MOTOR VEHICLE INSURANCE ANDROID APPLICATION FOR MINERVA

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By

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ABSTRACT

The need to provide a solution to help client of Minerva Risk advisors necessitated the creation of this project and the documentation. It is divided into five chapters which are Introduction, Planning, Analysis, Design and Implementation. A background of the study and feasibility of the project are found in the first two chapters of this document showing detail on the organisation and feasibility of the project. Analysis, design and Implementation follow, these are detailed with system analysis, the proposed systems design and how it is to be implemented by the developer. Use of diagrams is evident to help emphasize and to make aspect understandable. The system was designed using Android studio, Xampp and PHP.

DECLARATION

I, **Davison Gono,** hereby declare that I am the sole author of this dissertation. I authorize the **Midlands State University** to lend this dissertation to other institutions or individuals for the purpose of scholarly research.

Signature: ……. Date: ……..

APPROVAL

This dissertation, entitled **"Motor Vehicle Insurance Android Application For Minerva"** by **Davison Gono** meets the regulations governing the award of the degree of **BSc Honours Information Systems** of the **Midlands State University,** and is approved for its contribution to knowledge and literary presentation.

Supervisor's Signature: …….

Date: ……..

ACKNOWLEDGEMENTS

This acknowledgement is served, the greater part being for the Midlands State University that gave me the opportunity to receive such vast knowledge. The Computer Science and Information Systems Department is given credit for the help it has offered for carrying out this research. Much thanks to my supervisor Mr. P.S Mupfiga for making this project an achievement and greatly a success, for without his help it would be to no avail. . Not forgetting my family which gave me the drive to push. Above all I thank the Almighty God for giving me the strength each single day.

DEDICATION

I dedicate this dissertation to my family.

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CHAPTER ONE: INTRODUCTION

1.1 INTRODUCTION

This android application was an idea I had during my industrial attachment, when I saw people queuing to pay their premiums at Minerva Risk Advisors. In this chapter focus will be put on the study background (that is history/background of the firm, structure, mission statement and its vision), the definition of the problem at hand, the proposed systems objectives, proposed system aims and the hypothesis of the proposed system.

1.2. COMPANY BACKGROUND

Born April 1997 In Zimbabwe, Aon plc has underwent a mirage of transformations up to this day. These resulted in it being currently registered as Minerva Risk Advisors (Pvt) Ltd.

Minerva Risk Advisors (Pvt) Ltd (previously J.H Minet) came to life in December 1947. Growing to become one of the largest risk consultancy and insurance broking in the country with Harare and Bulawayo branches. In 1947, Minet was registered in Rhodesia (now The Republic of Zimbabwe) as J.H Minet and Company (Rhodesia) Pvt Ltd.

At inception in 1947, the Minet operation was small with only two staff members and a very small client base in Harare (then Salisbury) one of which remains our client to this day.

Since then the company has gone through a series of name changes to J.H Minet Blackmore (Pvt) Ltd in 1971, Minet Zimbabwe Holdings (Pvt) Ltd in April 1995 then Minet Zimbabwe (Pvt) Ltd in December 1995. In 1997, Aon acquired Minet resulting in the birth of Aon Zimbabwe (Pvt) Ltd.

Aon Zimbabwe being a member of Aon international became the number one insurance broker in the country. Aon Zimbabwe maintained the position through teamwork, innovation and integrity, delivering client value that was distinct with assistance from colleagues around the world.

Finally in September 2013, Aon Zimbabwe (Pvt) Ltd re branded to Minerva Risk Advisors (Pvt) Ltd through and exclusive correspondence agreement. The agreement ensures that the business of insuring various risks is standardised through best practise international benchmarks.

Moving on, regardless of these subsequent name changes, mainly due to the ownership structural adjustments- that is from Aon Zimbabwe (Pvt) Ltd, to Minerva Risk Advisors (Pvt) Ltd, the same values and business approach was passed on. Minerva Risk Advisors maintains to be the number one insurance broker in the country, business being obtained from other major insurance organisations in the domestic market, considerable numbers in the regional market and a fair share at the global scale. Like Aon was, Minerva is sub-divided in to three strategic business units namely; Minerva Benefits Consulting (former Aon Consulting), Minerva Risk Services (former Aon Risk Services) and Minerva Reinsurance (former Aon Benfield). However practically, in the industry, it is common to observe that, reference of the firm is consistently interchanged between the former and the current name. This is justified none the less as Aon and Minerva continue to correspond in synergy

At this juncture, it is important to note that, In line with all these subsequent ownership and brand name changes, Aon plc, (the parent company) players the most influential and dominant role. To this day, Minerva Risk Advisors still remains an exclusive correspondence office of Aon plc in Zimbabwe.

1.2.1 ORGANISATIONAL STRUCTURE

Minerva Risk Advisors has at the top, the Managing Director Mrs L. Tanyanyiwa followed by three general managers from three operating divisions. Below is a diagram indicating the management structure of Minerva Risk Advisors.

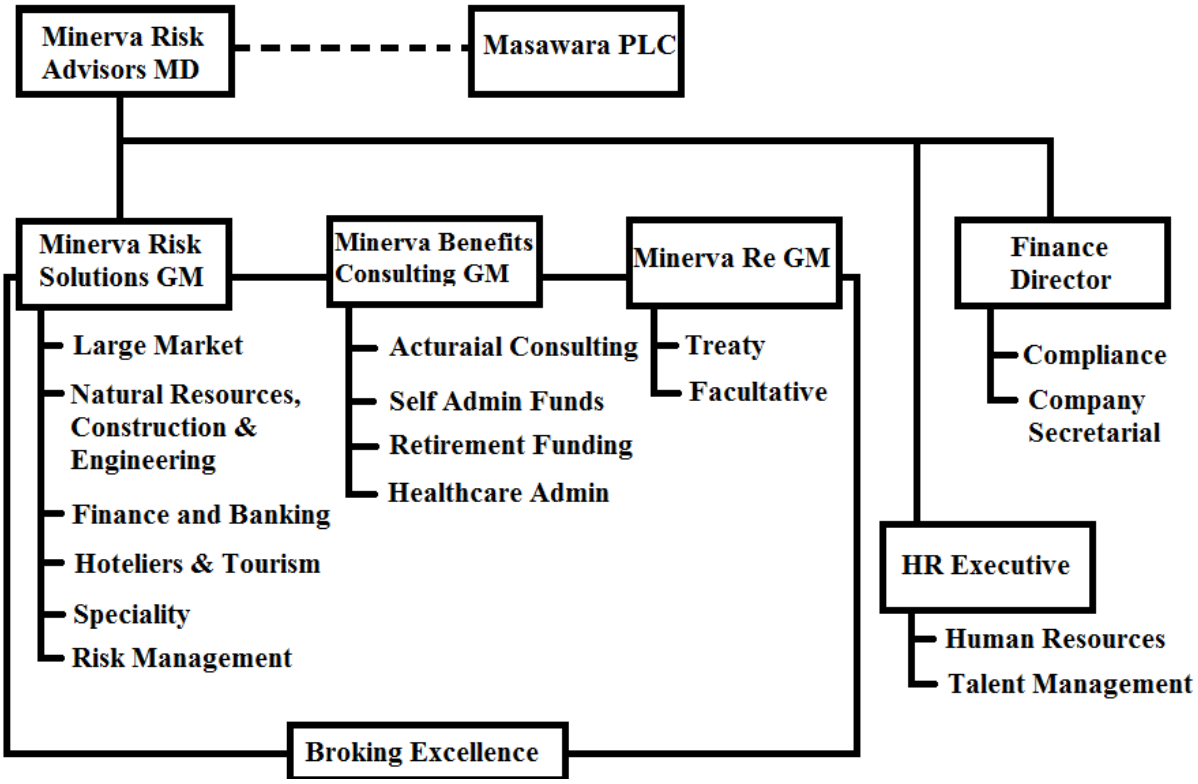


Figure 1.1 Organogram

1.2.2 MISSION

Minerva's mission statement is based on four main factors that is firstly people, secondly its desire for excellence, thirdly collaboration and teamwork and lastly its integrity.

a) **People** - we handle each other, clients, participants, business partners, and our suppliers with the respect they deserve, building great relations from keeping open communication and accepting value in different perspectives.
b) **Excellence** - we share the urge to provide solutions to our valued clients presenting quality, reliability and innovation. Excellence is achieved in the personal initiative we exercise.
c) **Teamwork/Collaboration** - We bring our talents together to serve our values clients well. Through teamwork, individual contribution and ideas help create greater results, advantageous to our clients, this brings together our organisation, business partners and service providers.

d) **Integrity –** we battle to do right things no matter the situation. We practise integrity, ethical behaviour and honesty in all work we do.

1.2.3 VISION

Minerva's vision is primarily based on its distinctive client promise. Minerva believes that a vision is nothing without fulfilling its first goal that is customer satisfaction.

1.3 PROBLEM DEFINITION.

Since Minerva Risk Advisors was created, people had to go and pay their insurance premium manually, swiping or paying in cash. This system has certain problems as below:

- The system is not cost effective as the people have to incur travel expenses as they go and pay their premiums, insurance applications and claims.
- Time management is not effective as people have to spend time travelling to go and pay their premiums, submit applications and submitting claims.
- Clients document storage and retrieval takes time as the documents are stored in a hard copy state.
- The system is not convenient as you cannot pay your premium after work hours.

1.4 AIM

Coming up with a computerized system that allows the client to have a fast, efficient and cost effective way of paying their premiums and submitting their claims.

1.5 OBJECTIVES

The systems aims to attain the following:

- To provide an online platform were clients acquire insurance policy`s and get insurance quotations.
- To provide an online platform were clients can pay premiums and submit claims.
- To allow clients to track their payment history and track policy status.
- To have a system reminder on payment dates through sms.
- To provide an accidental guide to help clients in recording accident details.

