statement as the short statement of the organisation's purpose, that identifies the objectives of its specified operations, the kind of commodity or service it delivers and its primary clients or market. The mission statement for the Zimnat Group Holding states that “every day, we will focus on serving our customers with commitment to excellence through optimization of our technology base and innovation, as we deliver quality products in a safe environment”.

1.3 Problem definition

With the bureaucracy involved, the movement of paper work to access client details from office to office is very time consuming. It suffers from poor inter-provided communications channels and coordination amongst its departments in the recording and keeping track of updated records and notices which reduces efficiency and effectiveness through the time taken to pass messages throughout the organization. The systems allow the premium clients to purchase their policies with a full amount with no accredit premium payoffs, thus a one transaction, one payment approach. Reports, client documents and transaction or payment records are kept and filed in a paper file at the New Business Department using the paper pen approach, thus affecting speed and painting a dark profile of the firm by the customers due to high time taken in serving a particular client. The Human Resources management does an employee trail management operation using the confidentiality documented forms stored at the Information, Communication and Technology offices so to know the current workers present. An online email system known as Zimbra hosted at the premises is used for emailing and the passing of notifications across the organisation, which tends to be very slow in response time when being used by a large number of users, that is, the general and salesmen employees.

1.4 Aim of the research study

To design and develop an Individual Life Assurance Premium System that introduces an automation in data capturing, credit control management for credited premium payoffs, report generation for premium cover and an online portal to aid communication for Zimnat Employees.

1.5 Objectives of the research

Deri (2008) defines objectives as the outcomes that are expected from a study. Individual Life Assurance Premium System objectives are listed below.

- To develop a profile tracking system to accredit premium payoffs.
- To enable an automated trail and recovery of the funds records entered over time and a report generating tool for reference by the management for business growth measuring.
- To design and develop a real time web-chatting platform, for the employees to interact with each other and enable fast diffusion of instructions and notices made throughout the organization.

- To enable an automated human resources employee, trail management functionality.
- To allow and enable a client documentation gathering tool for verification by the administrator.

1.6 Instruments and methods

When coming up with a good and effective web based compliance data storage or database, the accompanying tools were to be utilized:

- **JavaScript**

Haverbeke and Marijn (2011) defines JavaScript as a interpreted compiled programming language tool with a set of first-class functionalities. It is well known as a scripting language for Web pages and many other non-browser environments. It is also a dynamic language, prototype-based, supporting object-oriented, multi-paradigm, imperative, and declarative.

- **PHP**

Dixit (2007) stated that it was created by Hypertext Pre-processor previously known as Rasmus Lerdorf Personal Home Page. It is a programming tool nowadays extensively used as an open foundation or source generally suitable for the web improvement and can also be entrenched into the HTML according to

- **MYSQL**

It is a firm catalogue which is very user friendly and also a popular database tool when functioning with sites that have ever changing resources according to Mass (2002). It runs virtually on platforms including Linux, Windows and UNIX.

- **WEB HOSTING SERVERS**

It is a software package that makes use of the Client(Server) prototype and the hypertext Transfer Protocol (HTTP) server program files that form the web folios to web clients and consumers, Robert Cailliau (2010).

1.6.1 Methods of Data collection

a) Questionnaires

Mellenbergh (2008) stated that this is a method that comprises of the preparation of organised set of queries using the paper pen approach underneath review, with sufficient space provided to put up the replies and

the answers provided or to be made. Questionnaires are to some extent seen by many people as biased data collection tools since relevant data is given not whole heartedly.

b) Interviewing

Green (2015) stated that this is the most recycled data collecting means in search of information and is the most useful amongst other fact-finding methodologies. In these interview sessions, the oral data concerning the current system behaviour is acquired. However, to a lesser extent, facts may be handed over in a pessimistic due to the fear of unknown since it's a general issue that the worker might feel trapped by underestimating how the way things are done.

c) Observation

Peter (2011) states that this technique involves spending a lot of time within the system or an organisation under scrutiny, observing or gaining first hand data. There is great need in seeing the working staff operating normal on any day, and eventually taking into account the problems from a correspondent's view.

1.7 Justification for the study

Wolf (2013) defined the justification procedure as a process about endeavouring to reveal why there is need to make use of a particular answer for the issues that have been depicted in the problem definition. This system will enable fast and efficient employee trail analysis of firm's employees by the audit and human resources management. It will enable the clients to pay their premiums on credit, thus can draw more clients to be part of the organisation and above all, increase revenue. The time consciousness will be greatly appreciated by the clients being served. File recovery, report generation and transaction storage will result in quick delivery of services to the clients and less burden to the cashiers and New Business Department in the recording and filing procedures. The proposed system aims to smoothen the work done and reduce the actual transaction waiting time. The employees will interact more and gain a sense of belonging to the organisation through the messaging platform and also quick diffusion of notices and instructions within the organisation.

1.8 Conclusion

The newly proposed system is appropriate to be the viable problem solution due to the merits provided in relation to the workers and the firm at large. This technological advancement does not only make it easier for the tasks done by the cashiers of the Individual Life and Finance department but greatly saves time in the long run by avoiding long queues whilst waiting for hard-copy receipts. The chapter that follows is the

planning stage which is directly concerned with the feasibility studies and above all, the practicality of the system.

CHAPTER TWO: THE PLANNING PHASE

2.1 Introduction

Cooper (2015) defines the planning phase a phase that concentrates on the appreciation of activities or series of actions and the processes basing on the timeframe anticipated or estimated for the project. These processes will be given specified timeframes and allocated endpoints or using display methods, namely the Critical Path and Gantt charts method. The information collection methodologies are to be discussed, paying much attention to the analysis of both the tangible and non-tangible merits. A wide range of feasibility studies namely technical, economical and operational are to be carried out to so determine if it is worth it to pursue or forward the undertaking. Some risk analysis methods are also to be used to react proactively against foreseen and unforeseen system threats and failures. The risk analysis greatly assists in locating the definite and potential risks likely to be encountered during the project.

2.2 The business value

According to Rodgers (2010), business value refers to the likelihood occurrence of benefits expected to accrue to the firm that will positively impact to its representatives in business. The system shall help the employees under Zimnat as a whole, through an online chatting platform through message exchange and also for the premium department, managed by the Individual life department, where customer premiums are managed allowing the automation of the processes involved in payment and recording of the transactions. The concept involves carrying out the cost benefit analysis and declare the merits which will be positive to the Zimnat Financial and Social stages, if this expected system is to be introduced into reality.

The major tactical benefits are:

- Zimnat, Individual Life: The outlined system will be able to assist in automating the premium payment and allow the credit automation function allowing the Zimnat Life Assurance customers to pay for their premiums in batches over time.
- The system will allow the employees to chat online in real time, so to eliminate the divisions currently at work through differences in departments worked in.
- The system shall enable privacy through creation of groups on the online platform thus data or information can be protected by the respondents that are supposed to see it.
- The system shall enable easy maneuver in employee trail management which is carried out annually by the human resource and audit team.

2.3 The feasibility study

Corfu and Kastenholz (2008) defined feasibility study as a series of activities that helps in outlining why the clarified or proposed system should be constructed, ascertaining whether the specified goals are achievable within the prevailing financial, economic, organisational and technical constraints. One of its aims is to outline if the overall costs to be encountered by the system as per its specifications are realistically comparable considering the project's expected merits. It composes of the operational feasibility, economic feasibility, social feasibility as well as the technical feasibility. It should be highlighted at this stage mentioning that despite the systems benefits, the Individual Life Assurance Premium System is an actual opportunity to catch up to the current technology forwardness, also. A feasibility study clarifies on the following:

- To see if the system contributes to the firm's objectives and anticipated outcomes.
- To see if the proposed system can be implemented from the current technology and within the outlined budgets.
- To see if it is possible to integrate it with other present systems at the organisation's premises.

2.3.1 Technical study

James and Donald (2008) describes technical study as a study that puts in place the technological co-relationship through joining the currently available technical resources from within the firm and the projected technical requirements of the development of the newly proposed system. In terms of technicality, the project is feasible enough if the following properties are to be obtained:

Table 2.1: Hardware requirements

Magnitude	Element	Provisions	Standing
1	HP Server	<ul style="list-style-type: none"> 1 TB Hard-drive. 	This commodity is not available
1	Backup Server	<ul style="list-style-type: none"> 500GB Hard-drive. 	Currently not present
2	Laptop	<ul style="list-style-type: none"> 500GB- 1TB Hard-drive. 4-8GB RAM. Quad Core processor or better. Speed of 1.8 GHz or greater. 	Laptops are not available meeting the minimum specifications.
1	Trendnet router	<ul style="list-style-type: none"> 2.0 to 2.5 GHz frequency range 	Currently not present
1	Trendnet switch	<ul style="list-style-type: none"> 24 port and Multi-mode fibre 	currently not available

Table 2.2: Software Requirements of the System.

Quantity	Component	Specifications	Status
1	PHP Language	Php version 5.6.25	Available for free on the internet
1	MySQL	Preferably Version 5.7.14	This is available for free on the internet.
1	Wamp server	Wamp64bit, version 3.0.6	This is available for free on the internet.

The technological aspects which require much attention concerning the final commodity involve the:

- Expert accessibility within the firm:

It accommodates the Information Technology team namely the System administrators, Analysts and Product Developers responsible for planning, analyzing, design, implementing, maintaining the system.

- Expert availability from external sources.

This considers the event of a crucial personnel exiting the firm during the course of the project thus, highly value Information Technology personnel will be needed so to avoid such a scenario where valid people will drop out in the course of action.

2.3.2 The economic study

Cooper (2015) defines the economic study as an activity that considers the actual costs to be incurred in the processes involving the development and operating or managing the system weighing it against the merits to be achieved when the application is operational. Therefore, there is need for the risks to be verified and also verify the cost-benefit analysis to contrast and compare the merits with the actual costs. Thus, the available economical costs can be sub-divided into development and operational costs.

a) The development costs: Connolly (2010) states that these are those costs that will be injected in the first or initial developmental stages of the project.

Table 2.3: Development costs

Development cost	Quantity	Amount in US\$
HP server	1	2000
Backup server	1	1000
Laptops	2	3000
Trendnet router	1	1300
Switch	1	1150
Total cost charges		8450

a) The operational costs: Garrod (2006) defines these cost as the costs incurred for operating that new system and are also termed support costs. They co-exist in the use and utilisation of the proposed system.

Table 2.4: Operational costs

Operational Cost Description	2019 (us\$)	2020(us\$)	2021(us\$)	Total(us\$)
Hardware maintenance	600	350	260	1210
Annual application upgrade	1000	900	400	2300
Training of Users	300	100	60	460
IT services	500	300	80	880
Total Operational costs	<u>2400</u>	<u>1650</u>	<u>800</u>	<u>4850</u>

2.3.3 Benefits

According to Moss (2016) a benefit is an entitlement, constructed under an insurance policy or something of value or usefulness in general. Reimbursements can be classified into classes namely tangible benefits and intangible merits. Below are the tangible and intangible benefits which are likely to be encountered in the development of the system.

- a) **Tangible benefits:** Garrod (2006) defines tangible benefits as advantages and preferences weighed in fiscal esteem, that are achieved through the utilisation of the system. They are essential to the financial administrator in settling speculated choices (Lucy 2002). Some of the substantial merits of the system are listed below:

Table 2.5: Total Tangible benefits

Description	2019(US)	2020(US)	2021(US)	Total
Reduced recurring costs	\$500	\$750	\$1000	\$2,250
Time enquiries reduction	\$400	\$600	\$800	\$1800
Reduced labour	\$660	\$1000	\$240	\$1900
Total tangible benefits	<u>\$1560</u>	<u>\$2,350</u>	<u>\$2040</u>	<u>\$5950</u>

b) Intangible benefits

Garrod (2006) describes these as impalpable merits which means that these are opportunities that are quite challenging to gauge in monetary value or related terms. Immaterial advantages are helpful to the financial specialists in settling speculated choices. Though to some extent, no individual can substantially trace and alternate them into budgetary value. Some of the immaterial advantages are as per the following:

- Economical firm's constructive point.
- Highly Enhanced customer satisfaction hence loyalty.
- Decrease of workload.

2.4 Cost Benefit Analysis

Brent (2006) outlines Cost Benefit Analysis CBA as appraisal of appropriate estimates of the merits that are achieved by the current or present system in relation to the costs encountered. It is assumed that a good system can be expensive in its initial formulation stages and thus, should yet result merits in the long term.

Table 2.6: Cost Benefit Analysis

Description	2019	2020	2021	Total
Benefits	(US\$)	(US\$)	(US\$)	(US\$)
Tangible benefits	1500	2000	1640	5140
Intangible benefits	60	350	400	810
Total benefits	1560	2350	2040	5950
Costs	(\$)	(\$)	(\$)	(\$)
Development costs	2000	1350	600	3950
Operational costs	400	300	200	900
Total costs	(2400)	(1650)	(800)	(4850)
Net Benefits	<u>(840)</u>	<u>700</u>	<u>1240</u>	<u>1100</u>

It reveals clearly that the merits are unquestionably greater than the stated costs that are to be encountered by the development and continuous maintenance of this system. The Individual Life System produces a net loss of 840 in the first year. The firm will face an optimistic, increment in constant benefits in the years ahead, thus as a conclusion, this project is worth pursuing.

Net Profit = Total Benefits – Total Costs

$$= 5950 - (4850)$$

$$= \underline{\underline{1100}}$$

The sum total of the amount to be generated as revenue after weighing the costs and expenses to be incurred is \$1100.

2.4.1 Payback Period:

According to Cranage and Lambert (2014), it is the time taken or needed for the project itself to payback its speculated amount or to equal, namely the investment encountered. It is illustrated by the common rules that business projects or undertakings with the shorter pay back periods are first preference when compared to activities or processes with longer payback time span. The sum of costs related to the development of the system is 4850 will be returned in a period of

$$PBP = 12(1100/4850)$$

$$= 12(0.2268)$$

$$= 2.72 \text{ years}$$

The time needed to pay back is 2 years and 8 months.

2.4.2 Return on Investment:

According to Cranage and Lambert (2014), return on investment measures the ratio between the net profit and net cost of resources after investment. The revenue sum and gains are isolated by the anticipation. A high ROI reveals that the investment's gains more compared to the cost met. The formula is as follows:

$$\underline{\underline{\text{Average Annual Profit}}} \times 100(\%)$$

$$\text{Total Investment}$$

Total Average Profit = \$1100

Thus, Return on Investment = $\frac{900}{1920} \times 100(\%)$
 = 46.875%

The 46.875% shows a positive Return on Investment proving that the project being undertaken is profitable. The return on capital invested proves to a doable project through certainty as shown above. The feasibility study proves that the presentation will carry plenteous merits and merits to the firm and its investors in budgetary value.

2.4.3 Net Present Value (NPV) Analysis:

According to Cadle and Yeates (2008), net present value analysis as a study of the variation between the present value of cash inflows and cash outflows over time. All estimated forthcoming loops of gains are connected with a discount factor that will preview their present value as an optimistic incentive in the time to come. Anticipated charges are expressed and adjusted in reference to dollars thereby paying special attention to the time value of money. However, this methodology will make use of the interest rate of 15 % over 3 years due to the anticipation that inflation will rise by 15% or less.

Table 2.7: Net Present Value

Year	Net Cash Flow US \$	Discount factor 15%	Present value US \$
0	(1920)	1.000	(1920)
1	2000	0.870	1740
2	3400	0.756	2570.40
3	4000	0.658	2632
NPV			8862,40

Formula: t: years,

r: interest rate.

Net Present Value = $\frac{1}{(1+r)^t}$

The net value of \$8862.40 proves the that the system is good for initiation, thus concluded as feasible.

2.3.3 Social Feasibility

Rodger (2005) defines social feasibility as an evaluation of how efficient the system will portray as far as the element of socially element impacts on the human resources in the firm. The introduction of this new system will minimize the use of paper work which was a major issue to the employees in terms of time and service delivery to the clients. The system will minimize the time taken in the diffusion of notices and instructions from the management. The workload involved in employee trail management will be minimized through the development of the application. The system will allow customers to accredit their premium payoffs so to finance opportunities for them. However, this change in the operation of the business will affect some few individuals and some positions in the firm will be lost. That will be a negative impact to the society as a whole. Therefore, the social feasibility previews that the application should be implemented as it benefits more and affects a few in the society.

2.3.4 Operational feasibility

Boehm and Ross (2013) stated that the operational feasibility decides the sum of the planned project correlation with basic business environment and the objective and futuristic aims of the firm. Thus the future, proposed system fits well into higher aims and vision of the firm as it wants to be a major national insurance player in the industry. The proposed system is greatly viable as compared to the current manual system and should aim at improving the time spend at attending to customers, preservation for their records, communication diffusion within the organisation.

Training: sufficient training is to be given to all members of the Zimnat Holdings and also extra efforts to those who will work directly in relation to Life Assurance Premium Services, namely the Cash Office staff of the finance department.

Time: The system will therefore reduce the time consummation by the employees in serving the clients and also the diffusion of notices within the organisation.

Availability: Information resources are to be available on the website at all times.

2.4 Risk analysis

According to Boehm and Ross (2013), risk is the chance of threat of liability, damage, loss injury, or any encountered negative occurrence of events caused by both internal or external vulnerabilities that can be reduced through pre-emptive actions. Risk factors hinder the smooth development and implementation of the system. The analysis can get complicated and complex as there will be need to come up with detailed summarised data such financial data, project plans forecasts, security protocols and other relevant

information. Once identified, the project’s risks need management. Thus, risk management is the process by which the identified risks are solved and/or eliminated. The following table shows identified risks and ways to solve them:

Table 2.8: Risk Analysis table

Risk Kind	Probability	Mitigation or Resolution
Threats such as viruses, hacking and worms	Medium	Anti-viruses, windows defender and the use of strong passwords will be used to avoid unauthorized entry into the system.
Difficulties in maintaining and restoring the application after a crush	Medium	System support is provided for a couple of months until the users is used to the running system.
Insufficient resources	Medium	A budget with a list of resources was drafted and presented to the management to avoid shortfalls in the creational process.

2.5 The Work Plan

Romney (2012) defines the work plan as a structure that records and regularly tracks all tasks require accomplishment over the lifecycle of the system project. It outlines the tasks and their expected outcome durations. The development lifecycle of this system will be used throughout the stages of this project. The tasks and durations are to be shown in the time allocation table stated below.

Table 2.9: The Work Plan

Tasks	Start date	End date	Duration (in weeks)
Introduction	24/02/18	10/03/18	3
Planning	10/03/18	07/04/18	5
Analysis	05/04/18	19/04/18	2
Design	19/04/18	17/05/18	5
Coding	18/05/18	07/07/18	6
Testing	07/07/18	9/08/18	5
Implementation	10/08/18	24/09/18	6
Maintenance	24/09/18	25/10/18	4

2.6 The Gantt Chart

According to Langdon (2005), a Gantt chart is as a blueprint that reveals the logbook time frame or table for the assignment. It shows the processes in their appropriate areas with their relating time. The chart for the Individual Life System is as follows:

Table 2.10: Gantt chart

Months	1	2	3	4	5	6	7	8	9	10	11
Introduction											
Planning											
Analysis											
Design											
Coding											
Testing											
Implementation											
Maintenance											
Documentation											

2.7 Summary

After conducting different analysis techniques such as feasibility study and risk analysis, the research proceeds to analysis stage of the existing system to preview an insight on how the system operates. The cost based analysis showed that the benefits are greater than the costs. The risk analysis also showed that the system has lower risks followed by the work-plan that outlined the schedules to be completed in the project. The next chapter that follows is the analysis phase that will analyse the current existing system.

CHAPTER THREE: SYSTEM ANALYSIS PHASE

3.1 Introduction

According to Rodgers (2010), systems analysis stage composes of gathering summarised factual data, acquiring knowledge of the processes involved, locate challenges and suggesting methodologies for improving the system functionalities. It includes the study of the business processes, the collection of operational summarized data informs of data in and outflow, locating loopholes and evolving speculated outcomes for by-passing the specified weaknesses and threats of the system. System analysis also involve the subdividing of difficult or complex process involved in the entire system. Some of the major goals of taken into consideration in systems analysis are to locate responses for business process, mainly by answering the, what, how, when, who, when, why and how questions of involved in improving the system. It is more like a thinking process and accompanies the creative skills and abilities of the System Analysts. The outcome of this is the logical design of the system. It can also be classified as a series of processes that continue until a predetermined and acceptable beneficial outcome emerges. In the chapter, there will be the investigation of the current existing system, evaluate available alternatives with special reference to the outlined feasibility study, analyse and evaluate the existing system and the proposed system, outlining the constraints requirements analysis and providing a conclusion or summary. It is an important phase in the whole systems development cycle. The operations and functionalities within the current system will be looked at, how their processes link within and eventually how are these activities are to be coordinated.

3.2 Data gathering techniques

Potter (2003) proposes that it is the actual process of collecting and measuring summarised data on targeted class or elements in a predetermined or established systematic manner, that allow one to answer tolerably to relevant questions and eventually evaluating the stated responses. The emphasis is focused on acquiring accurate, reliable and good data collections to maintain and ensure the integrity of the research. Such methodologies may be focus groups, surveys, interviews, observations and questionnaires.

3.2.1 Questionnaires

Downes (2010) defines questionnaires as information gathering methodology involving a form with a carefully outlined or drafted questions presented to parties of interest to fill in. They solidify data requirements in cases where interviews and observations fail adequately to penetrate boundaries so to get data. The two types of questionnaires are open and closed-ended. The open-ended questions give the audience the opportunity to show their opinions in a free-flowing manner through the use of multiple

choice questions and when respondents are prohibited from choosing multiple choice answers are known as the closed-ended questions. They were provided with an option to fill-in the personal details or not which eventually ensured that there was no room for biased data to be obtained since there was anonymity thus provided insurance to the stakeholders that victimization would not prevail. The questionnaires were done during the break times, lunch and breakfast followed by any point in time were the employees were free.

The following are the merits and demerits considered when carrying out questionnaires as an information acquires or gathering tool at Zimnat as a whole.

3.2.1.1 Merits:

- They were very easy to fill in since the sentences were clearly structured.
- Great amounts of data were collected in a short period of time, from a pool of large respondents.
- Chances of bias responses were removed because the same set of questions were asked to all the respondents.

3.2.1.2 Demerits:

- There was no determined way to know or tell how much truthful and honest a respondent was in the answering process.
- There were variations in the interpretations of the questions and this eventually compromised the validity of the summarised data given by the respondent.

3.2.1.3. Findings

It was difficult to produce reports using the manual system. Since there was the use of the paper pen approach, no one had problems responding or answering the specified questions on the questionnaire. Many stakeholders namely employees in most departments within Zimnat were handed the questionnaires at different times so to accumulate uniform answers overall. It was greatly helpful to the analyst in obtaining tolerable and honest answers from the respondents.

3.2.2 The Interviews

Potter (2003) states that it is a purposeful conversation which occurs between two or more candidates that has the goal to accumulate or acquire summarized information. The three types of interviews are structured, semi structured and unstructured interviews. Unstructured interviews involve the use of unordered set of questions. In structured interviews there is the use of written questions well prepared for the interviewee and they save a lot of valuable and is sufficient to when acquiring necessary data. Semi-structured interviews are concatenated of the structured and semi structured interviews. The analysts used the structured method and both the employees, agents and supervisors underwent this interview.

There was progress in the interviews since interested candidates responded positively to questions which were asked. Much more focus was handed over to the individual life department and Information Technology to acquire raw and summarized data of the currently existing system and the expectations outlined with special reference to the proposed Zimnat Individual Premium Payment System. A transparent and clear picture or preview of the current system was drawn. The reasons behind the usage of the interviews were as follows:

- They are flexible since a question can be drafted or changed to suit the interviewee.
- They produce and provide data about how stakeholders emotionally feel about the coming up of the newly proposed system.
- They are done face to face and they therefore can assist in locating what stakeholders think concerning previously used systems.

The interviews proved fruitful and efficient, and eventually more information was disclosed or given by the interviewees.

a) Merits:

- Easy correction of speech prevailed. Any misunderstanding or mistake was resolved easily in those interviews.
- Easy to obtain summarized data concerning personal perceptions, feelings, and speculations or opinions.
- Response rate was great to the introduction of the new system being introduced at Zimnat.
- Incomplete or unfinished responses were followed up then and then.

b) Demerits:

- Time was lost in the preparing for those interviews.
- There was a likelihood chance that there could be bias in answering questions of the interviewer.

3.2.2.3 Findings

The interviewer discovered or find out that some of the employees were resistant to this change, since many thought that the introduction of this automated system would result in the termination of their positions, not knowing that its aim was to only make the job easier and faster, satisfying the engaged customers due to less time incurred in the delivery of services.

3.2.3 Observations

Horak (2007) defined observations as data collection apparatus that are directly related to watching the ways, such as responses and the distinctive procedures engaged in the day to day business conditions. The analyst utilized a perception methodology where the workers would be uninformed and the analyst would be watching them.

a) Advantages

- It was helpful to see what the individual life employees would do rather than relying on only the verbal messages or communication.
- They were relatively not very expensive as compared to other different fact-searching methods.

b) Disadvantages

- Other system processes took place after normal working hours, causing the schedule to be inconvenience for observation.
- Most employees feel uncomfortable during observations, thus as a result they may perform differently during the procedure.

3.2.3.3 Findings

These observations were carried out by paying a visit to the Finance department and the individual life department site, directly observing the premium policy transactions. The findings were recorded and analysed thoroughly to determine the design criteria. The technique allowed the visual opportunity to be observed concerning the system to sale confirmation and the reconciliation of the total sales for a given time period.

3.3 Analysis of the current system

A thorough analysis of the system was done in-order to have a good start about the data for input to the project. From the total fact findings, it previewed that the system being used by the Individual Life Department was however not fully computerised.

3.3.1 General description of the current system

Currently, the payment of premiums is verified manually by the students on attachment or by the New Business Manager in the Individual Life Department. Payment systems in Zimnat Premiums involves the payment of money by the clients(customers) on a once off payment. Insurance products namely the premium policies are currently being sold by manually recording in receipt books. These payments are then filed and handed over to the ICT Manager and the Business Development Manager. The receipts are then moved to the Registry room where they can be brought up in-case confirmation is needed by the Individual Life management or at the cashier office.

Notices are done on the email platform known as Zimbra which is greatly managed by the Information Communication and Technology. Messages are sent from the Zimbra platform and it is hosted by an external service provider. There is little communication between workers from all departments namely Zimnat Financial Services, Zimnat Motor Insurance and Zimnat Life Assurance due this poor structure. The process can also be complicating for the IT Students to create departmental groups on this platform since a lot of signatories and setting needs to be done correctly by the top management and confirmed by the external supplier.

3.3.1.2 Revenue remittance

The cash is remitted straight to the cash office or can be delivered by the agent after being handed over by the client. The client may also make a transfer via Ecocash, or swiping on point of sale terminals.

3.3.1.3 The data storing

All of the sales records and client details of are kept at the registry office and some at the new business department, where they are used as a database. The computerised excel documents has very little outdated sales history for the clients and their agents.

3.4 Process Analysis

Dennis (2011) defines it as the breaking down of activities that needed to manipulate the inputs, activities and output of a particular activity. It is normally used to increase the understanding capability of the works

to determine estimated targets for process enhancement through deducting waste. The activity diagram is needed when describing a complex system in smaller functional components termed activities. The major explanation behind their usage is the making sure that they replica the actual workflow behind the system being created. The activity diagram below shows the entities and events involved:

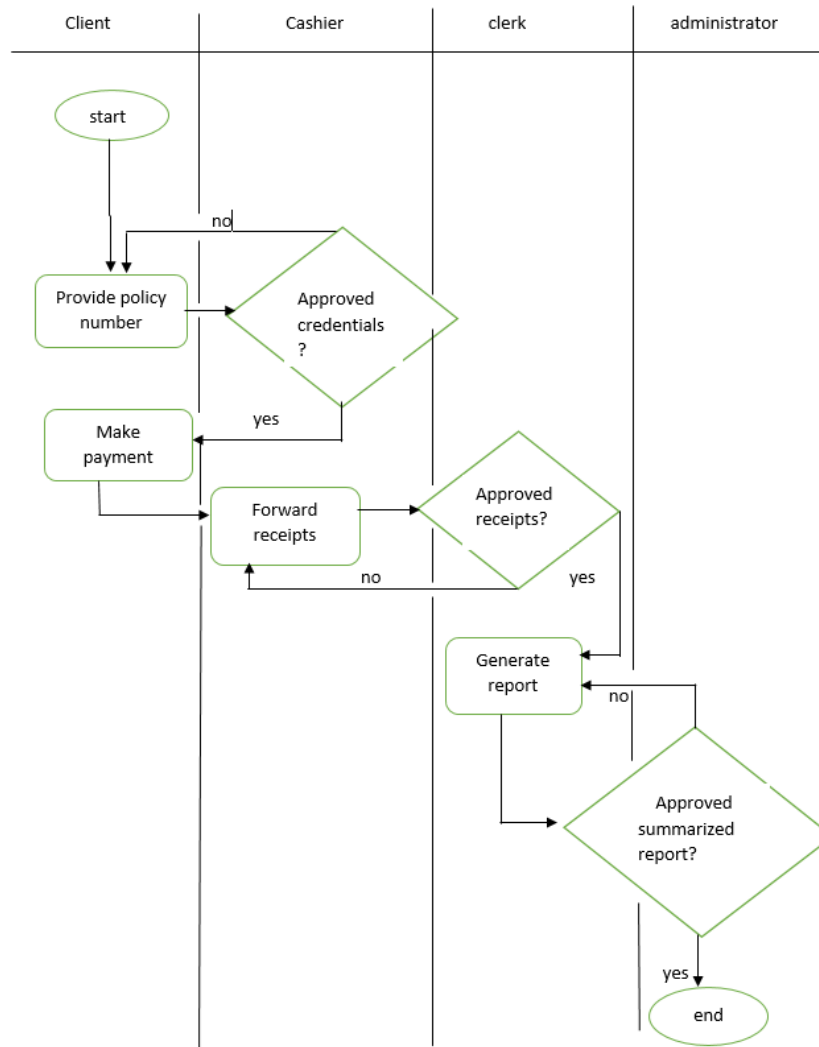


Figure 3.1 Premium activity diagram

3.5 Data Analysis

According to Rodgers (2010), data analysis as the process of cleansing, transforming and inspecting data with the aim of coming up with useful information, informing conclusions, and decision-making.

3.5.1 Context diagram

Choubey (2012) defined the context diagram as a depiction of the in and outflow of data through the structures of information systems in the firm. The system under consideration would be shown as a single high-level process with various relationships with other external entities. It shows the system of interest, its external entities, and the flowing of data between the external entities and the system. The following diagram is a typical context diagram of the existing system.

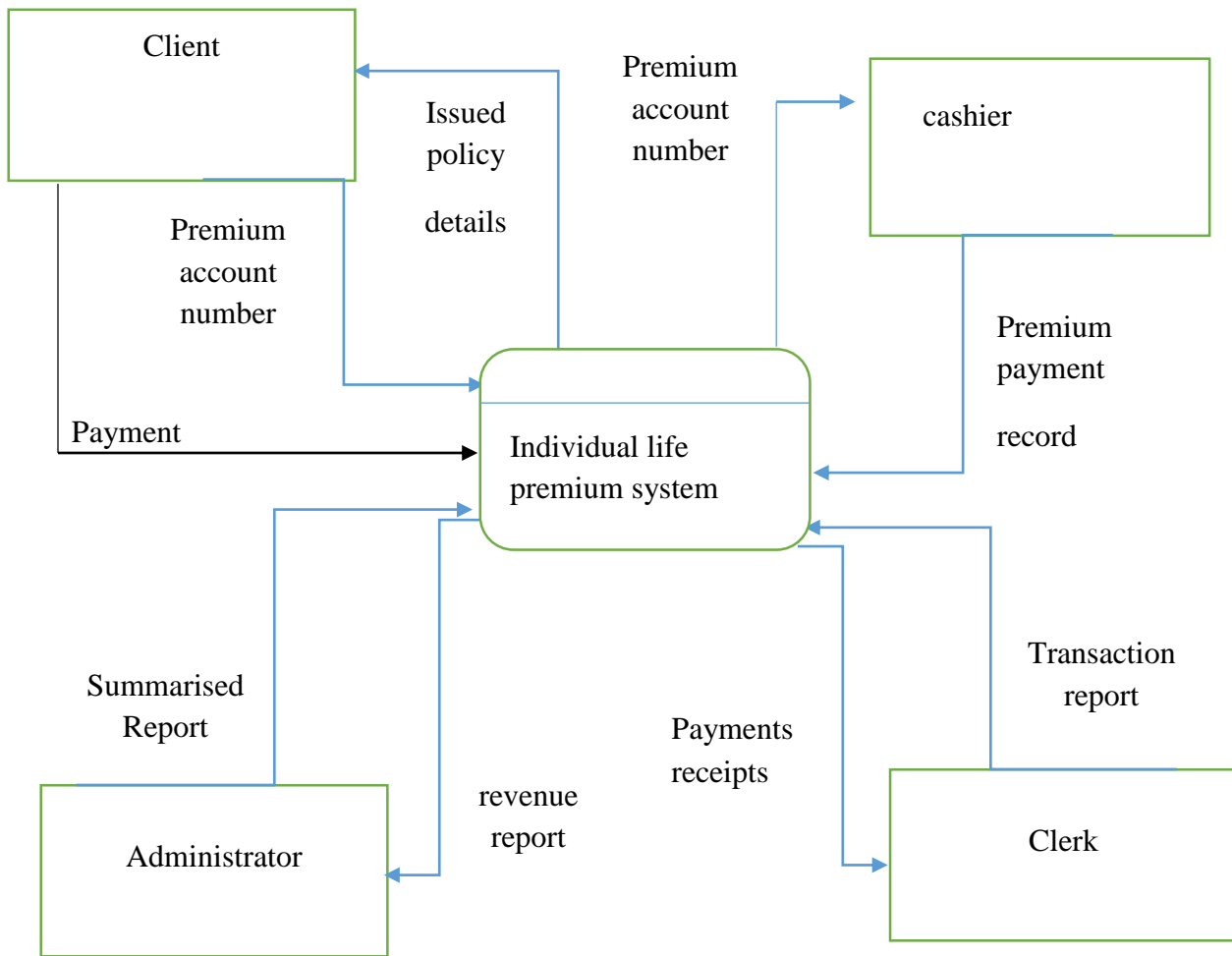
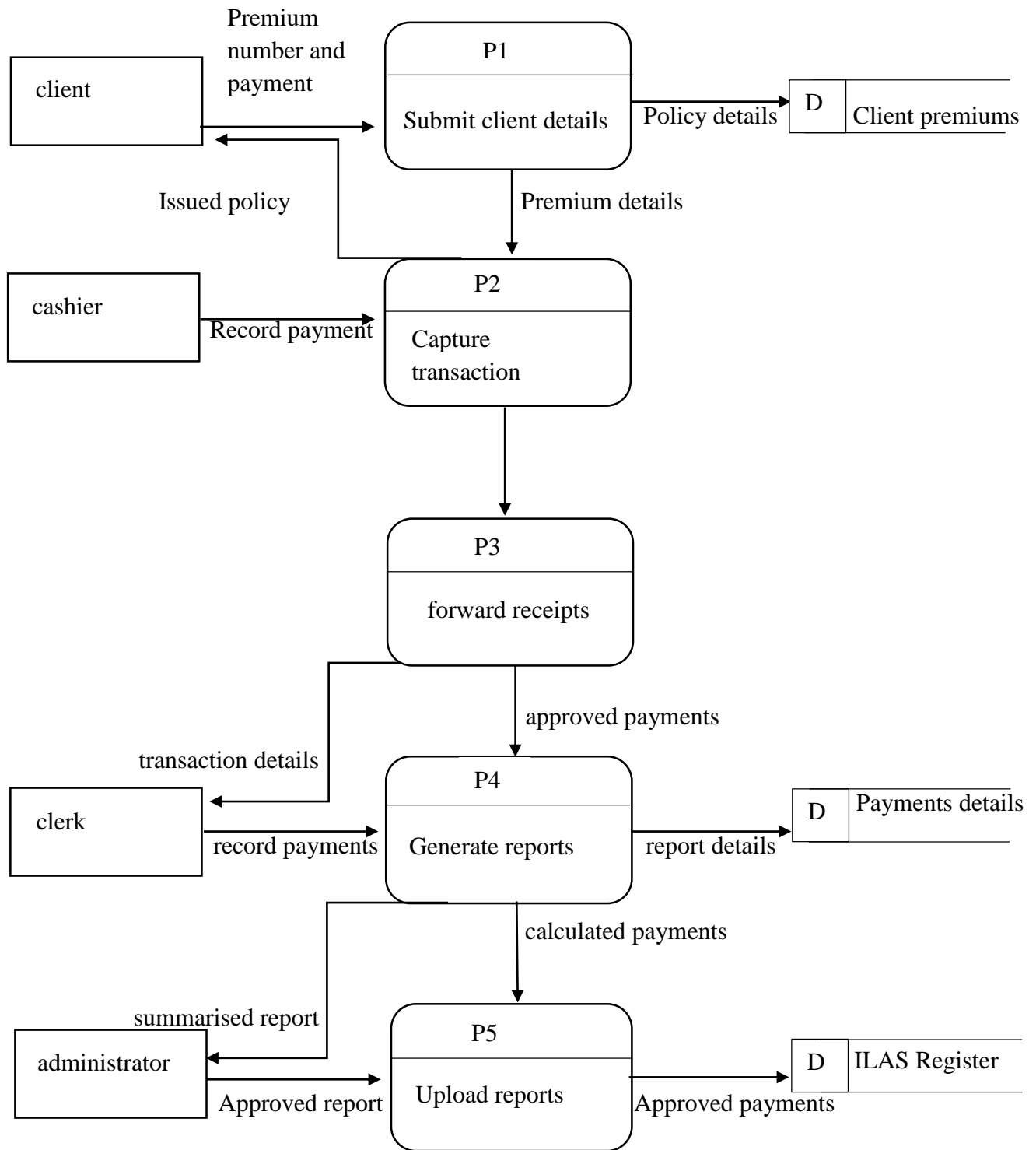


Figure 3.2 Context diagram

3.5.2 Data Flow Diagram of existing system

Scott (2015) refers to the DFD as a structural or graphical structure of the inflow and outflow of data within an information system. Therefore, it is the preliminary movement or step to create a total view of the particular system developed which will later be expagorated. It allows the understanding and knowledge increment of the interconnectedness of the system. When revealing data flows in the DFD, the symbols used are an arrow, a rectangle, a double square and an open-ended rectangle shape.



Key

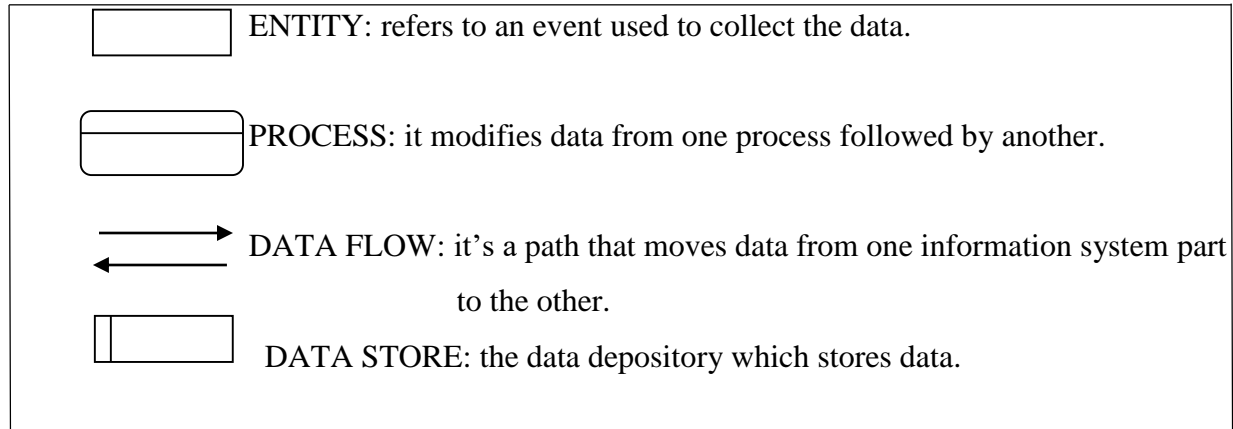


Figure 3.3 Data Flow diagram

3.6 Weaknesses of the current system

- Statistically, files/papers/documents usually gets misplaced thus delaying the execution of financial statements.
- It will require frequent updates so to cater for the high congestion caused by the employees.
- Remittance of the cash takes too long as some sales may probably remain unknown until when the agent attends to declare that sale.
- Tracking of uncollected funds becomes very hard due to seldom sales that may be forgotten and eventually become bad debts.