1.6 HYPOTHESIS

In order to address the defined problems that the Minerva Risk Advisors clients are facing I intend to use different software like:

1. Android Studio. Android development platform.
2. XAMPP. Web server to test website scripts from a local computer.
3. Visual Studio. Multi-Language programming platform. I will use ASP.NET for website development.

1.7 JUSTIFICATION

- The proposed system is going to provide cost effectiveness as clients do not incur additional costs like transport costs as they commute to pay premiums and submit claims.
- The proposed system aims to increase time effectiveness as premium payment, making quotes and submitting claims can be done in far much less time than taken with previous system and it limits queuing.
- The proposed system would increase convenience as you can pay your premiums any time anywhere as the systems is online all the time of the day, being compatible to many devices supporting web browsing.
- Online payments such as the premium payment will favor and blend with the developing plastic money economy.

1.8 CONCLUSION

The project aims to solve problems being faced by Minerva Risk Advisors clients in the insurance industry. It serves to enhance efficiency of existing insurance process. All the problems were identified and the objectives stated.

CHAPTER 2: PLANNING PHASE

2.1 INTRODUCTON

This chapter is focusing on how the proposed system will be developed, its value to the organization and if the system can be done also termed feasibility. This analysis/ evaluation is done to examine if the proposed system is worth developing. Value of the proposed system to the business will give the system benefits over its costs to the business. A plan to show activities done in the proposed system development will be made.

2.2 REASONS FOR BUILDING THE SYSTEM

The value of the proposed system contributes to reasons the system is to be built. Some of the reasons are as follows:

- To decrease client travelling costs on payment, acquiring and amending policy details and submission of claims as they will be doing these actions through their mobile phone.
- To decrease service time eliminating clients waiting in queues to pay their premiums.
- To save time and increase convenience by enabling quick submission and payment procedures any time of the day.
- With the current state of the economy the system would promote plastic money as clients will have to pay online and not have to wait in long queues trying to withdraw premium payment money.

2.3 BUSINESS VALUES

The proposed system impact/ effects to Minerva Risk Advisors are to be assessed in this section, how the system is to affect their day to day doing of work. The value being benefits through efficiency, effectiveness and reliability, these can be tangible (seen) intangible (unseen) benefits. The following are the benefits to the business of Minerva Risk Advisor:

- The system will provide multiple payment of premiums to Minerva thus increasing cash inflow.
- The system will improve client detail storage and retrieval as it digitalizes the details.
- The proposed system will improve service availability by including payment and submission of claims after work hours and in the comfort of the clients home

2.4 FEASIBILITY STUDY

Feasibility being finding is something is possible, the proposed system undergoes evaluation. Analyzing how effective it is in terms of costs, resources and workability (user friendliness) Kendal (2005). Feasibility includes four categories that is operational, technical, social and environmental feasibility.

2.4.1 TECHNICAL FEASIBILITY

An evaluation on whether the design or product can be done is technical feasibility (Yahoo Answers). A consideration of the technical requirements of the system and the capability of the organisation to meet the proposed system requirements is done. The proposed system is declared feasible when the organisation is capable or meets the requirements.

2.4.1.1 TECHNICAL EXPERTISE

For the system to be built there need to be some technical experience and some technical literacy. An analysis on the literacy of employees technically in the organisation and their technical experience is evaluated. The following shows the organisation`s technical expertise:

- There is the presence of a developer in the organisation, very experienced with the tools and equipment used in the development of the proposed system.
- Almost if not all of the staff use computers at work 95% of the time and own personal computers themselves.

2.4.1.2 SOFTWARE AND HARDWARE REQUIREMENTS

A consideration of hardware and software that is the environment on which the system will operate from is evaluated and it encompasses:

- If the proposed system has the sufficient resources?
- Can the resources available at their state be upgraded so as to function and meet system requirements of the proposed system?

SERVER REQUIREMENTS

ITEM	REQUIREMENTS	AVAILABLE RESOURCES
Laptop	1	6
Processor	2.0Ghz	2.5Ghz
Hard disk	80Gb	500Gb
Operating system	Windows 7or better	Windows 7,8
Internet connection	UTP/WIFI	UTP,WIFI

Table 2.1 Server requirements

SOFTWARE DEVELOPMENT REQUIREMENTS

SYSTEM SOFTWARE	• Windows 7 or later • XAMPP • Android Studio/ Eclipse	**Available**
HARDWARE	Laptop 2.5Ghz, Windows 8, 320Gb	**Available**
ANTIVIRUS	AVG 2016	**Available**

Table 2.2 Software Development Requirements

2.4.2 ECONOMIC FEASIBILITY

Economic feasibility means if a thing can be made for a price that it can be sold at a reasonable profit. A cost/benefit analysis is done with the main focus on the effectiveness of the proposed system. This is done to determine the costs the system will produce as compared to the benefits expected from the use of the system. Expected questions in this area are:

- Are the benefits outweighed by the costs?
- What are the hardware costs?

- What are the software costs?
- What is the cost of study time of employees?

2.4.2.1 COST BENEFIT ANALYSIS

This is a view of the costs that will be incurred until the payback period passes Randall (1996). Costs are evaluated from the start of the system until it reaches the payback period to see if the costs are in-line with the organisation budget.

2.4.2.2 TANGIBLE BENEFITS

These are the direct benefits and can be expressed in monetary form.

ITEM	**VALUE($US)**
Reduced paper work	300
Improved productivity	400
Reduced time	500
Market share increase	950
Total	2150

Table 2.3 Tangible Benefits

2.4.2.2 INTANGIBLE BENEFITS

These are the unseen long term benefits obtained/witnessed by the organization through the use of the proposed system. Not all can be expressed in monetary terms, some of those that can be expressed are as follows:

ITEM	BENEFIT VALUE($US)
Increased worker moral	400
Increased worker performance	450
Increase organization image	700
Total	1550

Table 2.4 Intangible Benefits

Development costs

ITEM	QUANTITY	COST($US)
Laptop	1	450
System software	1	45
Android Studio/Eclipse	1	50
XAMPP	1	50
Internet connection	1	150
Total		745

Table 2.5 Development Costs

Operational costs

OPERATIONAL COST	VALUE($US)
Computer consumables	250
System maintenance	300
Total	550

Table 2.6 Operational Costs

COST BENEFT ANALYSIS

BENEFIT	VALUE($US)
Tangible benefits	2150
Intangible benefits	1550
Total benefits	**3700**
Development costs	745
Operational costs	550
Indirect costs	400
Setup costs	370
Total costs	**2065**
PROFIT(BENEFIT)	**1635**

Table 2.7 Cost Benefit Analysis

The benefits overweight the expected costs hence the proposed system is worthy to be developed.

2.4.2.4 RETURN ON INVESTMENT (R.O.I)

This is the profit expressed as a percentage of the expense/cost of building the proposed system. It's achieved using the following formula:

$$ROI = \frac{\text{Total Benefits} - \text{Total Cost}}{\text{Total cost}} * 100$$

Calculation of ROI= $\frac{\mathbf{3700\text{-}2065}}{\mathbf{2065}} * 100$

=79.18%

2.4.2.5 PAYBACK PERIOD

This is the amount of time the proposed system takes to pay the money invested into it Randall (1996). The shorter the payback period the favorable the proposal system.

Payback period

YEAR	CASH INFLOW/OUTFLOW	BALANCE
0	(2250)	(2250)
1	2450	200

Table 2.8 Payback period

2.4.4 SOCIAL FEASIBILITY

The systems acceptance by the society is termed social feasibility. Focus is put on the impact/ effects of the proposed system to the society and its effectiveness in helping in the society be better.

2.4.4.1 TOP MANAGEMENT

The ability of the system to record payment history, policy information and claim history allows top management to plan in the organisation. This detail allows managers to evaluate policy`s and products they offer for improving the business goal effectively and efficiently.

2.4.4.2 PERSONNEL

System introduction often lead to the limiting in workload but as for this system workload and human resource is not changed as employees are needed to handle the policy`s and claims submitted to the organisation through the system.

2.4.5 OPERATIONAL FEASIBILITY

How good the system is to solve the problem is termed operational feasibility. The organisation`s willingness to support the proposed system is seen here and it marks the system operationally feasible. Acceptance by the employees also plays a big role in this.

2.4.5.1 RISKY ANALYSIS

An analysis of all possible threats to the system is done in this section. Planning is done so as to reduce or curb the occurrence of these possible threats. Ares that risk arises are:

2.4.5.2 TECHNICAL RISKS

Employees at Minerva Risk Advisors need to be computer literate if they are to use the system so a need for computer literacy training is need for those that are not computer literate at the organisation.

2.4.5.3 TIGHT SCHEDULE

For the propose system to be built it requires 3 months or less for its development and implementation. Pressure is put on the developers of the proposed system as they will be racing against time to complete the system in the time intended. To reduce the pressure on the personnel working the proposed system a work plan is created to help them in time management.

2.4.5.4 UN-ESTIMATED INFLATION FLUCTUATIONS

The inflation rate is unpredictable and this poses a threat to the proposed system. The organisation`s budgets can be affected as the inflation rate rises and to curb this the organisation is to maintain steady reserves.

2.4.5.5 SYSTEM DESIGNERS AND ANALYSTS

Systems analysts serve as change agents who identify the organisational improvements needed, design systems to implement those changes, and train and motivate others to use the systems. These are the intermediates between programmers and employees. Failure in interpreting what the employees want leads to unusable complicated systems. To avoid this a constant research on changes that arise in system development is done.

2.4.5.6 FULL RISK ANALYSIS

Risk can be broadly defined to involve risk assessment, risk communication and risk management. Risk assessment being identifying and estimating the probability of occurrence, risk management being actions to do about the identified risks and risk communication being able to convey the identified risk to the organisation. Table 2.9 below shows the dangers identified and the counter measures associated with the proposed system.