3.7 Evaluation of alternatives

The feasibility study assisted in selecting the most appropriate alternative that reduces costs and preview the possible option. The evaluation of existing and available choices encouraged the selection of the best option available so to create the perfect result. The methodologies in the development of the system consisted of the following:

- Outsourcing
- improving the existing system.
- In-house development

Table of 3.1 Alternative costs

alternative	Cost(us\$)
outsourcing	11000
Improving current system	5000
In-house development	9800

3.7.1 Outsourcing

Stair and Reynold (2010) outlines the outsourcing method as the series of activities where a firm purchases a system from outside/external suppliers leaving out the methodology of coming up with the same system within reach. The software development team will be communicated with and contracted to construct the outlined software application. This decision of outsourcing is strategic since it involves weighing options and insures the potential cost savings against the risks and consequences associated with the loss of control over the product or system developed.

3.7.1.1 Merits

- It encourages the user to concentrate on their core businesses and competencies.
- It reduces the fluctuations of the staffing that occur due to the demand for the application systems
- It lowers the developmental costs

3.7.1.2 Demerits

- The domestic software developers are expensive.
- The software package may fail to meet the needs of the firm.

3.7.2 Improving the current system

According to Alex (2007), the improving process includes the adding of features to the current functioning application. Another option is to deal with the current problems as a way to improve the current manual system. Therefore, there is enough room to introduce both, the online and direct payments modules.

3.7.2.1 Merits

- It is very easy to co-operate due to the availability of the developers at the firm and this can become very useful too, as part of maintenance to the system.

- Increased security controls through administration at the firm by the ICT personnel will be available therefore reducing fraud and improving confidentiality of the messages, chat groups and files.

3.7.2.2 Disadvantages

- In the event of upgrading, diverting may result in complications and a lot of time will be needed since the system is a bit heavily packaged.

3.7.2.1 Reasons for not opting for this alternative

- It is a short term solution due to the fact that as the agents continue to increase, the downfalls of the system will resurface in the long term.
- For the paper system, there is great need for more workers.

3.7.3.1 Advantages

- The firm will own of the final commodity and its services together with the knowledge gained in the construction processes.
- The application is tailored to the exact organisational needs.
- In-house developments reduce developmental costs.

3.7.3.2 Disadvantages

- This development is time consuming when compared to the purchasing of the application.
- There is limited knowledge pertaining to the programmers involved.
- High IT personnel requirement may lead to high overhead costs.

After a thorough evaluation and comparison of the three alternative solutions, in-house development was chosen. There are qualified professionals and technical expertise for the development and support of the system in the organization. The important considerations were the total costs of ownership (Table 3.1) thus the in-house development was adopted as the best.

3.8 Requirement analysis

According to Karl and Beatty (2013), requirement analysis refers to the processes involved in knowing user needs in a newly proposed system. It is the method of expanding the system's features. These features referred to as requirements should be detailed and relevant. This is a very delicate and important aspect according to the project manager.

3.8.1 Functional Requirements

According to Adams (2015), functional requirements involve the technical details, calculations, data manipulation followed by the processing, and other functionalities that define what a specific system is aiming to accomplish. The system is expected to reach and perform up to a certain stage or level which will be the part of the functional requirements stated and these will include inputs, processes and outputs, expected to be part of the system which include:

- **Online sales**
The system should support online sales of the premium insurance product by the clients and allow the viewing of the transactions as they happen.
- **Payments recorded.**
Display sales report according worker's requests should be in-cooperated and done by the finance department and stored in the database. All payments will be viewable.
- **Real Time message exchange.**
Users who participate in the Online chatting platform should be able to interact with other members of Zimnat nationwide online, in real time.
- **Verification and Validation.**
The system should consist of facilities for integration checks prohibit incorrect data entry before it's captured into the system.

3.8.2 Use Case diagram

According to Gemino and Parker (2009), it is a chart that is utilised while showing to basic parts and methodology forming the actual system. The fundamental parts are termed as "Performing craftsmen" who are individuals or a department and procedures as "use cases". The whole diagram demonstrates most of the distinctive active characters and how they co-relate together respectively.

3.8.2.1 Individual Life Premium use case

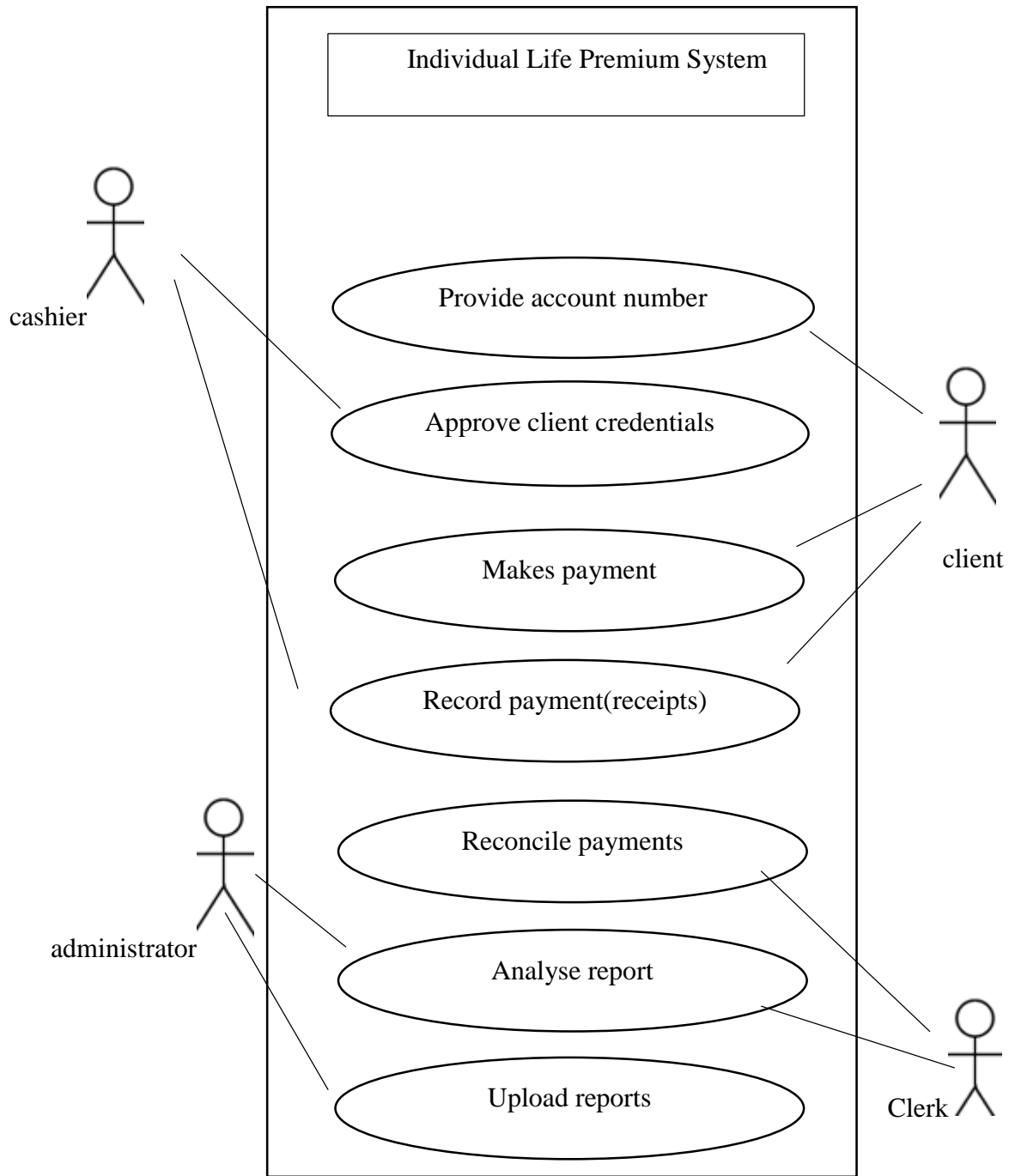


Figure 3.4 Premium use case diagram.

3.8.2 Non-functional Requirements

Robertson (2012) defined these type of requirements as the requirements that actually specify the criterion that concludes the operation of the software system rather than the specified behaviours. Non-functional requirements that are the worldwide minimum requirements on a software. They are the values that the program should portray when being designed. The list of the non-functional requirements are as follows:

- The software should possess error handling capabilities namely identifying inputs defaults.
- The system's performance is expected to be high.
- Reliable output should be displayed.
- A user-friendly interface should be displayed.
- It must possess features which makes it challenging in the event of hacking by an external entity through the encryption of passwords for the system users.

3.7 Conclusion

The chapter highlighted many data gathering methodologies and findings that were used. It explored various alternatives for system development, and eventually chose the in house project development way. The process and information analysis laid out in the chapter, represented the graphical view of the system and its information in and out flow, followed by the procedures which were made use of as the foundation of the discussion in requirement analysis. The follow stage is the system design phase that will preview the expected interface structure for the system.

CHAPTER FOUR: THE DESIGN PHASE

4.1 Introduction

The design phase provides understanding and procedural details necessary for implementing the software application by defining the processes, user interface and architectural design required to implement the system. The description and specifications of the application mentioned in chapter 3 will therefore be upgraded and implemented to the system together with the database specifications. It also is the transformation of the logical design into physical design system previewing exactly a series of actions or processes the system is expected to perform, also showing how the parts interact together. The design phase outlines the system are the Database design, Architectural design, Process design, Interface design design, Security design and the Test data design

4.2 System design

According to Springer (2015), the system design is the process that involves the definition of the features expected in the proposed software system namely the modules, architecture, components, various interfaces of the stated components and lastly the data inflow and outflow specified as per description of that system. The aim behind all this is to satisfy specified needs and requirements of the Zimnat Insurance organisation. Several approaches are viewed, so to convert these logical requirements and needs of the system to a physical one.

How the system will work?

- It will allow the introduction of a quick recording, retrieval and updating of the firm's customer credentials.
- For effective communication, the internal employees of the firm will be able to interact using an online chatting platform, which will enable quick diffusion of notices and important raised queries by the top management.
- The individual life premium system will provide an automated payment mechanism for premium service clients, which will enable the payment of premium policies through accredit payoffs.

- The system will also enable the Human Resources department to efficiently manage the employee records, through trail management for audit functions attached to the system.

4.2.1 Context diagram of the proposed system

Choubey (2012) defined the context diagram as the simplified preview of the upward and downward flow of summarised data through the information systems body in a firm. As a way to aid better understanding, the system under the consideration is viewed as a high-level procedure that shows the relationship amongst other entities, namely the (company groups and the data stores). Below is the context diagram for the proposed system.

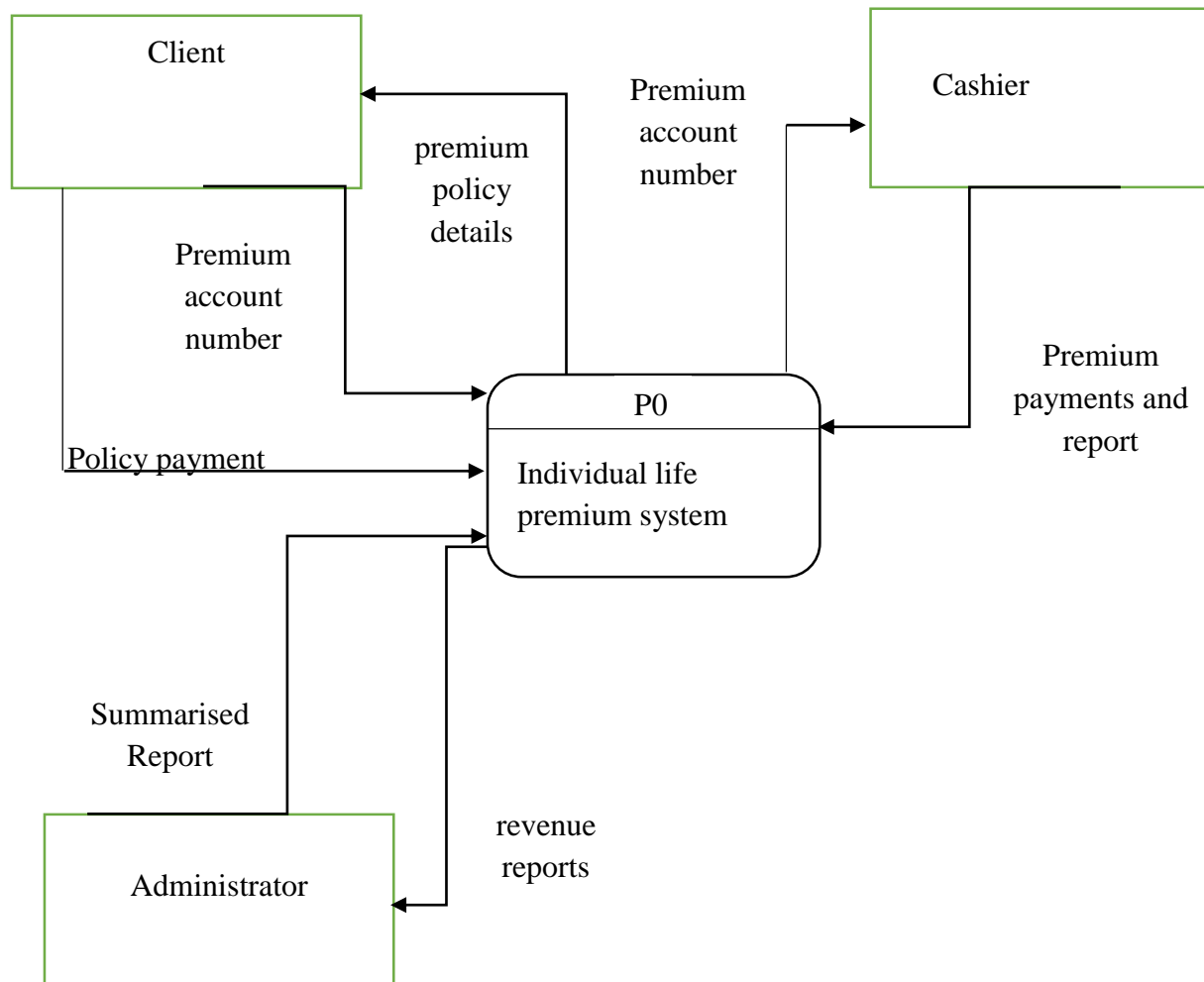


Figure 4.1 Context diagram

4.2.2 Data flow diagram for the proposed system

Choubey (2012) also defined the data flow diagram as the chart that is used to produce the system needs or requirements in a graphical form. This diagrammatical representation of the system and its coordination amongst the processes, data stores and entities, and it uses data flows to preview the data that moves from a particular point to the next.

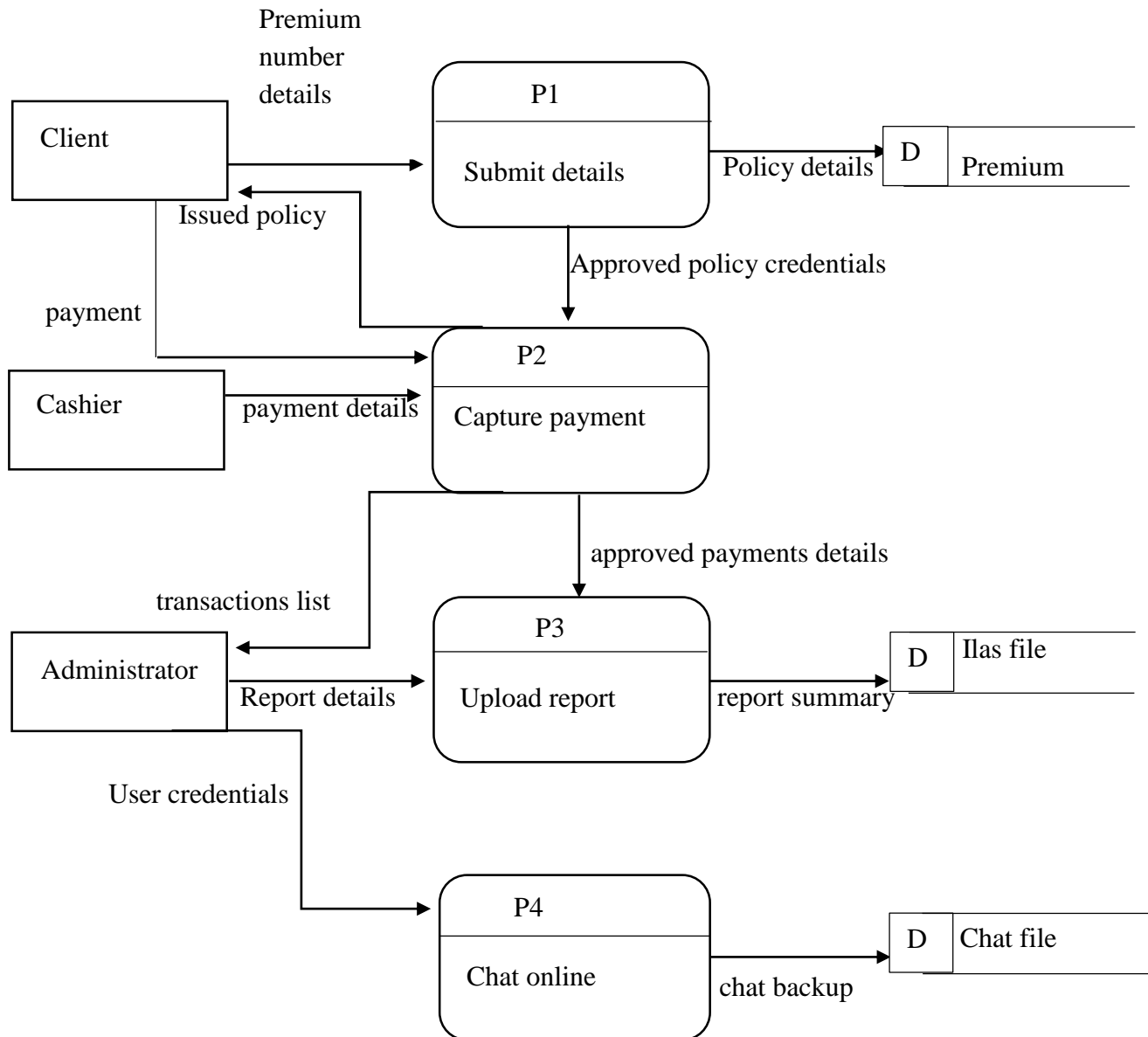
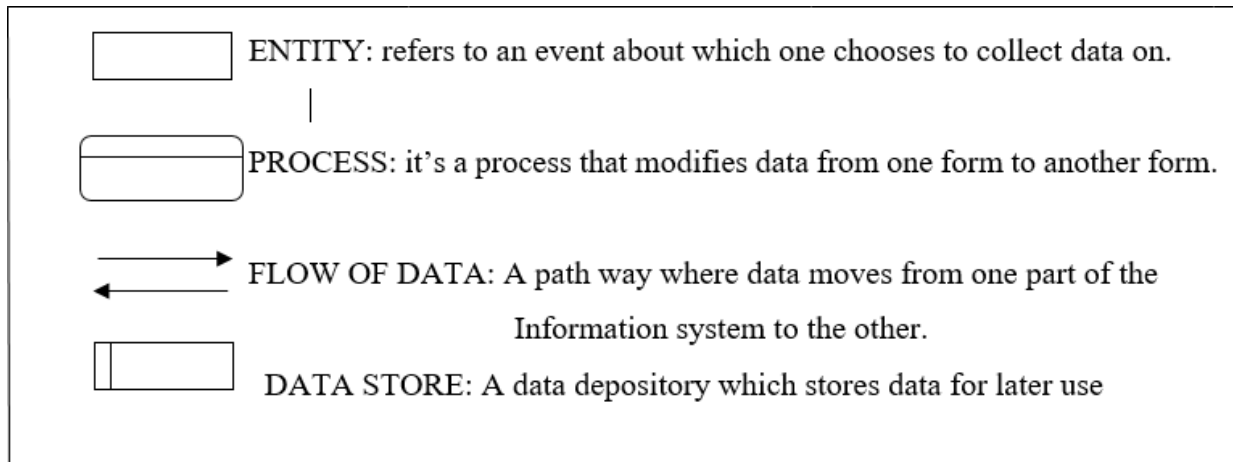


Figure 4.2 Data flow diagram

Key



4.3 The Architectural Design

Firesmith (2008) defines the architectural as the outlined the system's hardware and software properties used in the coming up of the system. This is the system's architecture that specifies the interaction of the system components so to efficiently and effectively implement business solutions. Further description concerning how the system designing is to be achieved is given, with the aim of coming up with the database together with the data communication state between the system's connections. Goals of this very stage, is to allow the system to operate on a reliable hardware ground and allow the backing up to be done on a regular basis. However, the system has to be in line with these architectural requirements:

- **The Worker's Machines-** it's the actual location of the graphical interface, programmed for the windows systems platform. There will be transfer of data with the database servers, querying for summarised data for the processing.
- **Network Cables-** They serve as the communication channels in Local and Wide Area Networks.
- **Servers-** These will be running on Apache Server version 2.4.23 for Individual Life Premium system. Apache HTTP Server 5.6.25 is very ease when it comes to matters of management and costs of ownership.

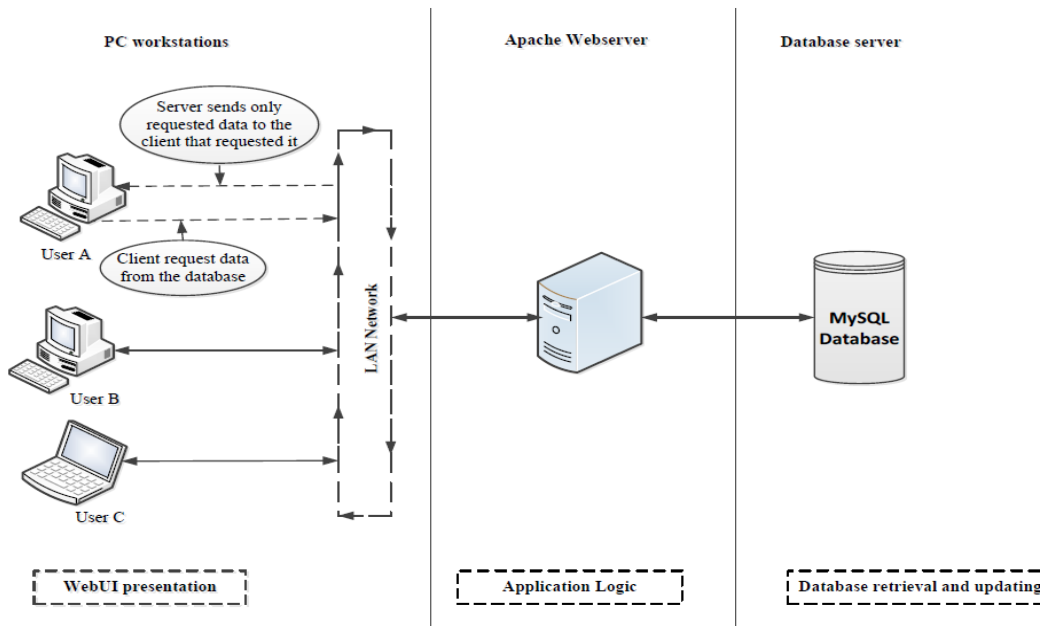


Figure 4.3 Architectural design
Adam (2010)

4.4 Physical design

According to Adam (2010), the physical design of the system's connection system is concerned with the transformation of user specifications collected from the various data gathering methodologies in a system. It relates the input and the output procedures of the system application. There is the laying down of the data insertion, the verification, processing, and the final display into the system. Thus the physical design outlines the technical and structural environment of the pre-defined system, which considers the hardware and particular ways of networking to be used which will be integrated into the existing LAN or WAN infrastructure.

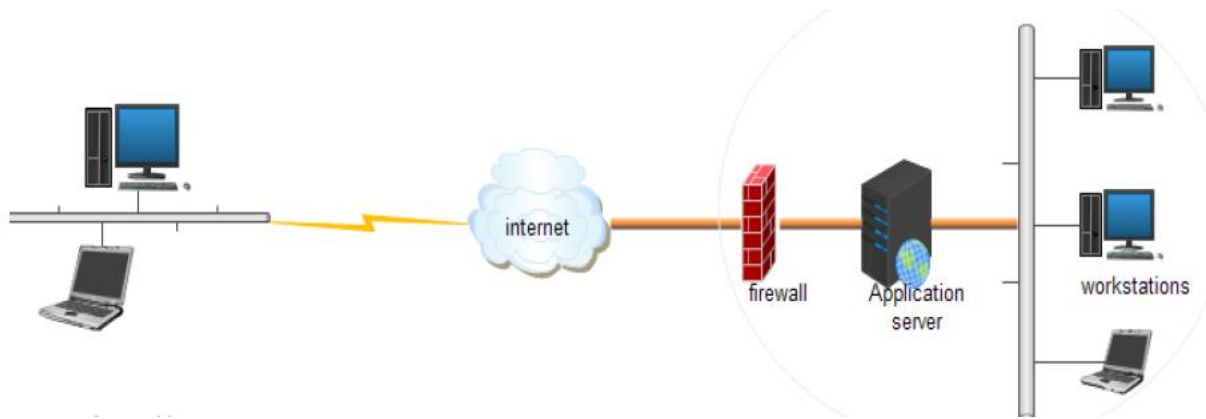


Figure 4.4 Network Design
Cooper (2015)

4.5 Database design

According to Toby (2011), the database is the class of arranged stored data that various users uses inside one or more firms. For the managing of information and processing, the database is the actual backbone for the system. The database should enable file/data sharing, originality, and enable multiple users or processes to access it at different time intervals and for that purpose, the MySQL database was chosen.

4.5.1 Database schema

Prashant (2009) stated that the data schema has the standards policies that governs the collection of raw data and its integration into the application software. It is another way of previewing the information and its schemas. The basic architecture of a database is termed the ANSI/SPARC model.

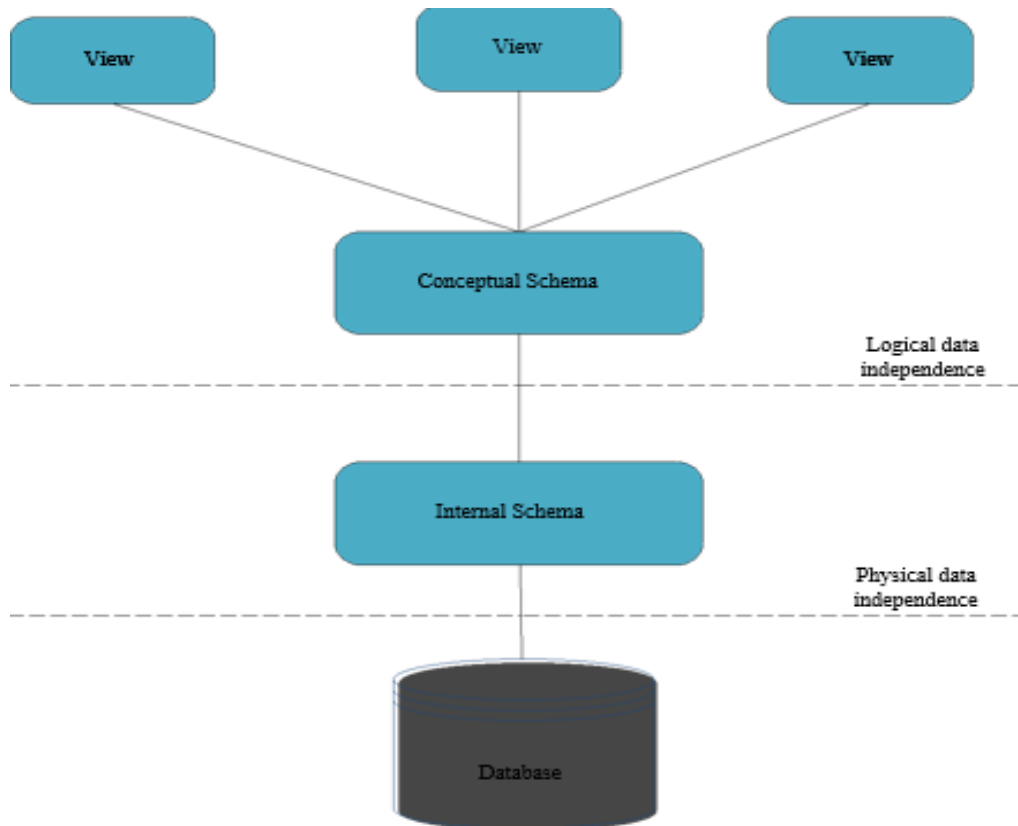


Figure 4.5 The ANSI SPARK model
Ben Linders (2016)

4.5.1.1 External view

Storey (2006) highlighted that the summarised data queried by the user of the system is displayed and used at this stage, leaving the rest of the data hidden. This focuses on the user preview stage of the actual database. A basic user will be having limited rights to view when compared to those who will be accessing and managing the whole database. All users will be having or viewing the same information, in various formats depending with what the user may desire.

4.5.1.2 Conceptual view

According to Gupta (2007), the community view of the database contains data and regulatory rules about the methods, types and structures of data used. It previews all relationships, attributes and entities of data present in the firm's database.

4.5.1.3 Internal view

Fankam (2008) refers to the internal view as the data definition level. The data in the database is described, specifically with a clear aim to be accessed by the database or system administrator.

This is a low level in the database and is usually presented in the language knowledgeable to the direct the administrator of the database.

4.5.2 Data dictionary

The database tables are a combination of rows and columns. The following database tables are found in Zimnat Individual Life Premium System.

Table 4.1 Client Table

Field	Data type and Size	Description
<u>userid</u>	Int (11)	Identifier
emailid	Varchar (35)	Employee identity
Branch	Varchar (50)	The secret key used to verify rights to the system
Joindate	Date	Transaction date
emailid	Varchar (255)	User email for the user

Foreign key: **userid**

Table 4.2 User Table

Field	Data type and size	Description
<u>userid</u>	int (11)	Unique identifier of the Student
Surname	Varchar (30)	The second name of the person
Name	Varchar (30)	Unique name.
Password	Varchar (30)	Secret key.
lastlogin	Date	Current Year/month/day.
emailid	Varchar (30)	User email for the user.

Foreign key: **emailid**

Table 4.3 Chat Table

Field	Data type and size	Description
<u>chatid</u>	int (11)	Unique identifier of the chat
userid	Int (11)	Participant identity
chatroomid	Int(11)	Unique identity of chatroom
message	Varchar (200)	Message
Chat_date	Date	Current Year/month/day

Foreign key: userid

4.5.3 Enhanced Entity Relationship diagram

Gray and Larson (2011) characterised the Enhanced Entity Relationship diagram as one of the graphical diagrams which portrays the system entities and their respective relationship with each other. This is a descriptive high-level data modelling methodology used to gain knowledge of the program needs. They give a graphical and visual aid together. The table below represents the system's entities with their corresponding attributes:

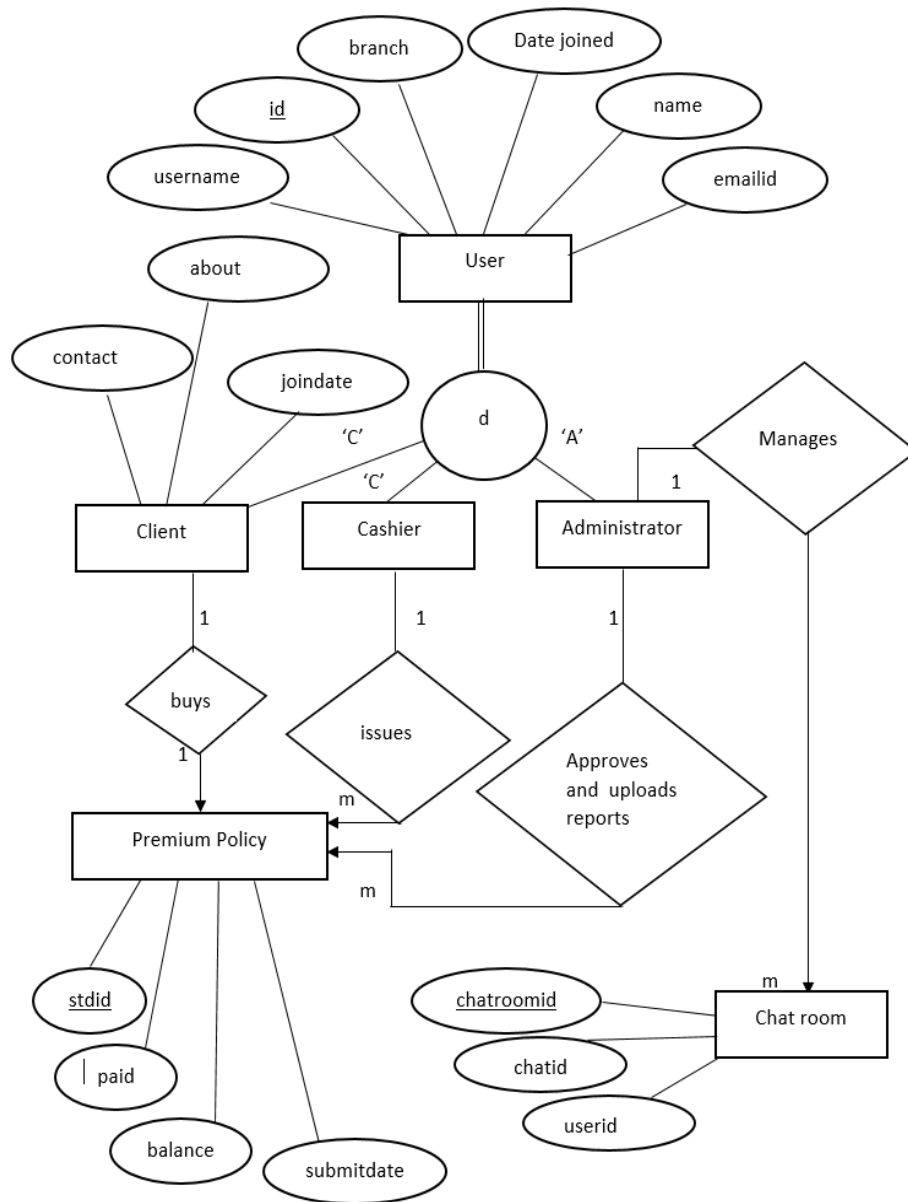


Figure 4. 6 Premium entity relationship diagram

4.6 Program Design

Fowler (2003) defines the process design as a stage previews the various series of processes that are carried out by the system. It assists through the specification of the actions considered by the developer soon before coding in a particular specified language. The application’s conceptual modelling is previewed by the package, class and sequence diagrams.

4.6.1 Sequence Diagram

Felici (2011) defines Sequence Diagrams as interactive diagrams that provide detail on how operations are carried out. The sequence diagram as a method or a collaboration of objects collaborate over time. The key structures of the sequence diagram are the participant which is an entity and the message which is also the data exchange tool or carrier between participating entities. This diagram provides a high-level preview of the control flow patterns within the system.

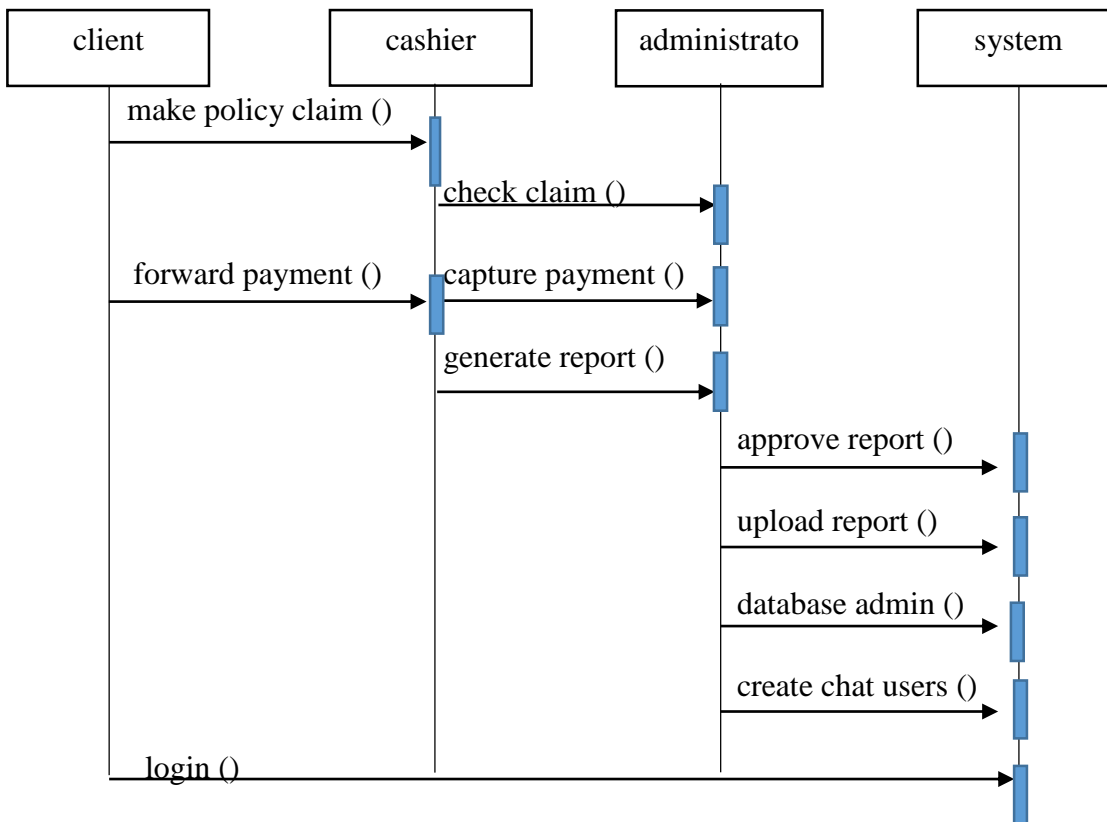






Figure 4.7 Sequence diagram

Key

Symbol	Description
	Entity
	Activation
	Sending message
	Returning message

4.6.2 Class Diagram

Geoffrey (2011) mentioned the purpose of the diagram, stating that it is to reveal the kinds of raw and summarised data that is modelled within a system. It shows interfaces, classes, generalisations and associations. The actual idea behind the usage of the class diagram was to clarify the very classes inside a particular model.