Asset	**Undesired event**	**Loss effect**	**Counter measures**
Computer	Gets damaged or stops working	High	Continuous back up of computer files
File server	Corruption or unavailability	High	External or cloud back up of databases
Hardware	Damages or unavailability	Low	Obtain hardware resources in advance
Software	Corruption	Medium	Regular update of antivirus and firewall
Personnel	Unavailability or lack of adequate knowledge	Low	Defined and comfortable time schedules and early training

Table 2.9 Risk assessment

2.5 DEVELOP WORK PLAN

Phase	Start date	End date	Duration
Introduction	13.10.16	19.10.16	One week
Planning and feasibility study	20.10.16	26.10.16	One week
Analysis	27.10.16	1.11.16	One week
Design phase	2.11.16	15.11.16	Two weeks
Implementation	15.11.16	30.11.16	Two weeks
Maintenance	1.12.16	On going	On going

Table 2.10 Work Plan

Gantt chart

Activity	Week one	Week two	Week three	Week four	Week five	Week six	Week seven	Week eight
Project proposal								
Planning phase								
Analysis phase								
Design phase								
Implementation phase								
Maintenance								
Documentation								

Table 2.11 Gantt chart

Key **1 week** 

2.6 CONCLUSION

An evaluation on the worthiness of the system (why build the system) has been done and how it is to be developed. The development of the proposed system is feasible as the organisation meets the requirements and the system meets the organisational needs. An analysis phase follows.

CHAPTER 3: ANALYSIS PHASE

3.1 INTRODUCTION

This assessment/analysis phase will shine light on the advantages and disadvantages/ strength and weakness of the system. What the system does will be shown in this section through diagrammatical analysis. System representation through context diagrams and data flow diagrams will be used. Also covered in this section are information gathering methodologies, analysis of the present system, alternatives and requirements assessment.

3.2 INFORMATION GATHERING METHODOLOGIES

These are systematic approaches by enabling users to respond/ answer to questions and later evaluate their responses (Shelly et al, 2010). The systems analyst uses these methods to obtain information on the current/ present system and how it operates. There are many methodologies and some used by the system analyst are observation, interviews and questionnaires. These methods are detailed below:

3.2.1 QUESTIONNAIRES

This is a set of structured or unstructured questions closed or open for obtaining information from individuals. This questionnaire design was based on the problem definition with the aim to expose the problem. It consisted of nine questions targeting the problem and they had to be few so as not to take a lot of time from the people who answered the questionnaire. A number of questionnaires were distributed to Minerva`s clients as they are the ones with the experience of the present system. Information concerning how the clients would pay their premiums, how they frequently paid their premiums and the time they dedicate to paying their premiums. The questionnaire was used due to its anonymity for quality data gathering and for a range of answers that interviews and observations cannot provide. A few questionnaires were returned by the clients as some would forget and a few would answer the questionnaire immediately.

3.2.2 INTERVIEWS

They are person to person conversations conducted by the system analyst so as to get details/ data (O'Brien, 2011), in this case concerning the present system. Some unstructured interview appointments were set with some of the staff at Minerva risk advisors and some interviews done with the willing clients. The interview questions were centered on the problem definition, getting

to understand the problem of the current system. Due to the limited time with the interviewees they usually would have an average of 6 to 8 questions targeting transport mediums used, how the clients would create time to come and pay their premiums and any other problems they would be experiencing with the current system. Another set of interview was done were the staff were interviewed providing information on the system in use. Information concerning how the system worked and any flaws pertaining the use of the system were exposed. As a busy company the developer managed to have so little time with a single interviewee, the time was ranging from four minutes to seven minutes. Further questions asked in the interview were derived from the interviewee feedback/ responses.

3.2.3 OBSERVATION

In this methodology the system analyst gathers information from seeing how the present system and employees work. The analyst watches the day to day operations of the business being done and gathers his data from that. Two observations were partaken, the first on the 11th of January 2017 and the second on the 13th of January 2017. This method was useful in many ways as it provided areas that would not be covered by interviews and questionnaires for example service time and waiting time of clients paying their insurance premiums or amending policy's. A first hand witness of the manual system indicated some flaws and major areas of interest of the system in use. Observation was used so as to witness and also understand how the system works and were the improvement or innovation would fit pertaining to the problem definition concerning the current system.

3.3 ANALYSIS OF THE EXISTING SYSTEM

Analysis and hypothesis of the present system is carried out. Included in this is the security, inputs, processes and outputs of the present system so as to improve the proposed system.

3.3.1 CURRENT SYSTEM OVERVIEW

When getting an insurance quotation or a policy one has to commute to Minerva Risk Advisors to do this. Upon policy creation the policy if filed in the policy filing room awaiting retrieval for reference if necessary. Any amendment and payment premium has to be done at Minerva Risk Advisors. When a claim is submitted, it is evaluated and the client is notified on the outcome be it payment or non-payment and the claim is stored in the claim filing area.

3.3.2 CURRENT SYSTEM INPUTS

- Vehicle owner information
- Motor vehicle information

3.3.3 CURRENT SYSTEM PROSESSES

- Recording of vehicle owner information
- Recording of motor vehicle information
- Creation and storage of client policy

3.3.4 Outputs:

- Client motor vehicle insurance policy

3.4 DATA ANALYSIS

This involves the modeling of data with the aim of finding data that is useful. Data will be modeled in the form of Contextual and Data flow diagrams representing inputs, processes and outputs.

3.4.1 CONTEXT DIAGRAM

This is a diagram consisting of objects like unit names, put in an order from specific to general (Dean 2006).

Context Diagram

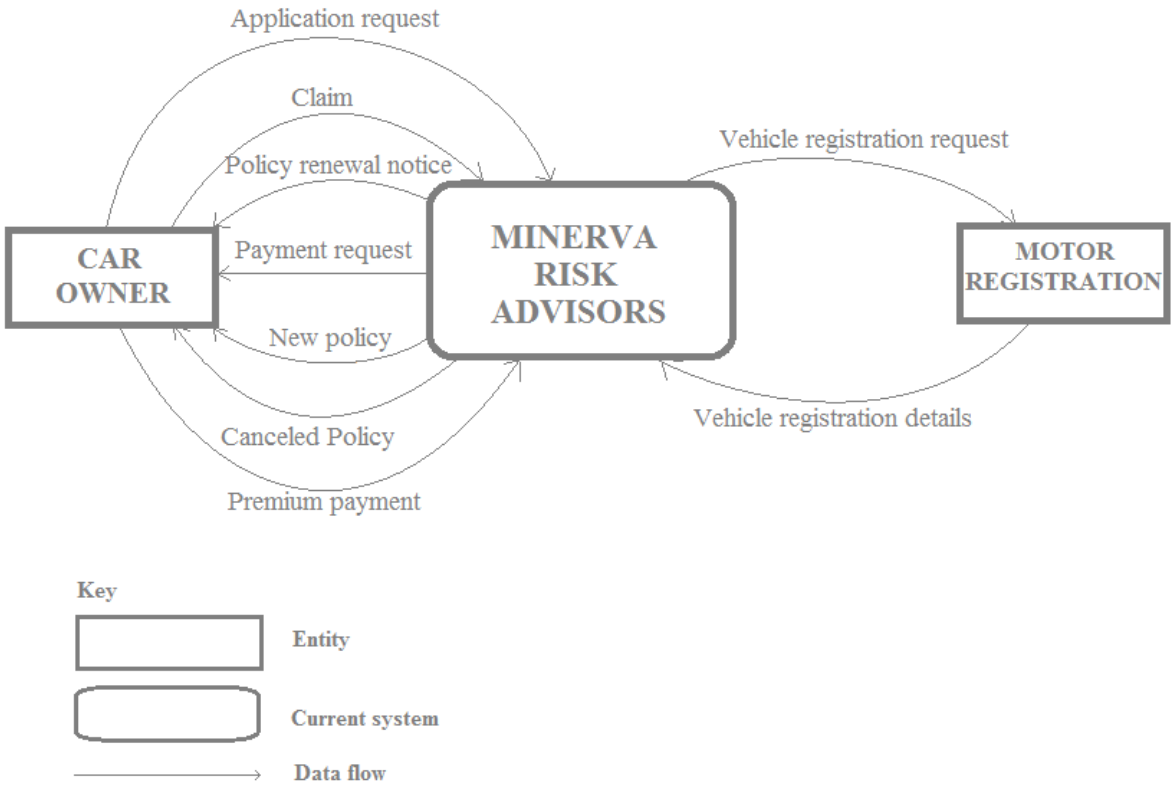


Fig 3.1 Contextual Diagram of Current system

3.4.2 DATA FLOW DIAGRAM

This is a presentation of data/ facts and how data flows through an information system represented graphically focusing on process features (Laudon, 2012). They show how data moves/ flows within an organisation and below is the data flow diagram of the present system showing its data movement and processes:

Data flow diagram

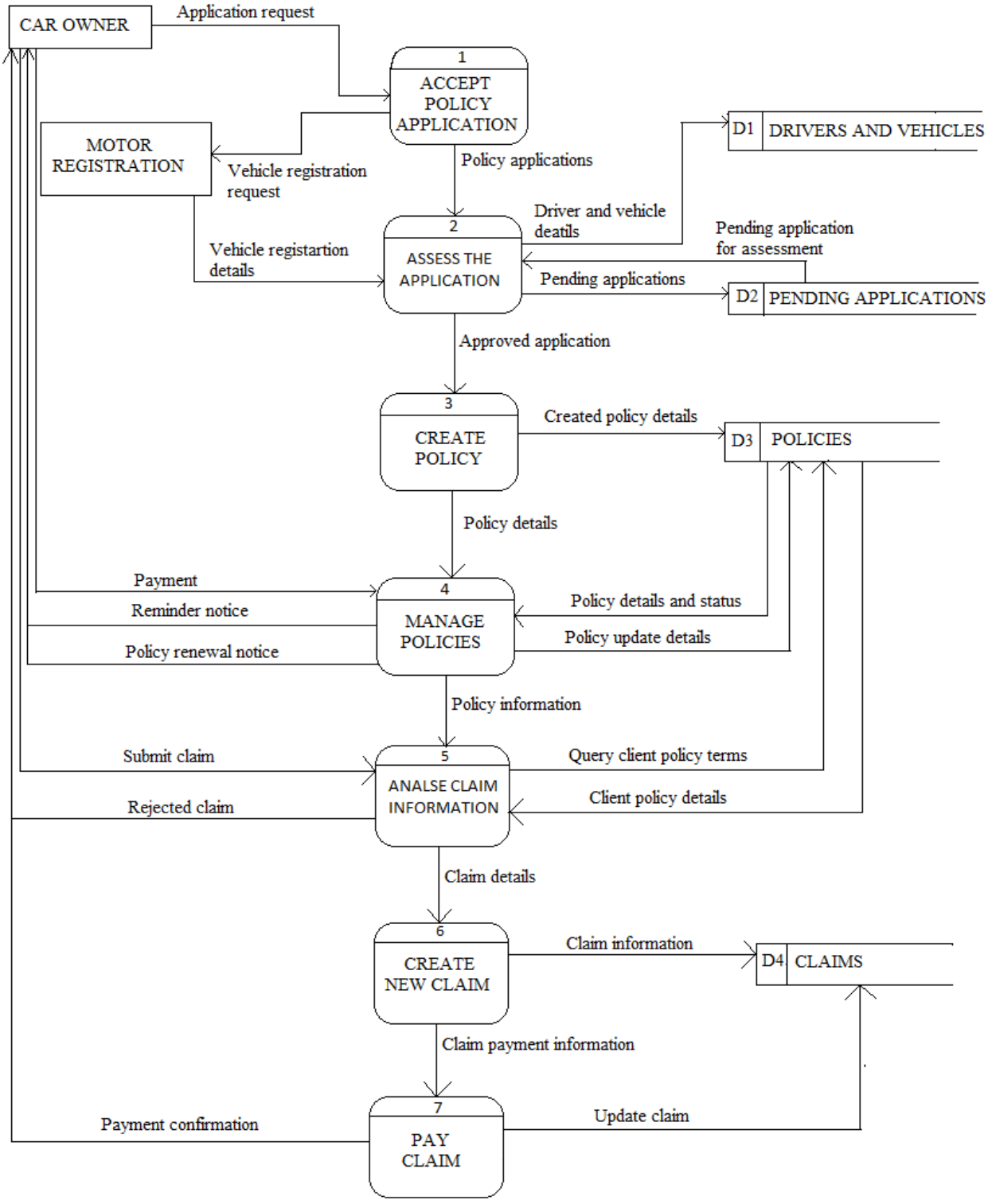
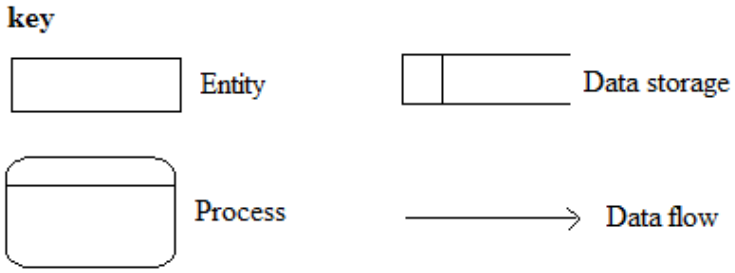


Fig 3.2 Data flow diagram



3.5 CURRENT SYSTEM WEAKNESSES

- The system is not cost effective as the people have to incur travel expenses as they go and pay their premiums, insurance applications and claims.
- Time management is not effective as people have to spend time travelling to go and pay their premiums, submit applications and submitting claims.
- Clients document storage and retrieval takes time as the documents are stored in a hard copy state.
- The system is not convenient as you cannot pay your premium after work hours.

3.6 EVALUATE ALTERNATIVES

This section will alternatives are also considered. Focus is put on alternative selection, in house development, improvement and outsourcing.

3.6.1 OUTSOURCUNG

Outsourcing is a situation where developers, experts and system vendors are given the task to develop the proposed system (Larson and Gray, 2011). Considering that Minerva Risk Advisors has personal details of clients this is not the best option available as it cannot give an external source confidential information.

3.6.1.1 ADVANTAGES OF OUTSOURCING

- It has no or very low development costs.
- Less staff is needed as the manufacturing firm does all the implementation needed.
- Manufacturer expertise means system requirements are met.
- Reduction in implementation time and documentation.

3.6.1.2 DISADVANTAGES OF OUTSOURCING

- Unmet specifications by the manufacture.
- System reference from the manufacturer will lead to training costs.
- Manufacturer can produce a complicated system for the organisation

3.6.2 IMPROVEMENT

This when the present system is added value by implementing new ideas and adding new components to the system (Marakas, 2001). This is one good idea as Minerva Risk Advisors can add new components (the mobile system) to the existing system.

3.6.2.1 ADVANTAGES OF IMPROVEMENT

- Ease of use when the system is produced.
- Low development costs as components are added.
- Systems produced usually meet the requirements.

3.6.2.2 DISADVANTAGES OF IMPROVEMNET

- Upgrade and integration is not always easy as some components may not be compatible.
- Errors in the present system are brought to the improved system.

3.6.3 INHOUSE DEVELOPMENT

The performing organisation is the organisation in want of the system, that is the system is developed internally (by the wanting organisation) (Larson and Gray, 2011).

3.6.3.1 ADVANTAGES OF INHOUSE DEVELOPMENT

- Requirements are met as the developers are from the organisation hence they understand system requirements.
- System development is done within the company's budget.
- Experience is gained by the developers and the system analyst.
- Developers take ownership.

3.6.3.2 DISADVANTAGES OF INHOUSE DEVELOPMENT

- The presence of experienced personnel is needed in the organisation and their absence may lead in system failure.
- Internal development takes a lot more time form work on top of the regular work time.

3.6.4 ALTERNATIVE SELECTION

In-house development becomes the appropriate alternative as it is possible from the company's own developers who are experienced. This is not costly and the company can implement it as it is not that demanding.

Cost summary alternatives

Alternative(s)	**Cost**
In-house	500
Outsourcing	1300
Improvement	600

Table 3.1 Cost summary alternatives

3.7 REQUIREMENTS ANALYSIS

It involves analysis on the expected things to be done by the proposed system/ attain. Functional and non-functional requirements are needed for the system to function well.

3.7.1 FUNCTIONAL REQUIREMENTS

- It must provide policy records.
- Multiple payment by clients should be supported.
- Service availability should be provided.
- Client assistance should be provided.
- Submission of insurance documentation must be provided.

3.7.2 NON-FUNCTIONAL REQUIREMENTS

- Ease of use user interface.
- Accessibility of service.
- System dependability.

3.7.3 USE CASE DIAGRAM

A use case diagram also known as the behavior diagram shows the action/ actions that can or should be done by users of the system.

Use case Diagram

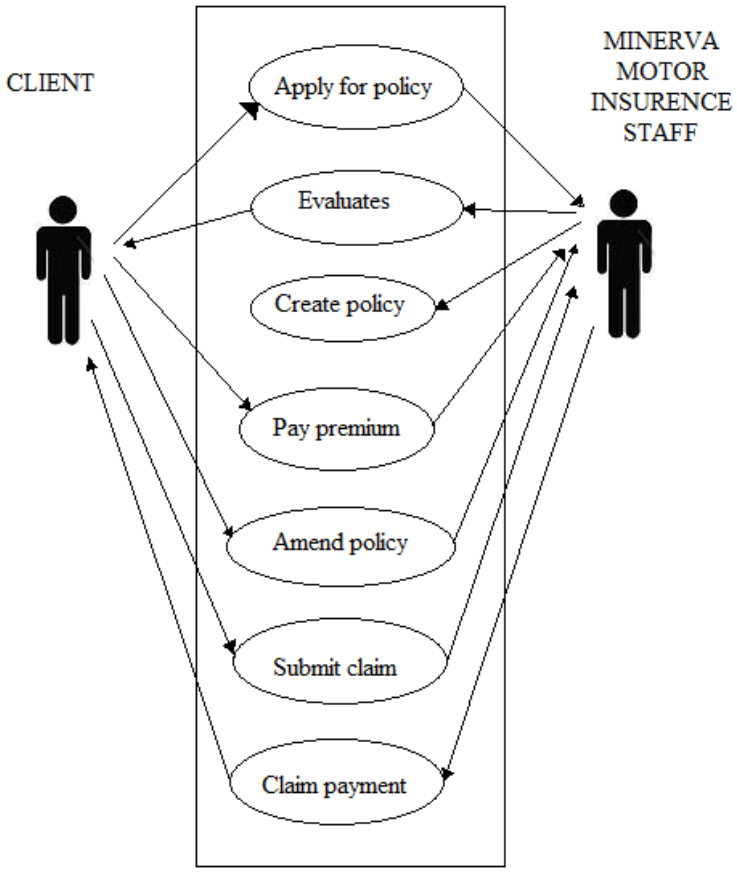


Fig 3.3 Use case diagram

KEY

Symbol	Description
	**Actor**
	**System boundary**
	**Use case**
	Uses / Extends

3.8 Conclusion

The system analyst collected information and reached a decision that the proposed system is fit for development and implementation enabling the system to solve problems Minerva and its clients are facing. A design phase follows focusing on the systems design.

CHAPTER FOUR: DESIGN PHASE

4.1 INTRODUCTION

In this design phase the proposed system set to rectify the problem being faced by Minerva Risk Advisors is designed. The chapter will enlighten the proposed system make/ design, interface, conceptual and data flow diagram, database and the systems architectural design. This chapter will increase understanding of the system to the student and it helps in the creation/making of the proposed system.

4.2 SYSTEM DESIGN

System design involves meeting the user's specifications by making the modules, components and interfaces meet the requirements (Epping, 2008). A reliable, compatible, maintainable and effective system is expected and so has to be with the system.