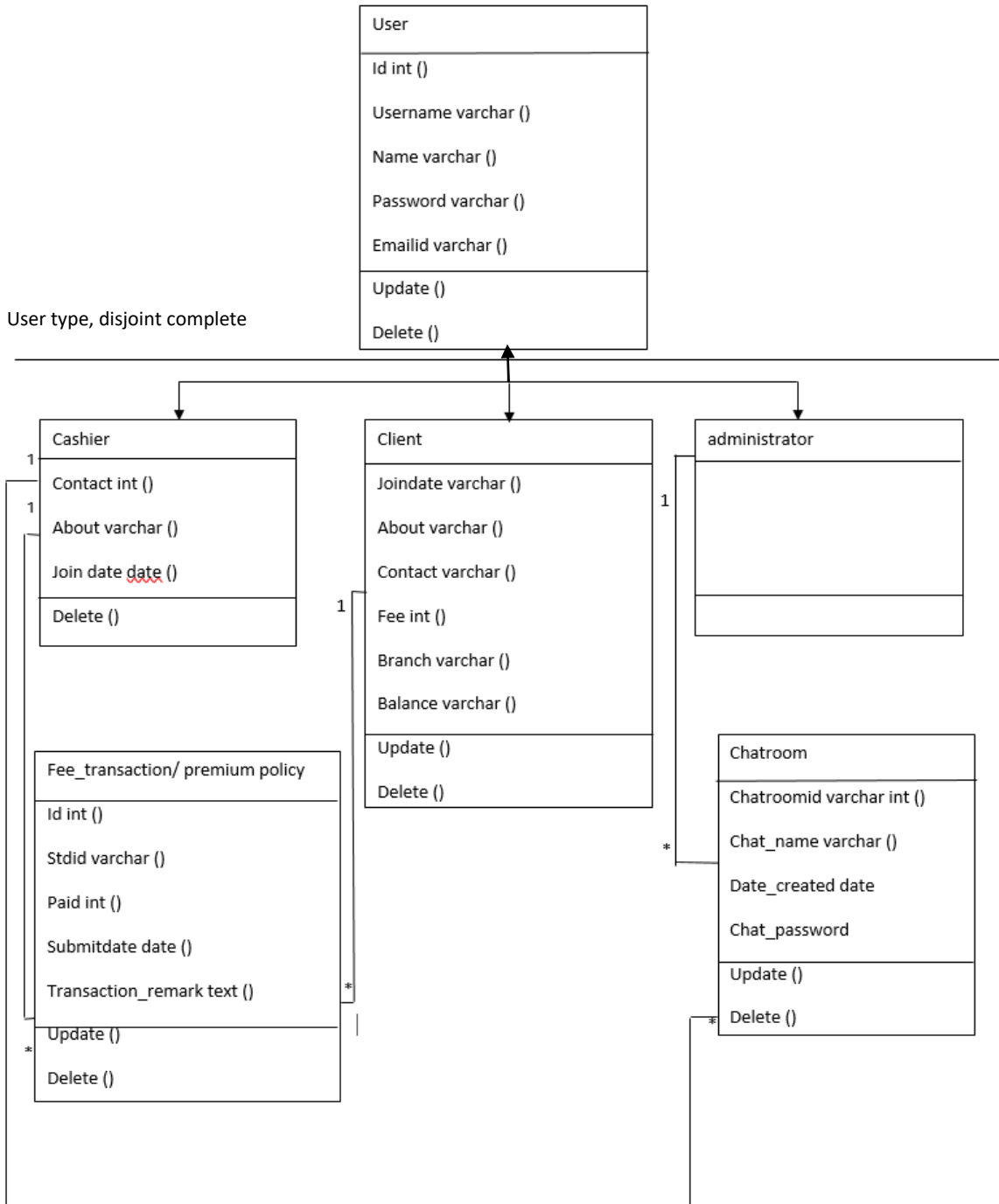


Figure 4.8 Class Diagram
4.6.3 Package diagram

Duffy (2011) stated that the package structural diagram is a gathering of software components interacting in a logical, structural way. They are vital in stating and outlining the communication

that occur amongst the software components in classes that form packages. The components parts are acquired after breaking down the system into smaller parts.

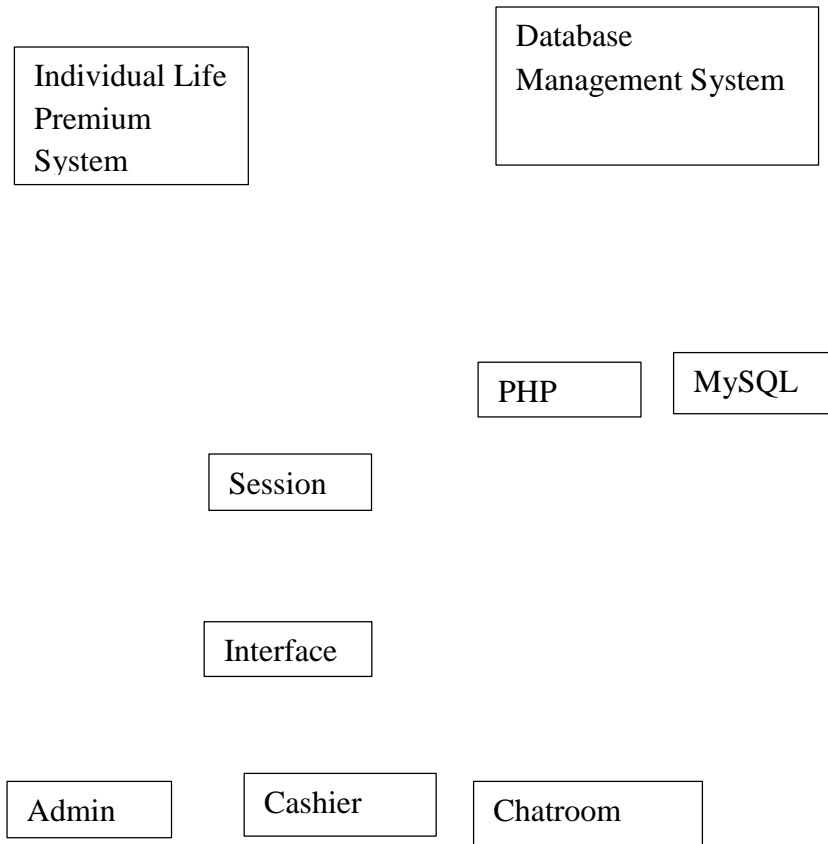


Figure 4.9 Package Diagram

4.7 Interface Design

Wolf (2012) stated that the user interface makes the system easier to use to the user through the organisation of page views and forms in connection with the system's database. The design procedure is completed with the great objective towards user experience and interactions. The aim and objective of the user interface is to allow the user's interaction with the software application to be as efficient as possible.

4.7.1 Log in design

The aim behind the use of the Login form is for verification. The credentials of a particular client who has access are required before getting into the system. There will be two text fields and two labels on the form to fill. The labels are utilised for showing the input fields which are the username and the password input field. The log in form is the first page the user sees or interact with before entering the system with the log-credentials provided.

Zimnat Individual Life Premium System

Username

Password

Figure 4.10 Login Page

4.7.2 Menu Design

Richman (2009) states the menu is a composition of the alternatives that the user can interact with, without much effort through simplified navigation to the intended page. The menu design has distinctive buttons and sub-menus that prompt functionality features of the system.

Dashboard			
Home			
Branch	Welcome to Zimnat Life Assurance		
Report	Making Life Better		
Client	Client summary	Premium transactions	Report summary
Summary			
Settings			

Figure 4.11 System menu

4.7.3 Input Design

The interface enables the automated gathering and data input for premium sales. Client profiles are created instantly and all relevant data is needed to enable the valid account.

Personal information	
Client name	<input type="text"/>
contact	<input type="text"/>
branch	<input type="text"/>
Date joined	<input type="text"/>
Amounts	
amount	<input type="text"/>
advancemen	<input type="text"/>
remaining	<input type="text"/>
remarks	<input type="text"/>

Figure 4.12 Premium policy transaction

4.7.4 Output Design

Zobel (2013) defines output design as the design that concentrates on the designing of all the output forms in the system. The output includes recorded entries in forms of data and reports.

4.7.4.1 Sales Report

The figure below shows the sales report of clients to be previewed by the system.

name	amount	balance	branch	Date joined
emmanuel	700	230	gweru	19/08/2018

Figure 4.13 Sales report

4.7.4.2 Chatroom

The figure below shows the chatroom for the online chatroom of the system.

Chat room name:	Chatname	date created	pass/member
IT Zimnat	HINFO	Oct 01,2018, 08:22PM	JOIN
Finance	IT Zimnat	SEP 16,2018, 04:03PM	JOIN

Figure 4.14 Chatroom

4.8 Pseudo code

According to Zobel (2013), this is a simpler format of previewing the code used in the coming up of the system. Pseudo code is a description of a software program, written in easily convertible language into real programming queries. The code involves the use of short English phrases that explain the tasks inside a program's algorithm.

4.8.1 Pseudo code for log in and premium transaction.

Start

Enter user details

Validate the entered details

If database connection is successful

Check if the username already exists

If not, then show error script

Else proceed to home page interface

Add new client to the system

Enter policy details

If connection is established, add premium purchase

Add the amount paid and the credit payoff

Else

If log out Then

Log out

Log in form show

End

4.9 Security design

Zobel (2013) stated that the security design was designed to handle the software creation so to come up with a free application of intentional and unintentional attacks, through consistent tests in validation and total adherence to the available best practices in programing. There is also the verification technique specifically measure the levels to which a product meets its description stated in the development plan. The major aims of the validation and verification are to ensure data integrity and consistence are maintained.

4.9.1 Physical security

Eppinger (2008) defined this type of security as processes that worries about the protective methods used in the protection of information, hardware and network from tangible conditions that physical harm the equipment which eventually prompts a firm to lose important data in the

process. This type of security constitutes of assurance from physical factors namely fire, vandalism, thievery or burglary events. Thus, a resolution or measures it includes involving the incorporation of bar steel strengthened doors, fire suppression system, reinforced concrete structure, fire resistant rooms and safes.

4.9.2 Network security

Dawson (2009) defined this type of security as the activities that includes the use of software and hardware mechanisms to prevent the firm's network properties from unauthorised entry by known and unknown clients, glitches and support, which makes up a safe platform for the networked clients, servers, computers, and programs carrying out the basic organisation operations on specific time space. In this type of security, the firm's network administrator verifies network policies and safety to notice if they are imposed and in summation, the bit rate of the network supplying the company operations with proper connectivity.

4.9.3 Operational security

Andrew (2009) states that operational security ensures the safety of data stored within the system from harmful and unauthorised access which is harmful to the company's information This are the necessary steps of variating important raw data and consequently infringement the supportive series of activities to Life Premium Payment actions. The records must stay safe from exploitation by others in the system. The data is passed into the system consistently and at liberty from alterations and only accessible by the authorised staff. All of the users will have unique usernames and passwords for the prevention against unauthorized access to the system.

4.9.4 Technical security

According to Baker (2012), technical security is explained as the safeguarding of technical software's applications and hardware of the organisation from technical threats, events and circumstances such as worms, hacking and social engineering that could result in great damage or losses to the firm. It also considers the availability of the technical resources namely, the servers, computers, printers and other resources which are a necessity to the development and outcome of the system. The technical inspector discussed the technical needs with the finances and the ICT Team involved in the preparation of a stable budget in US currency so to cater for the technical security and the implementation of strong firewalls and anti-viruses.

4.10 Conclusion

The architectural policy was evidently the busiest, in addition, it was explained and itemized in great aspect, concentrating on the actual design modules of the project. The class diagram and the data flow illustration outlined and illustrated the entities, processes and the data movement around the system. The program, logical, interface, feedback and output design waged ways for the implementation stage. The Individual Life Premium System will now proceed to the implementation stage.

CHAPTER FIVE: IMPLEMENTATION

5.1 Introduction

Reynolds and Stairs (2013) define the implementation level as a series of activities that involves the technical exertion and supervision are inclined to, the various trials namely hardware and the software assessment, followed by the system instituting methodologies and their records are addressed, preparation of the users and filing of stated training approaches. The new or proposed system will be tested thoroughly to check and verify the existence of any bugs within it. A number of testing strategies will be performed in this testing process. Through testing, the developer is provided with the time resource to make preparations and corrections formerly of the project execution or introduction to the institute. The ideal purpose behind this segment, is to guarantee that the system will be substantially in line with hardware and software parts.

5.2 Coding

Milner (2010) demarcated coding as the series of processes that include the conniving, , testing, repairing and sustaining the source-code of computer applications. The codes are a set of commands used to build and project user needs as resolutions to the factual world. Notepad ++, MySQL and SQL queries are used for construct the software suite. The coding is executed with imminent maintenances in mind. Some of the practices used comprise of a coding standard that support coding appraisals, unit testing and dodges the complex language assemblies. The resulting utilities are measured during coding:

- (a) the building of comprehensible source code involving the naming of conventions.
- (b) The usage of coefficients, numbered types and classes.
- (c) The use of meticulous structures.

5.3 System testing

Watson (2007) defines testing as a measure that incorporates testing of the entire system. It is focused on assessing the characteristics of an application and influencing that it encounters its obligatory outcome. Coronel (2014) defines it as a series of activities that embraces the valuation of the system, where, the analysis is done to confirm the user needs, the system purposes. Analysing is typically achieved for the succeeding determinations:

- To advance eminence - computer software is used in most perilous applications and the inference of a bug can be unadorned. The testing is completed to locate the design shortcomings so to get them fixed.
- Authentication and Confirmation - Testers make privileges based on clarifications of the test results, which moreover works under convinced situations.
- consistency valuation- Software relations have many features, counting the structure, and sum of testing it has been subjected to.

The illustration demonstrates the testing heights in the testing course.

Figure 5.1 System testing
Pressman (2010)

5.3.1 Unit testing

According to Pressman (2010) the expression behind unit-testing focused on every element for example, class and objects of the software as applied in the foundation code. It is when human aspects of the program are tried to see if they meet their proposed use. A sequence of impartial tests is directed through and each test scrutinizes an components individually that are original or has been revised. The determination behind it is to authenticate each unit of the software design. The insertion for a new branch was used in this scenario:

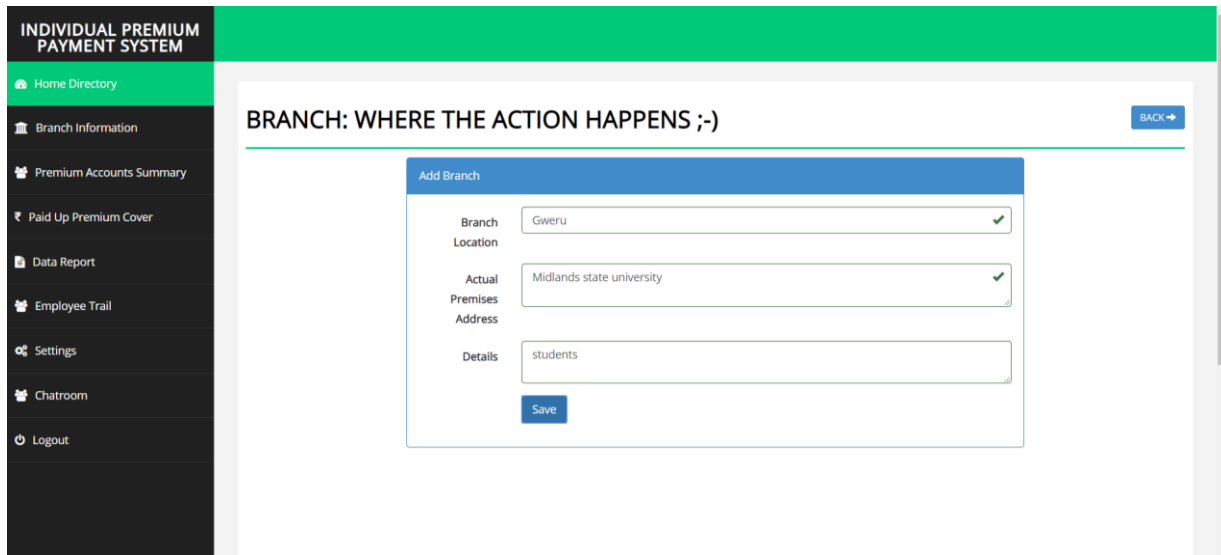


Figure 5.2 Unit Testing
5.3.2 White box testing

Chauhun (2010) well-defined White box as the analysis done to test the central procedure of the application, testing also to crisscross the smaller fluctuations on one facet of the on altered modules. This process in cooperates the adjustments which the interior structure, design and employment of the item being tested is recognized to the sampler. The tester picks the involvements to workout tracks complete by the code and regulates the suitable productions.

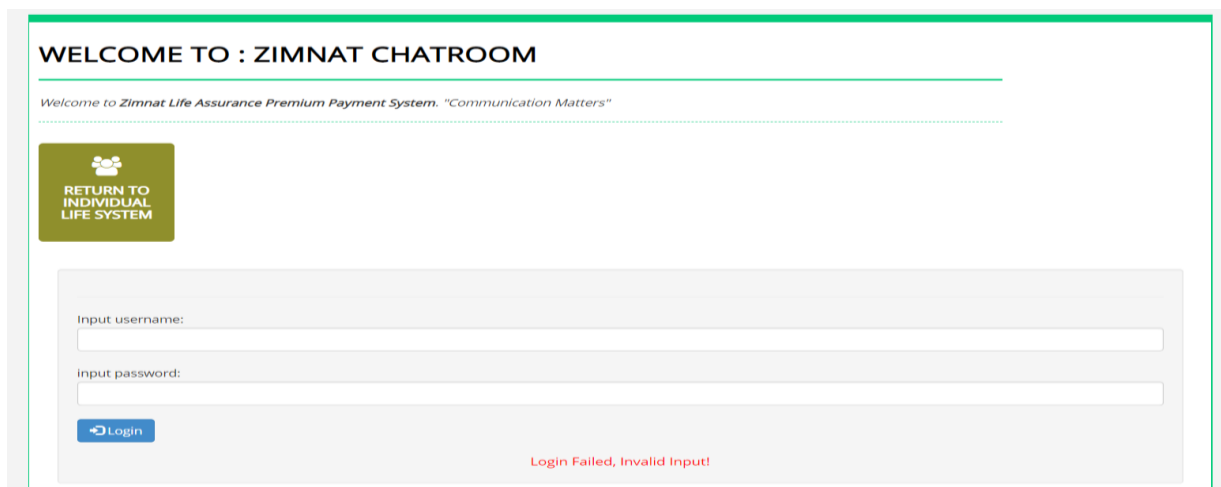


Figure 5.3 White box testing

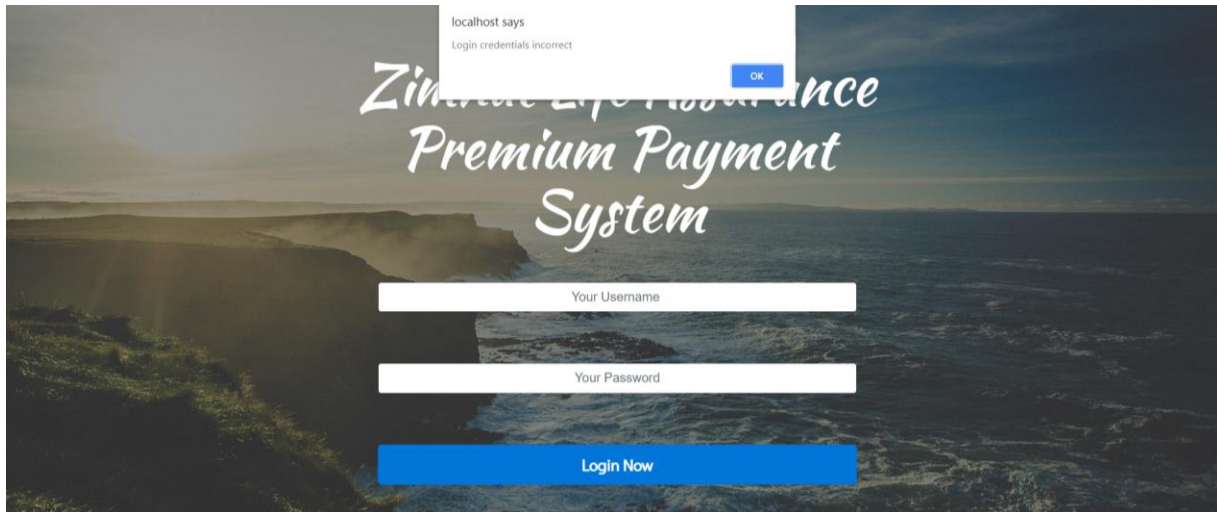


Figure 5.4 White box analysis

5.3.3 Black-box Testing

Saleh (2009) indicated that black-box testing aims at the commodity focusing on its practicality as contrasted to its inner structure. This category of testing fails to consider the association of the program, but it actually distillates on what the program does looking at how concrete that product remains, dependent on the articulated goals. In this testing, the processes squad behind finalizing the testing techniques do not possess the material of the internal structure of the commodity being strained. Facts about the inputs and outputs is acknowledged nevertheless how the system produce the effects is unknown.