- **Reliability:** the system is expected to perform without complication. Reliability is to be increased by system availability that is the system will be available 24 hours a day.
- **Maintainability:** the proposed system is easily maintainable as it is not too complex to rectify problems. The system can easily be modified to adapt to changes needed by the organisation.
- **Compatibility:** the system can easily run on many platforms making it compatible to many environments of operation.
- **Effectiveness:** a design to increase ease of processing, accurate insurance and handling of many insurance documents processing is done.

4.2.1 SUMMARY OF PROPOSED SYSTEM

The proposed system will be used by Minerva Risk Advisors Motor insurance staff and the clients, integrated with the manual system being used at the moment. The computerization of the manual system inputs will be done to keep the data in one single state. A client will apply for a policy on their mobile and the application is received by the insurance broker at Minerva. The insurance broker accepts or rejects the application and if accepted the policy is created. Upon payment the policy is activated to be active for the desired period of time and upon the end of the period a notification is sent to the client to renew the policy. Upon accident occurrence the client can upload the necessary details on the accident creating a claim via their mobile.

Communication on the payment and processing for the claim is done with the client according to the policy they have. The client can also use the system to get a quotation for a vehicle they wish or consider to ensure. The client provides the details on the vehicle type, value and use, and the system will provide the details on the expected premiums to be paid according to the presented details. The system will help the client track the payments they have done, providing the transaction details of the payments. As an addition the system also provides accidental guide on what to do when involved in an accident.

CONTEXT DIAGRAM (PROPOSED SYSTEM)

This diagram shows how entities relate within a system and it is made up of entities from the most general to the most specific (Dean, 2006).

CONTEXT SYSTEM (PROPOSED SYSTEM)

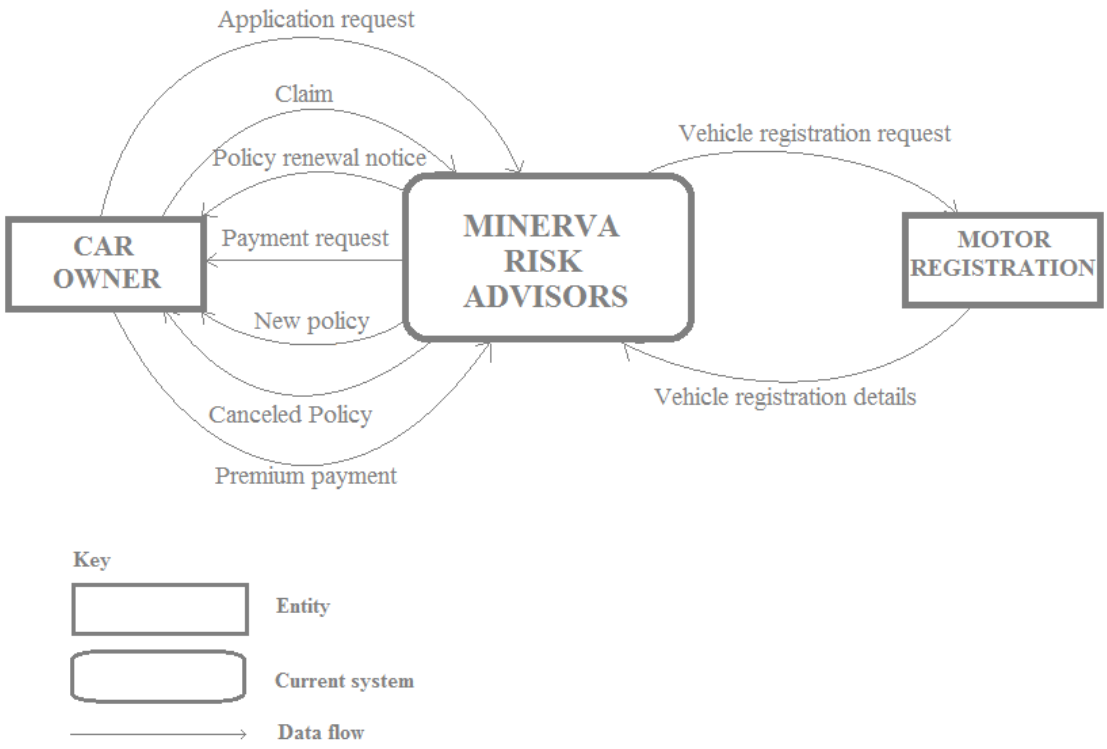


Figure 4.1 Context diagram of proposed system

Data flow diagram

This is a logical graphical model representing system components, showing system levels and information flow within a system (Laudon, 2012). The data flow diagram shows how the system will work and it shows almost all processes involved in the system. The flow of data/ information of the proposed system is shown by the data flow diagram below:

DATA FLOW DIAGRAM (PROPOSED SYSTEM)

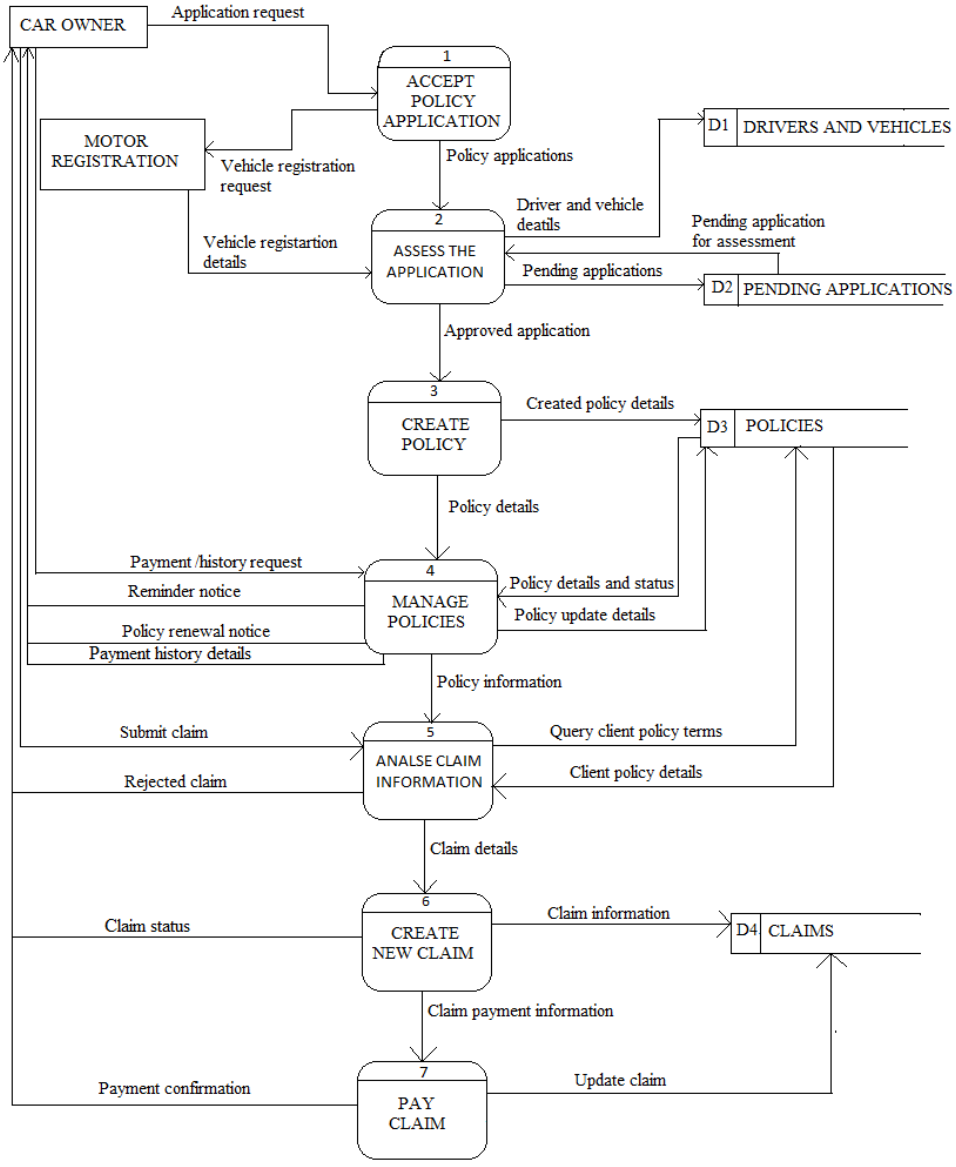
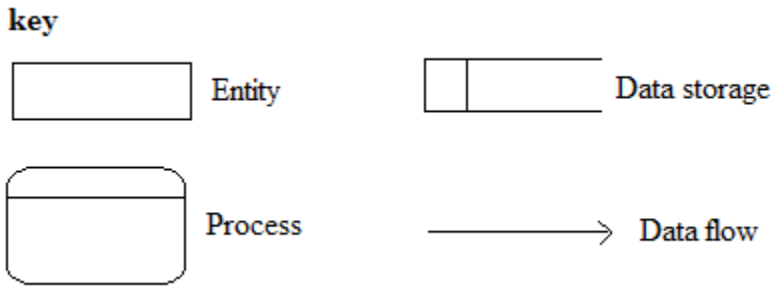


Figure 4.2 Data flow diagram



4.3 Architectural Design

Architectural design involves identification and descriptions of system components that is hardware, software, procedures and requirements (Sommer, 2006). This is done with an aim to reduce lagging/ slowness caused by the system components that are affected by architectural factors, hardware and software. The main focus is put on hardware/physical components that is how they are arranged in the system. Components that will comprise of the proposed system are as follows:

4.3.1 CLIENT MACHINE

Found at the clients side of the system these are the clients mobile phones that will contain the **UI (user interfaces) use by the clients to interact with the proposed system.**

4.3.2 NETWORK CABLES

These are the connection between the internet and the proposed systems server and computers used with the system.

4.3.3 PRINTERS

These will be used to print out the reports generated by the system at the organisation side.

4.3.4 SERVER

The server is the one that will receive all the information sent by the clients of the system.