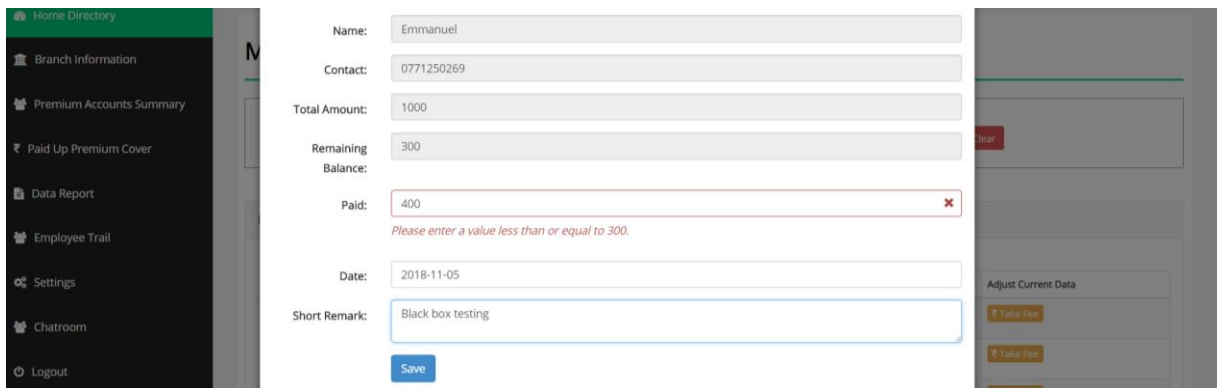


Figure 5.5 Black box analysis

5.3.4 Module testing

According to Saleh (2009), a segment in coding is any assortment of executable program queries that can be so-called from any other unit within the program and has great probability of being

self-reliantly compiled. Thus the module testing is a process of trying out the individual subprograms, routines and events in a program. Its determination is to check if the module denies the system’s inner stipulations. The individual who tests the module knows the inner particulars or details of the component.

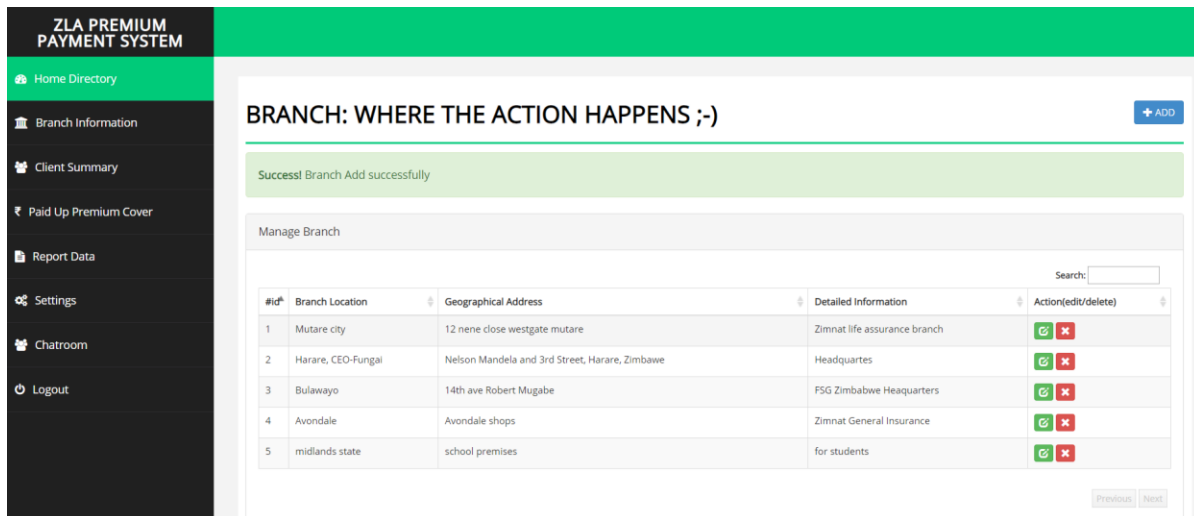


Figure 5.6 System module analysis or testing
5.3.5 Sub system testing

According to McDonald (2012), Subsystem testing is carried out where the separate components which outlines that particular subsystem are joined and tested as a collection. This test occurs on both the borders concerning the modules and bigger structures being raised. Combination testing scrutinizes most new components and modules, affected the change, or overly desired to formulate the whole system. Throughout the development process, when two or additional units are prepared, they are collected and the execution of subsystem testing begins.

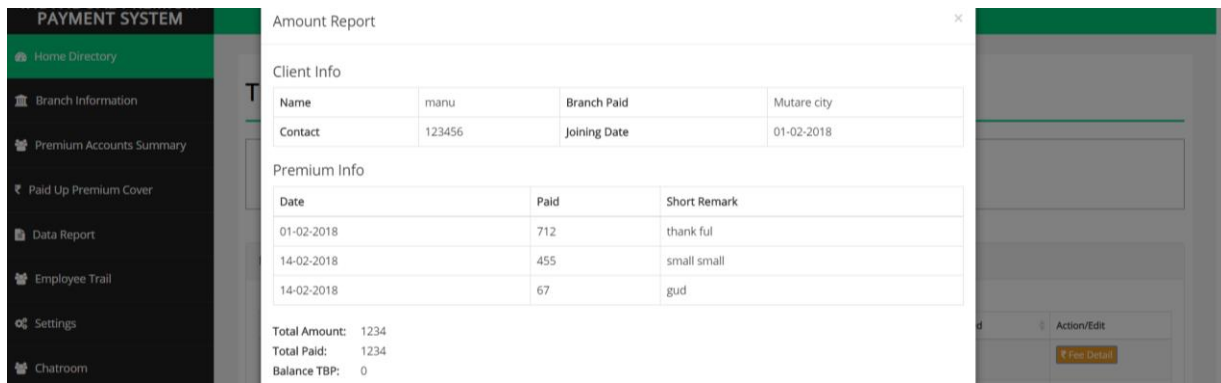


Figure 5.7 Sub System testing
5.3.6 System testing

According to Saleh (2009), system testing inclines to uphold the end-on excellence of the full system. This form of testing is based on the practical description of the system. Non-functional eminence qualities (security, dependability, maintainability) are checked and not forgetting all new workings and modules wanted to complete the application. The importance of system-testing is to authenticate and prove the functional strategy specifications by sighting how the units work in an organized manner.

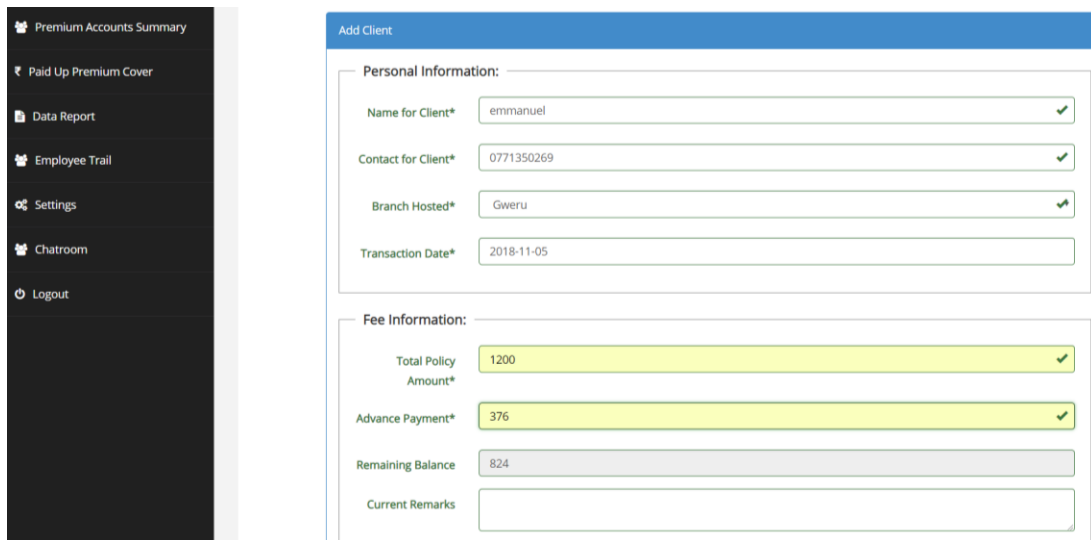


Figure 5.8 System testing
5.3.7 Acceptance testing

Whitten (2005) describes the acceptance Testing as a smooth software testing progression that accompanies the system acceptability and full integration of the system, with the (users, customers, third parties). It is called Beta testing meaning it comprises of purposeful,

interoperability, and regression tests. It is concluded when a complete system is passed over from the developers to the respective users. It assures confidence in the full-functionality of the application system by finding errors and evaluating system's acquiescence with the business necessities and gauge to see if it is adequate for conveyance.

The screenshot displays a web application interface. On the left is a dark sidebar menu with the following items: 'Paid Up Premium Cover', 'Data Report', 'Employee Trail', 'Settings', 'Chatroom', and 'Logout'. The main content area is divided into two sections:

- Personal Information:**
 - Name for Client*: emmanuel ✓
 - Contact for Client*: it won't ✗
Please enter only digits.
 - Branch Hosted*: Gweru ✓
 - Transaction Date*: 2018-11-05
- Fee Information:**
 - Total Policy Amount*: 1200 ✓
 - Advance Payment*: 376 ✓
 - Remaining Balance: 824

Figure 5.9 System Acceptance testing
5.3.8 Security testing

According to Whitten (2005), the system safety is a primary significance that influence over the accomplishment or disappointment of the outcome. The essential clarification behind security is to sidestep unsanctioned clients from getting to the system data. Important security schedules include incorporating strong passwords, appropriate access-levels, installing the anti-virus and enforce security protectors that assist as physical security. The crucial concern pertaining to the degree of security is the computer servers, physical gadgets and the administration's network. Another would be the loss of unsaved data due to continuous power failures. Above all, superior equipment parts may get damaged by those power failures over time. Thus it's a necessity that there is constant provision of power source and power surges which will merged with the programmed generator switches that prepares the hardware for any category of a power catastrophe.

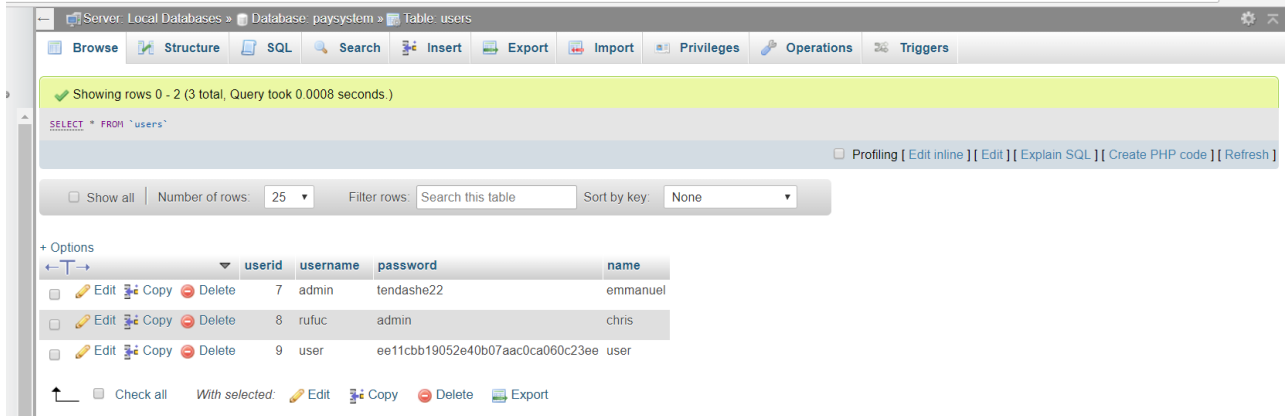


Figure 5.10 System password encryption

5.3.9 Validation and verification

According to Dolores (2011), the authentication and confirmation of the application system is greatly viewed as an intelligible restraint since both the procedures are compulsory during the course. Validation exposes the new system description to notify if the client requirements were met and completed. Verification involves the indications found during the scrutinisation of the system events that identifies and acknowledges that the necessities are meet.

5.3.9.1 Validation Process

The neutral goal of this segment is checking if the exact system has been established for the documented delinquent. That newly built system is linked together with the user necessities or requests after the appraisal of raw data entered and the actual output. It confirms the capturing of data and the output projections as anticipated by analysing and constructing assessments of how efficient and effective the system is to real-life needs.

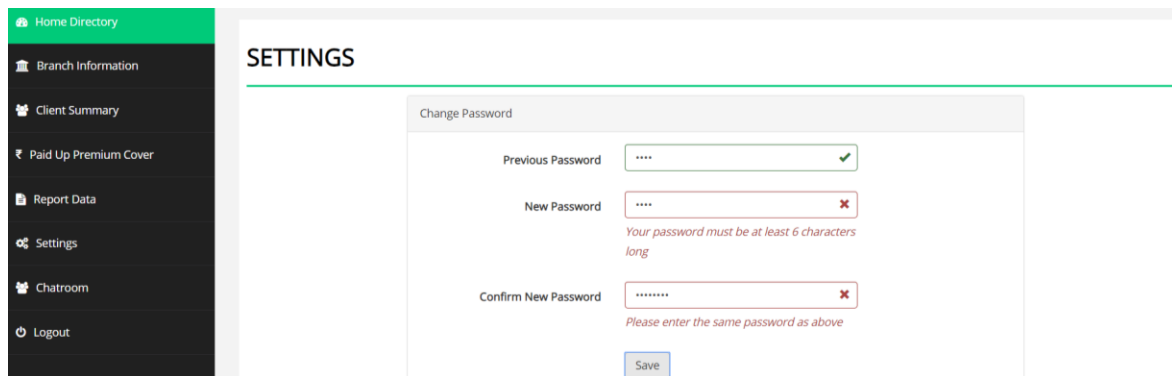


Figure 5.11 Incorrect password system validation

The error message on the login page that informs the user to enter the login credentials in order to gain access the Individual Life Premium System.



Figure 5.12 Login credentials validation

The system should refuse incorrect input by the user.

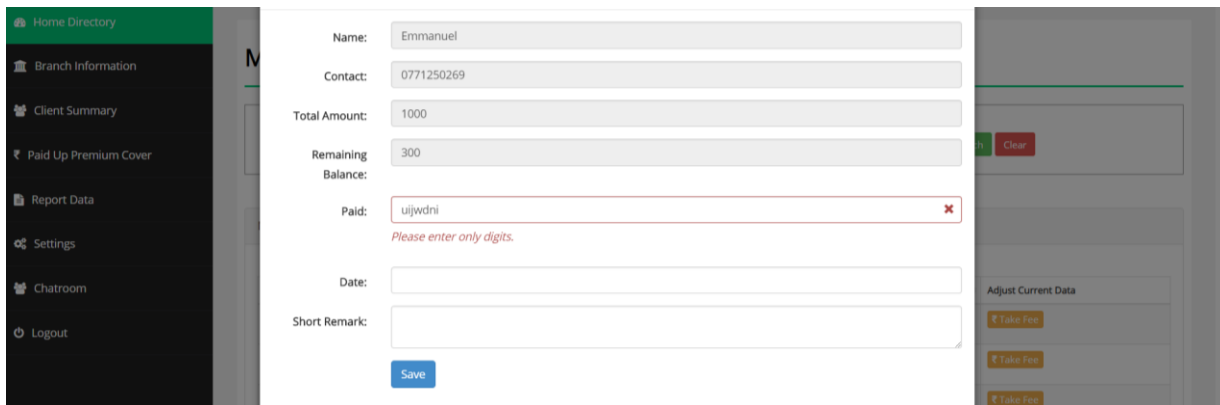


Figure 5.13 Transaction input validation

The system should allow correct input entries form the user.



Figure 5.14 Word input validation

5.3.9.2 Verification

Serendipity (2012) refers to verification as the likening of present facts in contradiction of the reason for its making. It assists in determining if the software is of great quality and not the system's usefulness. The system unveiled uniformities together with exactness in the implementation process proving that it met the user intentions. The software substantiation is the corroboration that the produced results of this subsystem were in collaboration to the input needs for the software system.

a) The branch details form for customer classification

BRANCH: WHERE THE ACTION HAPPENS ;-)

Edit Branch

Branch Location: Mutare city

Actual Premises Address: 12 nene close westgate mutare

Details: Zimnat life assurance branch

Save

Figure 5.15 Branch Entry

b) It shows the client summary and remaining balances to be paid off.

CLIENTS PREMIUM COVER SUMMARY

Manage Client

Show 10 entries

#	Name/Contact	Date Joined	Amount To Be Paid	Balance Remaining	Action/Edit
1	manu 123456	01 Feb 18	1234	0	
2	Emmanuel 0771250269	15 Feb 18	1000	300	
3	tanaka 123456789	01 Jul 18	1294	394	
4	Fungal 0771234567	01 Aug 18	2000	724	

Previous Next

Figure 5.16 Word input validation

5.3.9.3 System Objectives Versus Solutions

a) To develop a profile tracking system to accredit premium payoffs.

The screenshot shows the 'Edit Client' form with a sidebar on the left containing navigation options: Client Summary, Paid Up Premium Cover, Report Data, Settings, Chatroom, and Logout. The form is divided into three sections:

- Personal Information:** Name for Client* (Emmanuel), Contact for Client* (0771250269), Branch Hosted* (Harare, CEO-Fungai), Date Joined* (2018-02-15).
- Fee Information:** Total Policy Amount* (1000), Remaining Balance (300).
- Optional Information:** About Client (Male), Email Address (mupotaringae@zimat.co.zw).

Figure 5.17 Premium Client Information

b) To enable an automated trail and recovery of records entered overtime and a report generating tool for reference by the management

The screenshot shows the 'MONETARY SUMMARY' report with a sidebar on the left containing navigation options: Branch Information, Client Summary, Paid Up Premium Cover, Report Data, Settings, Chatroom, and Logout. The report includes a search bar and a table of transactions.

Search: Name Date Of Joining Branch Location

Manage Transactions

Name/Contact	Total Amount	Balance Remaining	Branch Location	Date joined	Adjust Current Data
Emmanuel 0771250269	1000	300	Harare, CEO-Fungai	15 Feb 18	<input type="button" value="Take Fee"/>
tanaka 123456789	1294	394	highlands	01 Jul 18	<input type="button" value="Take Fee"/>
Fungai 0771234567	2000	724	Harare, CEO-Fungai	01 Aug 18	<input type="button" value="Take Fee"/>

Page navigation:

Figure 5.18 Monetary summary

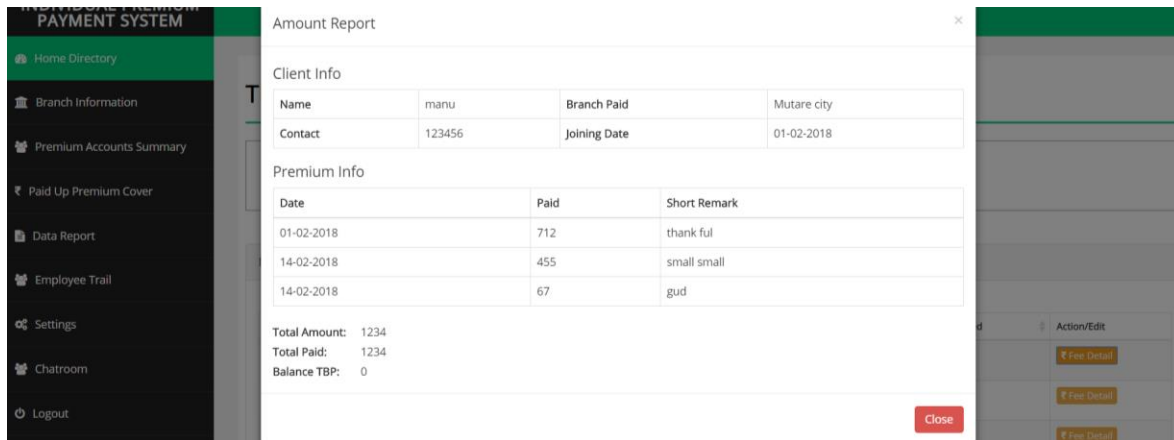


Figure 5.19 Premium Transaction Report

c) To design and develop a real time web chatting platform for the employees to interact with each other and enable fast diffusion of instructions and notices made throughout the organisation.