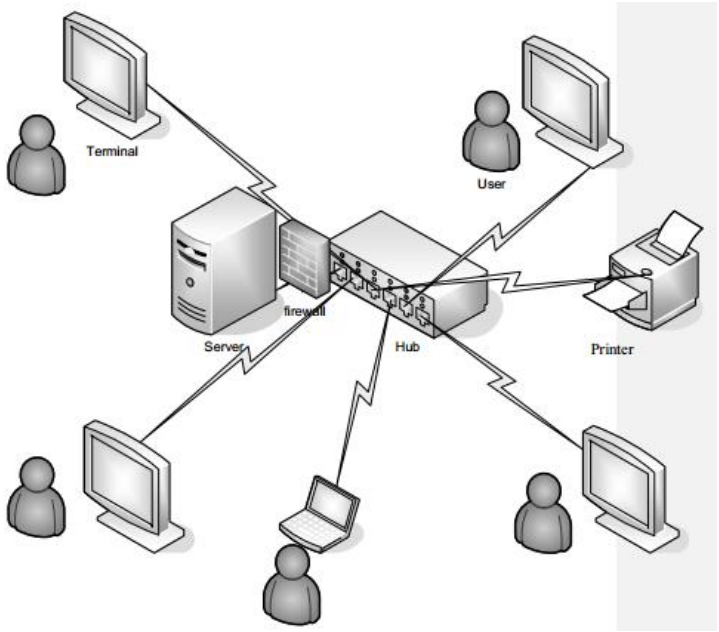


Diagram 4.3 Client server model

4.4 PHYSICAL DESIGN

The physical design is like a set of blueprints for the proposed system (Shelly, 2012). This describes the layout of the proposed system from logical design to technical design. The main focus is on hardware arrangement of the proposed system and the system will consist of the following components:

4.4.1 APPLICATION SERVER

The application server is the machine/ machine that will be hosting for Minerva Risk Advisors. In this machine will contain the database that will be used by the proposed system.

4.4.2 FIREWALL

A firewall is a security measure put in place to secure a network (Shelly, 2012). The firewall is a software which will examine all network sent to and from the network connecting the system to the internet.

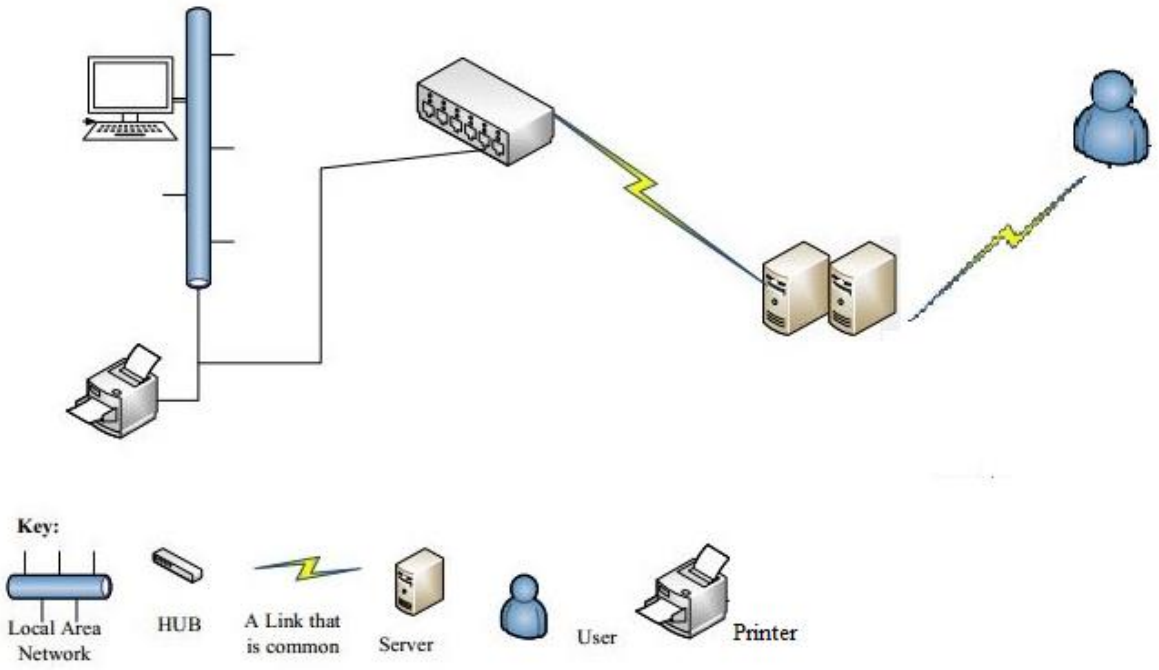


Figure 4.3 Physical design

4.5 DATABASE DESIGN

A collection of interrelated data relevant to an enterprise is referred to as a database (Silberschatz, 2011). The student is concerned on the best way of creating a database and finding the most suitable way to store information. The database design will consist of various layers which are the application, conceptual and physical layer.

4.5.1 EXTERNAL LEVEL

In this level user`s views are found and represented. Information is represented in many ways for example dates can be in the format day-month- year in or it can be in year-month- day. In this level the data is then used to represent calculated data.

4.5.2 CONCEPTUAL LEVEL

Data to be stored is described in this level. Entity representation is done and an in depth concerning their reliability information, available constraints, involved security and their unique characteristics is executed. External information used by the user's in derived in this level.

4.5.3 INTERNAL LEVEL

How data is arranged and stored in the database is discussed in the internal level. The main focus is the information that will be in the database. Space allocation and security is also an issue tackled in this level of the database. Security will be concerned with the encryption of the data that is how to encrypt it and using what.

4.5.4 PHYSICAL DESIGN LEVEL

This level involves the real world things concerning the database that is the location of the database is selected and choosing of the procedures done when storing the data. Also included will be the physical security of the database.

4.5.5 DATABASE TABLES

Tables are a group of elements that are used to structure data storage in a database. These tables are grouped into two that is the parent table and child table. The proposed system will use the following database tables:

User table

Field Name	**Data Type**	**Description**
uid	int(225)	Primary key
email	varchar(40)	User email
password	varchar(40)	Users password
name	varchar(40)	Users name
surname	varchar(40)	Users surname
natID	varchar(40)	Users national identification
address	varchar(70)	Users address

Table 4.1 User Fields

Policy table

Field Name	Data Type	Description
Policy_number	int(225)	Primary key
uid	int(225)	Unique identifier
policy_type	varchar(40)	Policy type
period	varchar(40)	Policy run time
date_created	varchar(40)	Policy creation date
date_expiry	varchar(40)	Policy expiry date
vehicle_ID	varchar(40)	Vehicle id
status	varchar(70)	Policy status
amount	varchar(70)	Policy premium

Table 4.2 Policy fields

Claims table

Field Name	Data Type	Description
claim_number	int(225)	Primary key
Policy_number	int(225)	Unique identifier
doc_id	int(225)	Document identification
driver_name	varchar(40)	Driver's name
address	varchar(40)	Driver's address
dob	varchar(40)	Driver's date of birth

license	varchar(40)	Driver’s license number
relation	varchar(70)	Drivers relation to owner
authorised	varchar(15)	Journey authorised
Passengers_injured	varchar(5)	Passengers injured
status	varchar(10)	Claim status

Table 4.3 Claim fields

Documents table

Field Name	**Data Type**	**Description**
doc_id	int(225)	Primary key
report_name	varchar(40)	Police report name
Report_url	varchar(40)	Report url
quote_name	varchar(40)	Quote name
quote_url	varchar(40)	Quote url
quote2_name	varchar(40)	Quote name
quote2_url	varchar(70)	Quote url

Table 4.4 Documents fields

Vehicle table

Field Name	Data Type	Description
Vehicle_ID	int(225)	Primary key
uid	int(225)	Unique identifier
make	varchar(20)	Users password
model	varchar(20)	Users name
egine_number	varchar(15)	Users surname
chasis_number	varchar(15)	Users national identification
value	varchar(10)	Users address

Table 4.5 Vehicle fields

Rates table

Field Name	Data Type	Description
id	int(225)	Primary key
crate	varchar(10)	Comprehensive rate
cmin	varchar(10)	Comprehensive minimum
frate	varchar(10)	Full third party rate
frate	varchar(10)	Full third party minimum
RTA	varchar(10)	Road traffic act amount

Table 4.6 Rates fields

4.5.6 ENHANCED ENTY RELATIONSHIP DIAGRAM

This is a diagram used to understand the frame work of a system by the representation of the system levels Larson and Gray (2011). This diagram will help the designer/ developer to understand all the needs and specifications of the system to be developed. Below is the enhanced entity relationship diagram for the proposed system:

Enhanced entity diagram

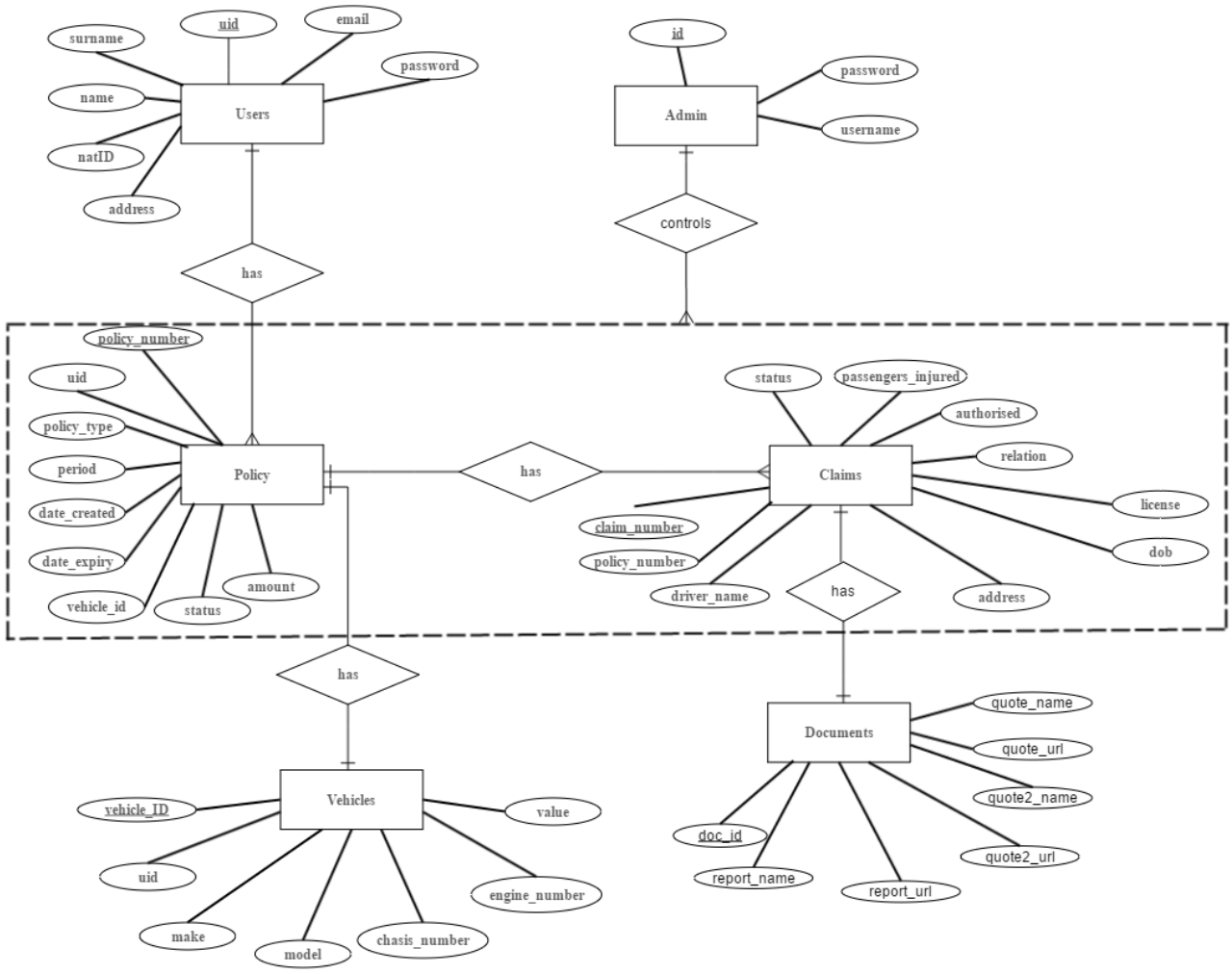


Figure 4.5 Entity relationship diagram

KEY

Entity **Relation** **Attribute of an Entity** **one to one relationship** **One to many relationship**

4.6 PROGRAM DESIGN

Program design comprises of the steps taken by the developer before the coding starts. This is done so by the use of a package diagram, class diagram and sequence diagram. Program flow/ logic is achieved through the use of the class and sequence diagrams.

4.6.1 PACKAGE DIAGRAM

The interaction of system modules is shown by this diagram. This diagram show dependencies of modules within the system. Below is the package diagram for the proposed system showing the interaction of the packages to the user interface:

Package diagram

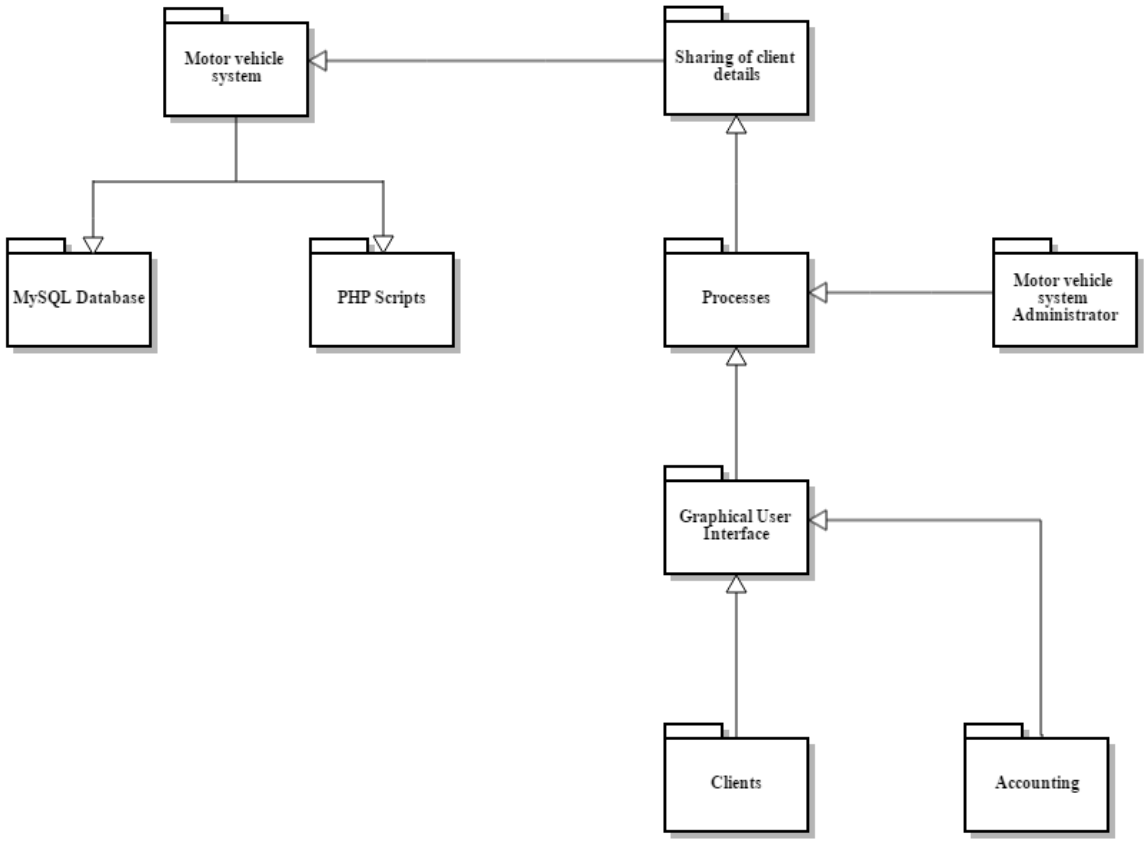


Figure 4.6 Package diagram

4.6.2 CLASS DIAGRAM

A class diagram describes objects interaction, relationships, behavior and it is part of object oriented programming. A program structure is shown by the class diagram that is attributes of the classes and their inheritance. The following is a class diagram for the proposed system:

Class diagram

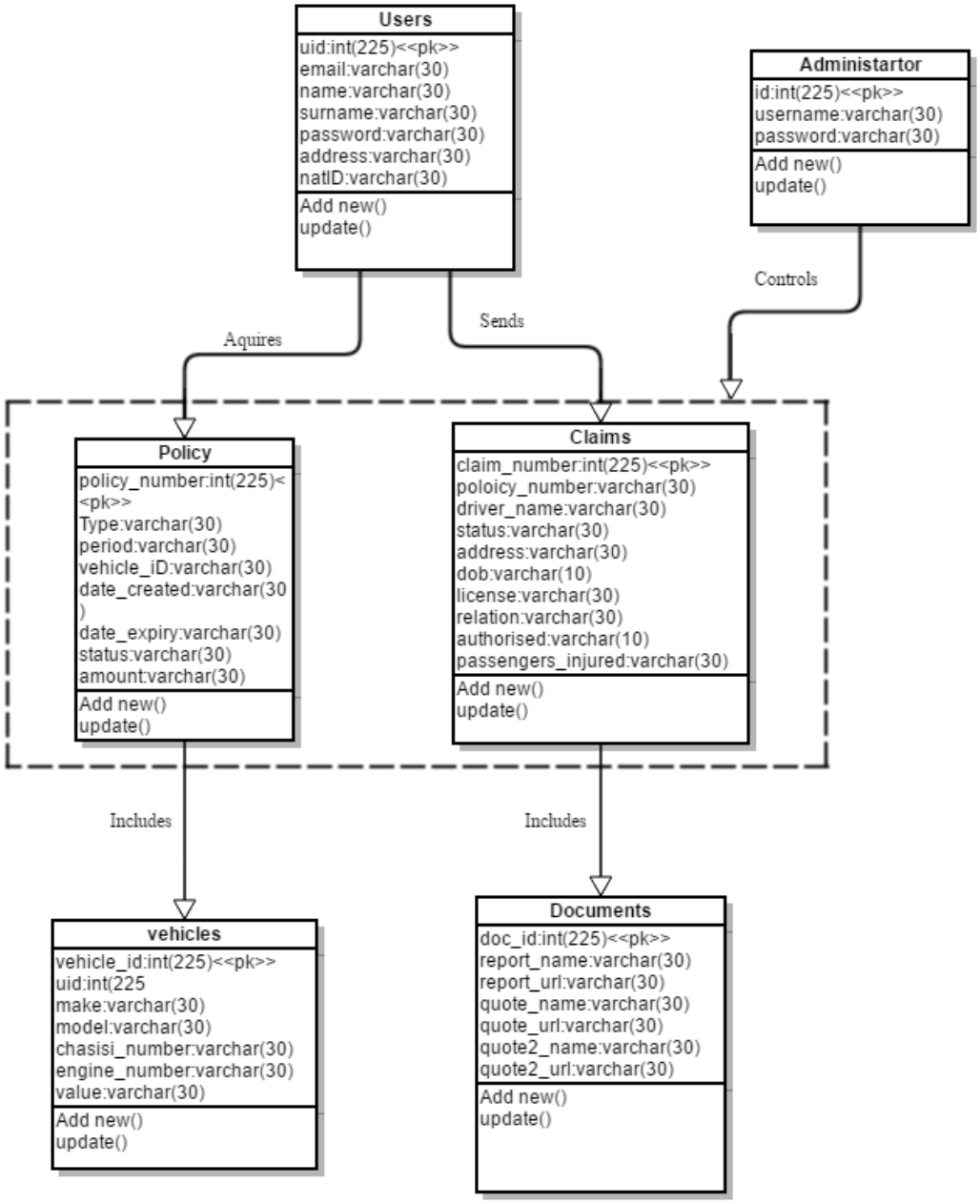
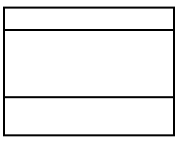