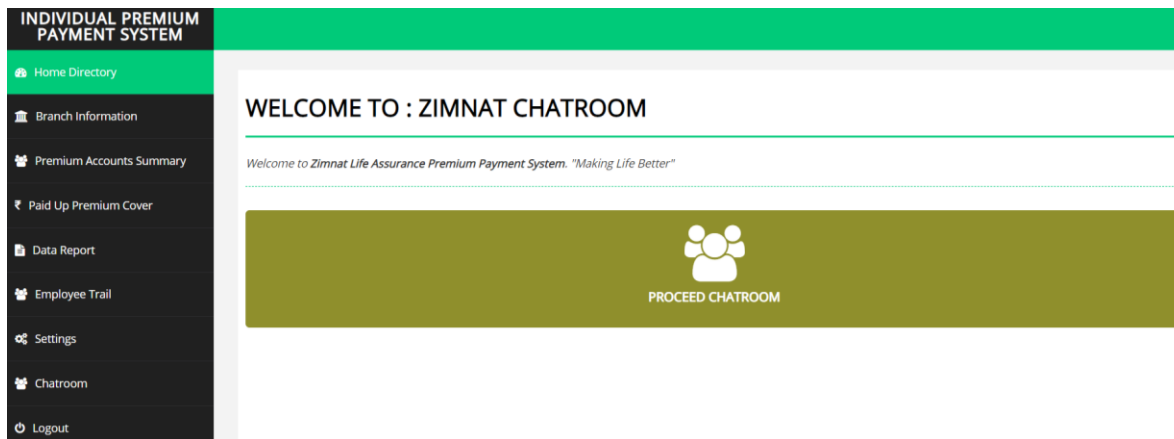


Figure 5.20 Chatroom path

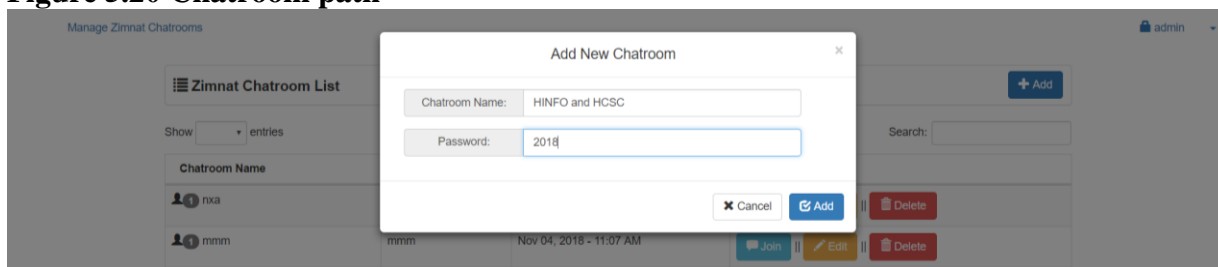


Figure 5.21 Chatroom Creation

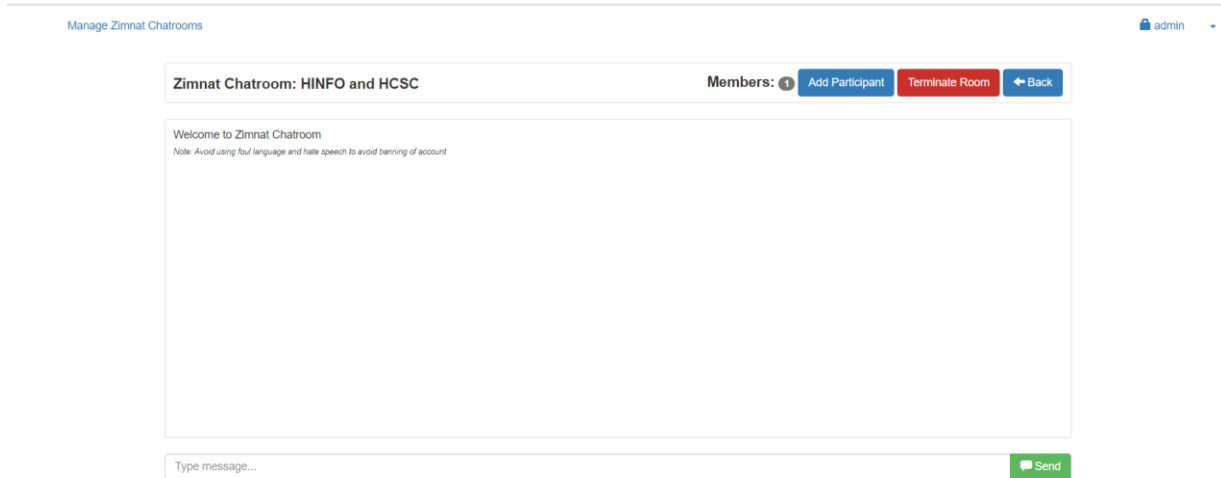


Figure 5.22 Chatroom group

d) To develop an automated human resource employee trail management functionality.

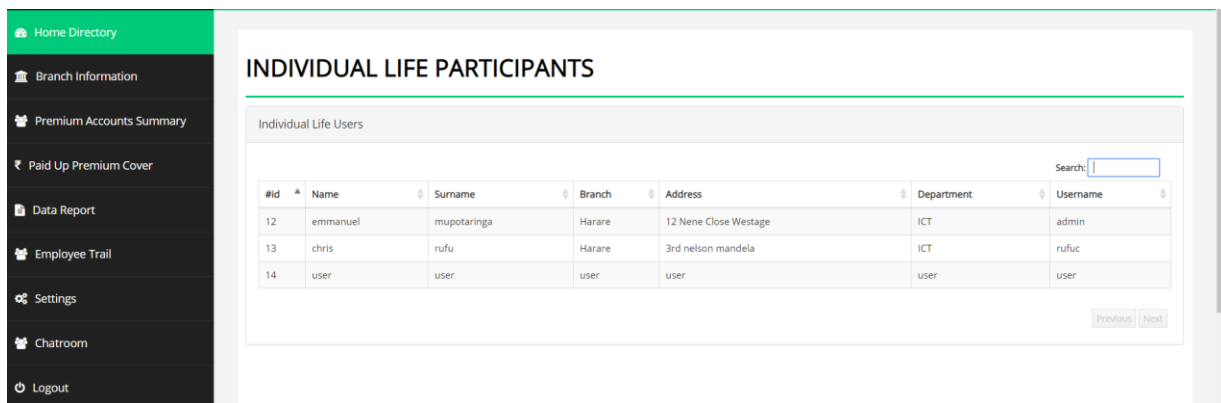


Figure 5.22 Employee Trail

e) To allow and enable a client gathering tool for verification by the administrator.

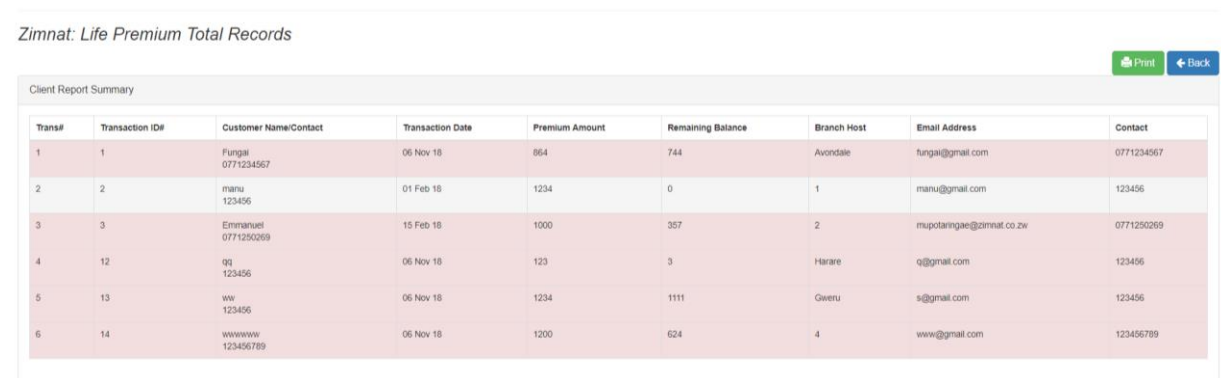


Figure 5.23 Policy Records Summary

5.3.10 Physical security

Forouzan (2007) defines corporal protection as the series of events that aim at ensuring a safe operational setting designed to hide admission to the system's unauthorised operators. It may involve the use of burglar bar locks as a bodily measure for security assurance. The operators short of the keys to unlock will be prohibited from access the offices with the technical equipment henceforward endorsing security measures. Zimnat Life Assurance also engaged security watches to observe unauthorised persons from the company sites totally.

5.3.11 Network security

Rosenblatt and Shelly (2012) network safety is a series of events executed to defend the unauthorised altercation of network data amongst connected gadgets. It is of extreme importance throughout system development as it promotes confidentiality and entity substantiation. This inspires confidence in the users as they will be assured that their summarised information is sheltered. This kind of security is server monitored and is effective when safeguarding data resources, due to the use of exceptional usernames and secret codes. Firewall monitor and regulate the departing and inbound network stream of traffic.

5.3.12 Operational security

As referenced by Kendall and kendall (2005), operational security is practiced when the computer analyst, analyses the program's weaknesses that may be faced during the operating life of the fresh, new system. The security matters at hand are discussed and dealt with so to smoothen the functioning life of the system and it helps in minimising the risks of delay in operations productivity of the application by improving performance. All participants will be handed over their unique usernames and passwords initiate this scheme.

5.4 Installation

Shelly and Rosenblatt (2010) defines software installation as a processes that includes the introducing of the application to the employed setting to substitute the long standing system. It is the ultimate juncture of the system improvement. It is implemented soon as the projected system passes over the countless tests proving its fitness. Installation comprises of numerous events such as system conformation, immigration of data, client preparation and system switching.

5.4.1 Hardware installation

Crocket, (2008) stated that hardware configuration and system configuration involves making the developed system ready for execution. Throughout hardware fittings, there is the setting-up of the compulsory hardware for the anticipated fresh system stating the computers, new servers, printers and all network cabling. Zimnat's Information Communication and Technology staff will undertake the support and upkeep whenever required.

5.4.2 Systems installation

The application software is encumbered on the computer hard-drive to initiate execution. It involves:

- i) the installation of wamp64bit in C:\wamp64\www\
- ii) the installation of execution files (in C:\wamp64\www)
- iii) The mapping of display interface on 127.0.0.1 and database using phpadmin on (localhost)

5.4.3 User training

According to Gilham (2008), this teaching is the preparation and sharing some measured, definite acquaintances and services. The Information Technology staff will be practicing and studying how to jump-start the new application in the occasion of the arising users queries. In-house teaching is to be steered within 21 days' time interval for all consumers and client guides will be distributed effectively (check Appendix). The main collections for training sessions to be conducted are the managers, users, and Information Technology personnel respectively. These sessions are aimed supplementing the users to disseminate effectively with the system. As a graphical too, PowerPoint illustrations will be used during these exercises. Hopefully, after these the conferences the consumers of the software application will partake in the throughput of the company at large.

5.4.4 Changeover strategies

According to Valicich (2009), system switching incorporates the fresh software completely alternating the long standing previous system. It comes into consideration instantly after the operators have been taught and trained. This whole process will be completed to defend and maintain the Zimnat operations from catastrophes within the system. Some of these strategies comprise of the pilot, direct and phased switching approaches.

5.4.4.1 Direct change over

According to Cannon (2011), the direct switch takes place when the new-fangled system substitutes the long standing system instantaneously. The fitting of the fresh application immediately eradicates the importance and usage of the old software and the daily maneuvers continues as usual on the fresh system. This fast switch is generally done all through times of low production (holidays or weekends). It is the rapidest and inexpensive technique to phase out the long standing system. However, there is higher risk in losing data overnight and high income also in the less time consuming nature of this alternative.

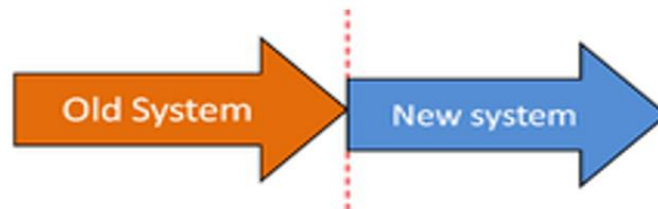


Figure 5.24 Direct Changeover

5.4.4.2 Phased changeover

According to Duffy (2011), phased switch whereby the fresh application is introduced in time segments. This method gives the user a chance to familiarize with the new system while the old system is gradually removed until it is fully abandoned. There is limited risk of errors and system failures since the system is introduced in segments and this help to easily detect and correct errors.

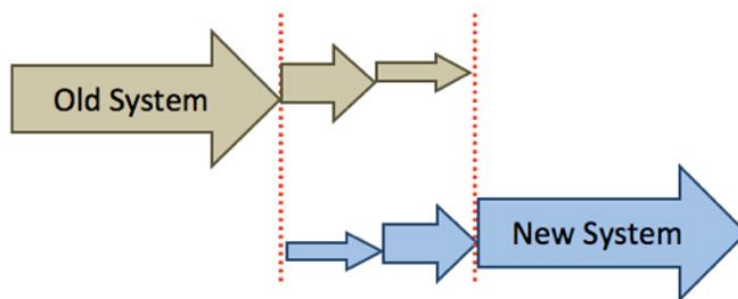


Figure 5.25 Phased Changeover

5.4.4.3 Pilot changeover

Engel (2010) expresses the pilot change as a performance procedure where the fresh system introduced in the same environment with the long standing old system. The applications are would be fully functional at once although on dissimilar grounds. The points behind the time

consuming approach is to gauge the enactment of the fresh system and is deemed suitable when the expectation of risks are is the best to consider when minimizing the forecasted threats.

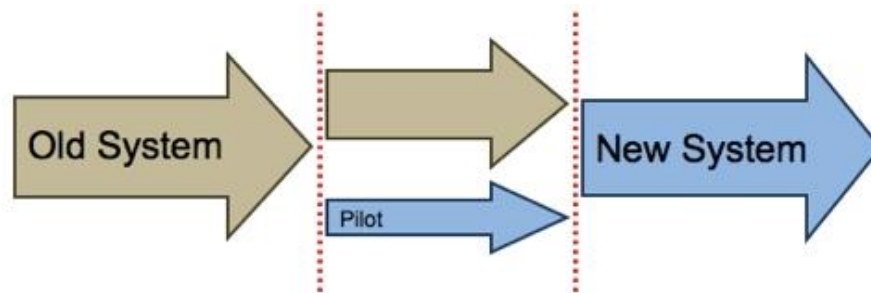


Figure 5.26 Pilot Changeover

5.4.4.4 Recommended changeover strategy

Soon after scrutinizing the approaches directly above, the supervision, management and the computer specialist, all agreed to implement the direct changeover strategy. A capable personnel will promote the users in times of need. The important summarised information will be imitated to the fresh system from the long-standing system and eventually it will become superseded during the weekend.

5.5 Maintenance

According to Valacich (2012) maintenance or upkeep is a course of actions whereby evaluation and monitoring are done to insure the inlinement of goals with the company tasks. It is supposed to be an uninterrupted series of progression made during the lifespan of a particular system in order to ensure that the user needs are met. Sommerville (2007) furthermore stated that the appraisal should carried out on a steady basis from Corrective, Adaptive, Perfective and Preventive maintenance.

5.5.1 Corrective maintenance

According to Krugman (2009), the program writer alters the application system in respect to errors encountered by the system. Deviations are added in order to eradicate the faults that may have risen which at times include shifting and adjusting the data layouts. Improper reports formed and data inconsistence are problems that need the aid of corrective upkeep. Soon after system amendment, evaluation should be carried out to notice system defaults. It is a reactive approach to user problems and can be buoyed out at any period.

5.5.2 Perfective maintenance

Schwalbe (2009) described perfective upkeep as a course when computer operators include additional functionalities of the absent resolutions to the system. The computer scientist implements the upgraded kind of the system. As soon as the perfective upkeep is deliberated as feasible, then the system will be operative. This maintenance should be done during public holidays so that the program writer to have more time to test system's functionality.

5.5.3 Adaptive maintenance

Valacich (2012) states that due to environmental changes, the improvement of a factual system must permit the system to adjust to that dynamic setting. The adaptive upkeep permits the system to adapt to a particular diverse environmental situation thus all shifts concerned with the adaptive upkeep must be known in case of future maintenance. This whole maintenance should be carried out during public, long weekends so as to avoid reduce user interruptions.

5.5.4 Preventive upkeep

According to Berndtsson (2008), this kind of maintenance involves the examination and documentation of faults that delay the enactment of the system product. The association is guided to take precautionary controls as an act to curb system disasters. Sound safety guidelines and updated antivirus perfect alternatives taken in the of preventive upkeep security. This upkeep will be done subsequently in every twenty weeks, all through the weekends to avoid user interruptions.

5.6 Recommendations for maintenance

In relation to the system of Zimnat Individual Life Premium System, the firm is guided to take adaptive upkeep after a time spaced period of two months unless if the handlers or consumers come across challenges. The Zimnat Information Communication and Technology team should ensure the proper update and functioning of firewalls and anti-virus to minimise extortions of viruses. The system should also be integrated with the New Business Client forms for the complete client documentation to be held in one place.

5.7 Recommendations for further work

All the enactment steps and the essential doings were a success, however, there were noticeable openings that may require further attention in the time to come. To name a few endorsements:

ICT Department: There is recommendation that the system ought to be inter-linked similar application systems currently being used at Zimnat Life Assurance for productivity's sake.

Employees: With the thought of fault minimisation, time should be provided to the employees have interests in the handling of information.

Security: The necessity to follow the provided security measures as itemised in the user guide to assure data secrecy and veracity.

5.8 Conclusion

After directing a detailed system analysis of Individual Life Premium System, the development was reflected as a success. The system coordination met all the intentions and operator necessities and eradicated the hitches that were stumbled upon as a result of the old labour-intensive system. This therefore was the end result of commissioning the suitable testing, alteration, switch strategies and upkeep. The upcoming endorsements should be trailed so to advance the throughput of the institute. All recommended upkeep approaches ought to be used as steered by the specialist so to prolong the structure's life period.

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Appendices

Appendix A: User Manual

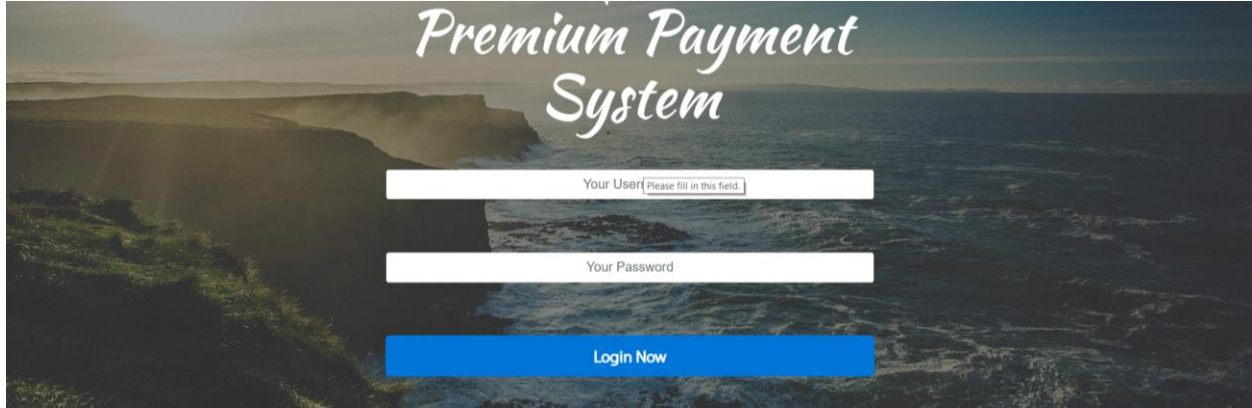


Figure A1: Inputting user details

- 1) The user must fill in the correct user credential details provided or given by the Administrator so to enter the application for use.

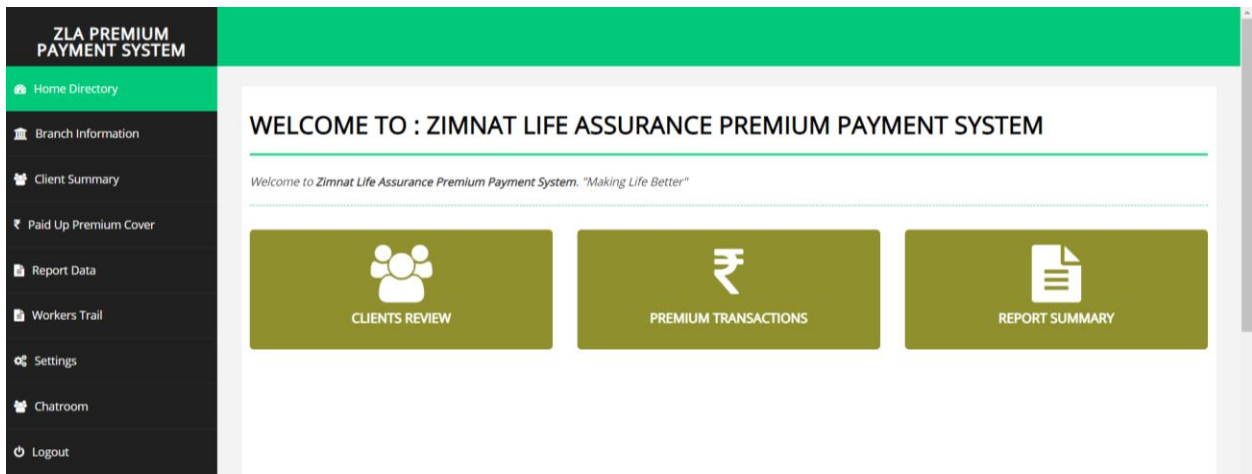


Figure A2: Home page

- 2) After Entering the system this is the first page (home page) that the user will see after logging into the Individual Life Premium Service. This is where the user will choose the activities to be carried out with respect to the currently, provided features of the system.

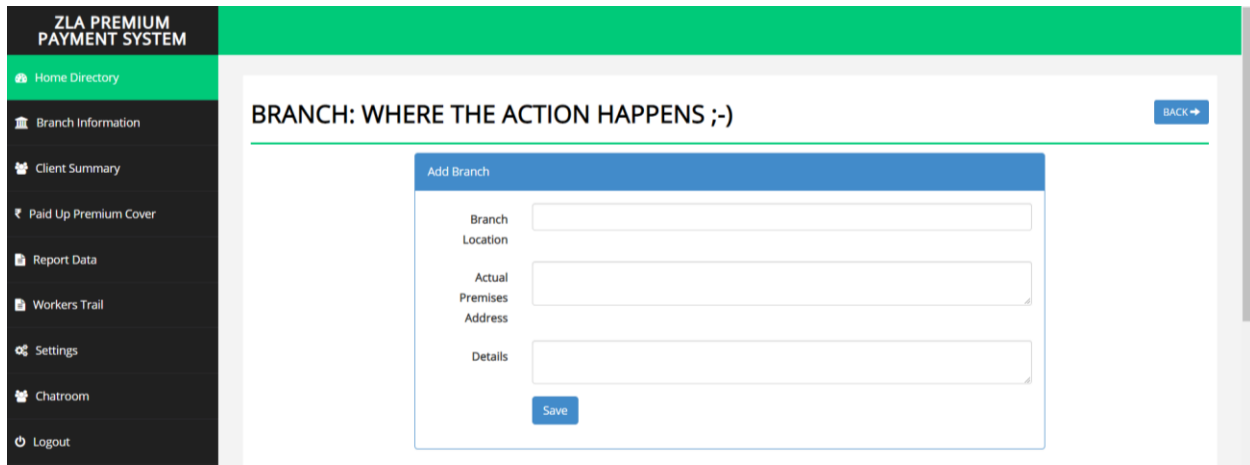


Figure A3: Adding branches

- 3) In the case that there is an additional location or a new branch opening, then the user has the privileges to enter the new location that will be automatically saved to the database.

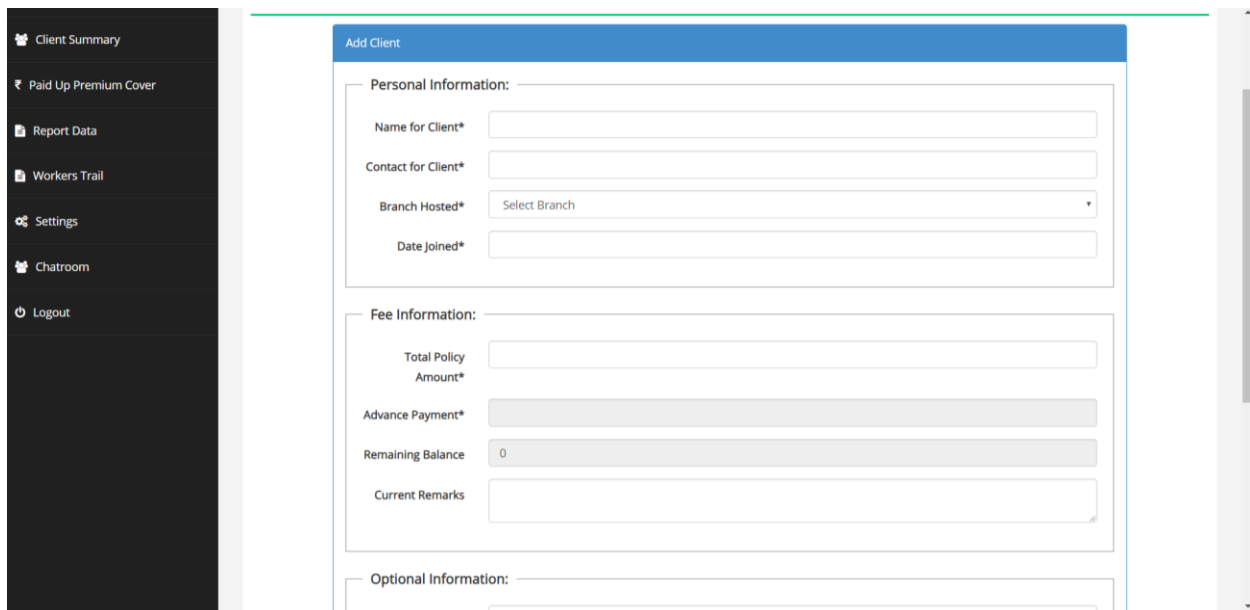


Figure A4: Adding user transaction

- 4) This form shows after a new payment is to be recorded by the cashier or any user that has the rights to record the payment. It is when the client premium is being entered into the system and the record will be saved to the database for later retrieval.

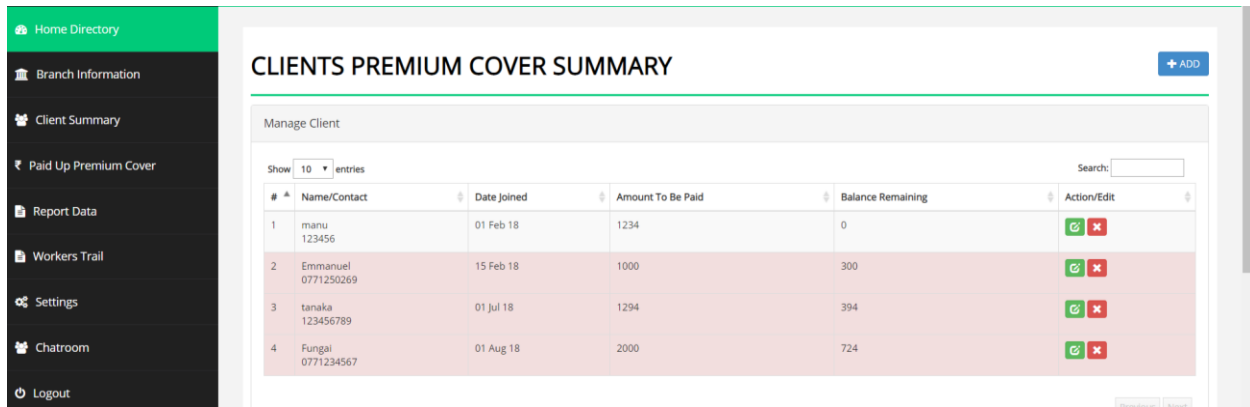


Figure A5: Viewing sales

- 5) This form enables the user to view the status and records entered into the system pertaining to the policy payments. The user can edit the accredit payoffs or remaining balance soon after the customers purchases or returns with additional revenue for the credited premium policy.

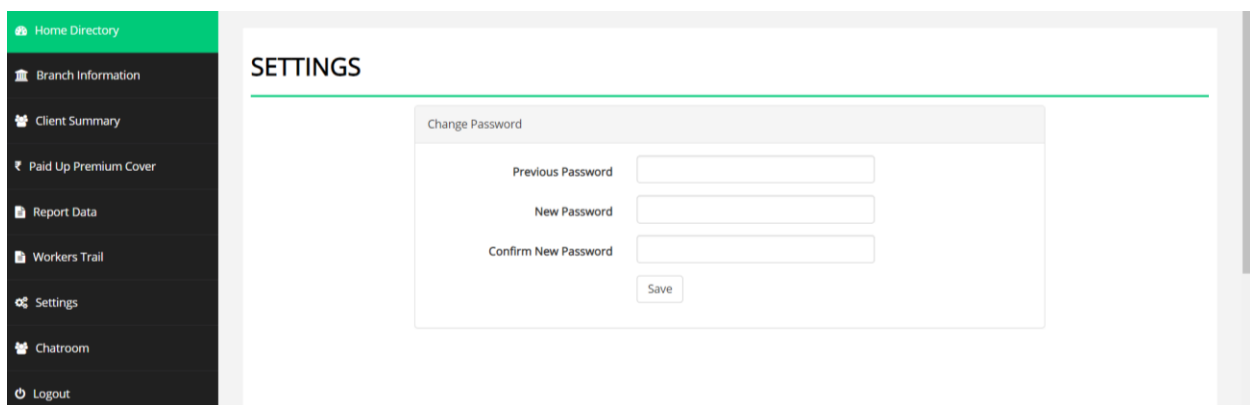


Figure A6: Resetting the password

- 6) The user for the application has the ability to make adjustments to his/her password, provided that the user knows the current password. However, if the user fails to adjust on their own, they can always contact the administrator for assistance.

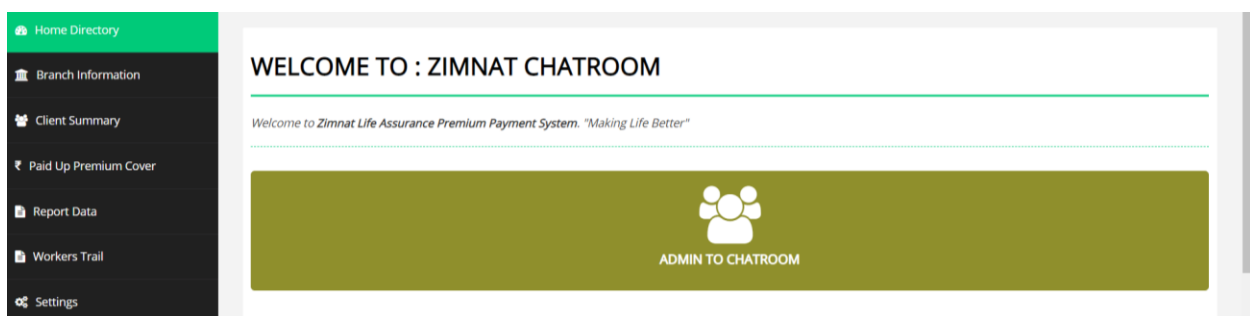


Figure A7: User proceeding to chatroom

- 7) The user can proceed to the chatroom interface and login so to chat online with the rest of logged in users from different departments. There is need to contact the administrator for the creation of an account and password so to gain access to the system.

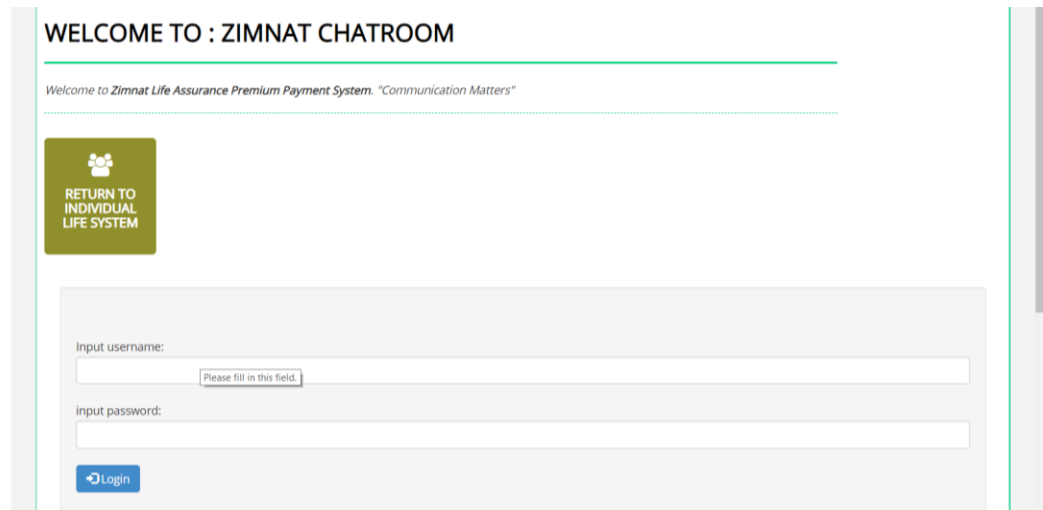


Figure A8: Chatroom login to chatroom

- 8) The user can enter his or her password to enter the chatroom

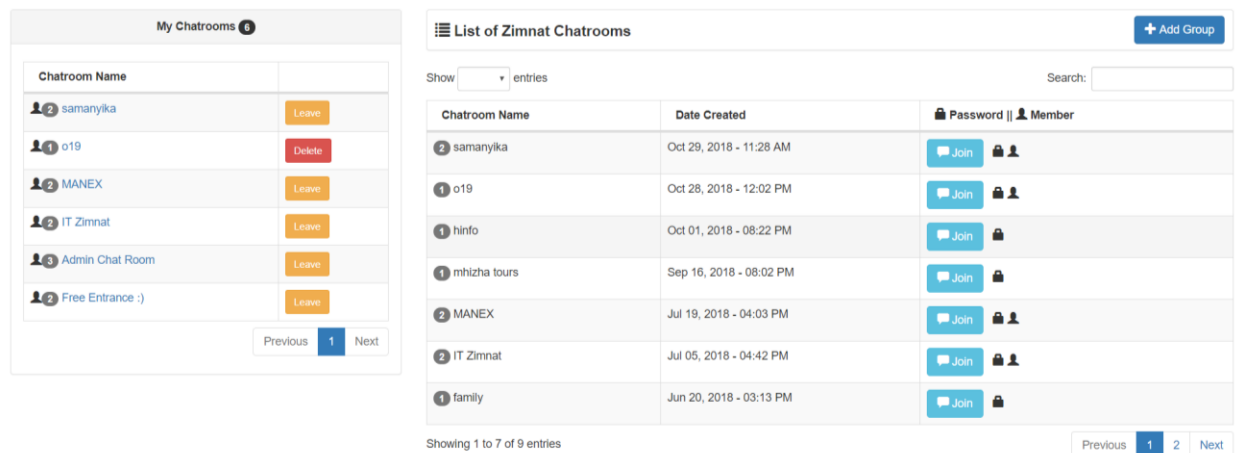


Figure A9: Chatroom login to chatroom

- 9) The user can select the chatroom to enter and participate in, provided the has been given the password to enter, only if the group requires a password for entrance.

Appendix B: Interviews Checklist

Sample of an interview questions used for information gathering:

1.What are some of the problems you are facing in using the manual system to calculate sales amounts and new Policy entries?

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2. Are you willing to get these problems solved through the computerization of the current system?

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3. What are the inputs in the current system?

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4. Do you have any sales reports and if so how are they compiled?

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5. How do the employees of Zimnat interact with each other during business and free time?

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.....

Appendix C: Questionnaires

Below are some of the questions that were asked on the questionnaires:

Best Book Organization		
1.	How many branches does the Zimnat Life Assurance firm have?
2.	Give a brief description of the services offered?
3.	How do you communicate with other workers and pass suggestions and complaints?
4.	How long does it take to complete the recording of a daily sales transactions?
5.	What improvements would you want to be seen implemented to the current system?

Appendix D: Observations

Individual Life Premium System

Observation Score Sheet

Date / /

Time

Observations

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Conclusion

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Appendix E: Sample of program code used

```
<?php
include("php/dbconnect.php");
include("php/checklogin.php");
$errormsg = "";
$action = "add";
$branch="";
$address="";
$detail = "";
$id= "";
if(isset($_POST['save']))
{
$branch = mysqli_real_escape_string($conn,$_POST['branch']);
$address = mysqli_real_escape_string($conn,$_POST['address']);
$detail = mysqli_real_escape_string($conn,$_POST['detail']);
if($_POST['action']=="add")
{
    $sql = $conn->query("INSERT INTO branch (branch,address,detail) VALUES
('$branch','$address','$detail')");
    echo '<script type="text/javascript">window.location="branch.php?act=1";</script>';
}
else
if($_POST['action']=="update")
{
    $id = mysqli_real_escape_string($conn,$_POST['id']);
```

```

    $sql = $conn->query("UPDATE branch SET branch = '$branch', address = '$address', detail
= '$detail' WHERE id = '$id'");

    echo '<script type="text/javascript">window.location="branch.php?act=2";</script>';

}

}

if(isset($_GET['action']) && $_GET['action']=="delete"){

$conn->query("UPDATE branch set delete_status = '1' WHERE id='".$_GET['id'].'"");

header("location: branch.php?act=3");

}

$action = "add";

if(isset($_GET['action']) && $_GET['action']=="edit" ){

$id = isset($_GET['id'])?mysqli_real_escape_string($conn,$_GET['id']):";

$sqlEdit = $conn->query("SELECT * FROM branch WHERE id='".$_$id.'");

if($sqlEdit->num_rows)

{

$rowsEdit = $sqlEdit->fetch_assoc();

extract($rowsEdit);

$action = "update";

}else

{

$_GET['action']="";

}

}

if(isset($_REQUEST['act']) && @$_REQUEST['act']=="1")

{

```

```
$errmsg = "<div class='alert alert-success'><strong>Success!</strong> Branch Add  
successfully</div>";  
  
}else if(isset($_REQUEST['act']) && @$_REQUEST['act']=="2")  
{  
$errmsg = "<div class='alert alert-success'><strong>Success!</strong> Branch Edit  
successfully</div>";  
}  
  
else if(isset($_REQUEST['act']) && @$_REQUEST['act']=="3")  
{  
$errmsg = "<div class='alert alert-success'><strong>Success!</strong> Branch Delete  
successfully</div>";  
}  
?>
```