Figure 4.7 Class diagram

Key



Class

Connector

4.6.3 SEQUENCE DIAGRAM

A sequence diagram shows how the system will operate logically displaying operations that will be done between the entities and the system. These diagram s show how data progresses within the system over time leading to the system function. Below is the sequesnce diagram for the proposed system:

Sequence diagram

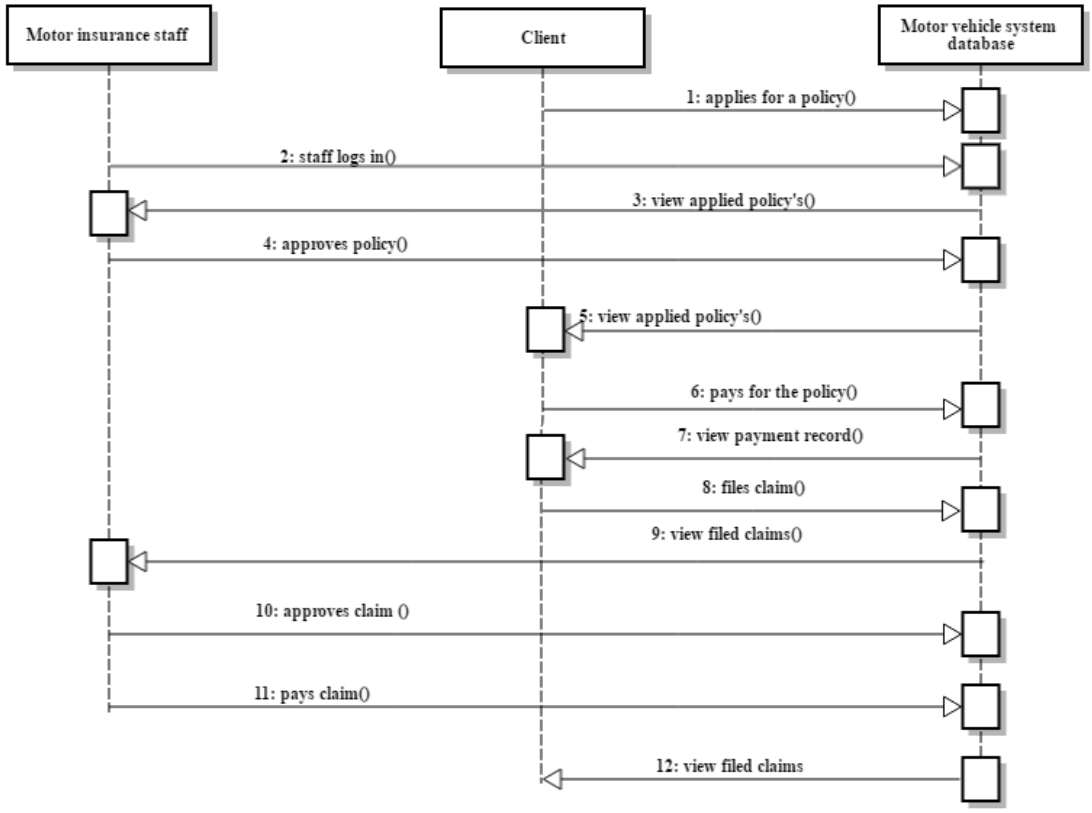


Figure 4.8 Sequence diagram

4.7 INTERFACE DESIGN

On every system a component associated with interacting is very vital and this is when it is designed and this is termed an interface. This interface will be used to accept input and to display output to the client/ user using the proposed system. The following are designs of the proposed system interface:

4.7.1 MENU DESIGN

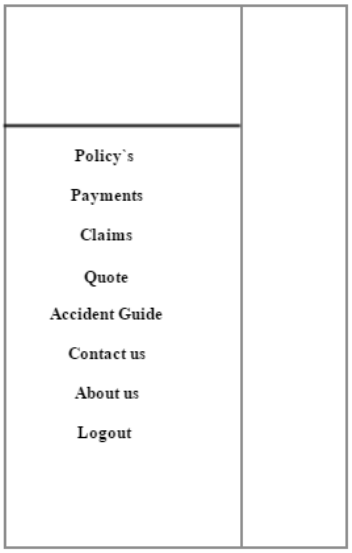


Figure 4.9 Menu design

4.7.2 INPUT DESIGN

Inputs is data/ information that is put into the system for storage or for use in certain operations.

The following are the designs of the input forms for the proposed system:

Register

Figure 4.10 Register form design

Login input

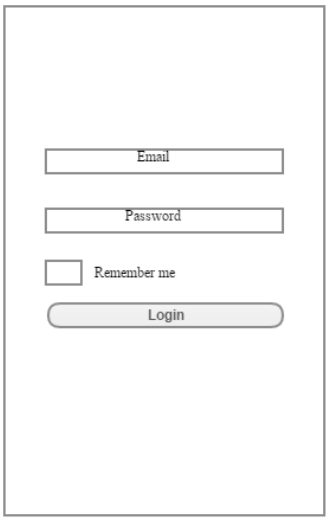


Figure 4.11 Login form design

Policy input

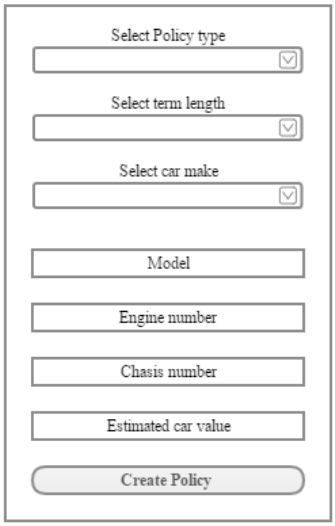


Figure 4.12 Create policy form design

Claim input

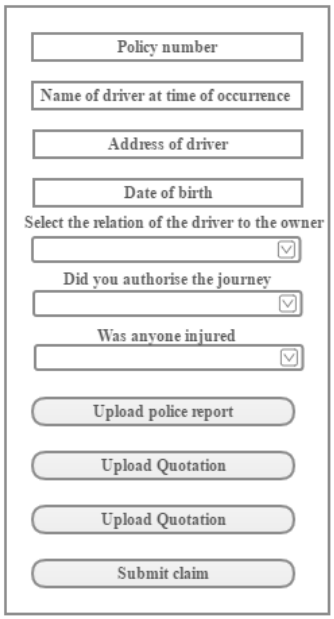


Figure 4.13 Create claim form design

4.7.3 OUTPUT DESIGN

Output involves displaying/ showing of information or data from the system. The proposed system will have the output forms designed as follows:

Policy output

Figure 4.14 Policy output form design

Claim output

Figure 4.15 Claim output form design

On every system a component associated with interacting is very vital and this is when it is designed and this is termed an interface. This interface will be used to accept input and to display output to the client/ user using the proposed system.

4.8 PSEUDO CODE

Connecting to the database

Check if connection has been made

    If not made

        Connect to database

    Else

        Ignore

Login

Enter username and password

    If correct and valid

Go to main menu

Else

Try again and count number of tries

If tries > 3

Lock account

Create a policy

Get details provided

Validate details provided

If correct

Send details to database

Else

Request user to enter correct details

Create a claim

Get details provided

Validate details provided

If correct

Send details to database

Else

Request user to enter correct details

Getting a quotation

Get details provided

Validate details provided

If correct

Compute policy with provided details

Display the computed details

Else

Request user to enter correct details

4.9 SECURITY DESIGN

Freedom from risk or danger is termed security. For the proposed system security is mainly concerned on the protection against and prevention of access to information by unauthorized recipients and destruction or alteration of information by unauthorized personnel.

4.9.1 PHYSICAL SECURITY

Physical security involves a combination of procedures and physical measures put in place to counteract attacks/ threats against assets, people and information (Protective Security). In this case physical security has to be in place to safe guard the hardware used by the system that is the servers, computers and computer peripherals. The use surveillance can be used to safe guard the hardware used by the proposed system.

4.9.2 NETWORK SECURITY

Network security focuses on protecting data during transmission within a network by putting measures in place (Stallings, 2005). The local network of the organisation needs to be protected when it is connected to the internet from hackers and malicious software. The use of firewalls and antiviruses helps protect the proposed system form threats.

4.9.3 OPERATIONAL SECURITY

A focus on keeping the system operational/ running is put in operational security. With operational security measures are put as the system is in use and this may result in the changing/ altering of the systems code.

4.10 CONCLUSION

The proposed system was clearly expressed on how it is to be designed and all it needs. Implementation will follow were coding, testing and maintenance is discussed.

CHAPTER 5: IMPLEMENTATION PHASE

5.1 INTRODUCTION

This is the final stage of the system during which the system is built (Dennis et al 2012). In this phase a focus on the validating, verifying, testing and installation of the proposed system is done. Training on user acceptance is also a key focus with the aim to deliver the system to the clients. Also included in this phase is a summary of maintenance, installation, testing and coding of the proposed system.

5.2 CODING

This is a procedure of designing of computer programs by converting computer source code into desired computer programs (Miller 2010). At this part of the phase the system is designed /developed by writing computer programming/computer understanding code to meet the desired objectives. A preview of the proposed system coding will be shown by the use of pseudo code. Pseudo code is an imitation of the real programming instruction to show logic and structure of the programming language used to create a system or a program (Agarwal et al 2010). Below is a sample of the pseudo code related to the proposed system:

5.3 TESTING

This is done after coding whereby the programmer tries the programs components to make sure that they are functioning well (Shelly and Rosenblatt 2012). A series of tests to check if the system is validating and verifying is done to make sure that the system is accepting the correct input so as to maintain a great dataset for operational use by the system. Verification and validation is also done to reduce the risk of errors within the system. Below is a diagram that shows steps that are taken when system testing is done:

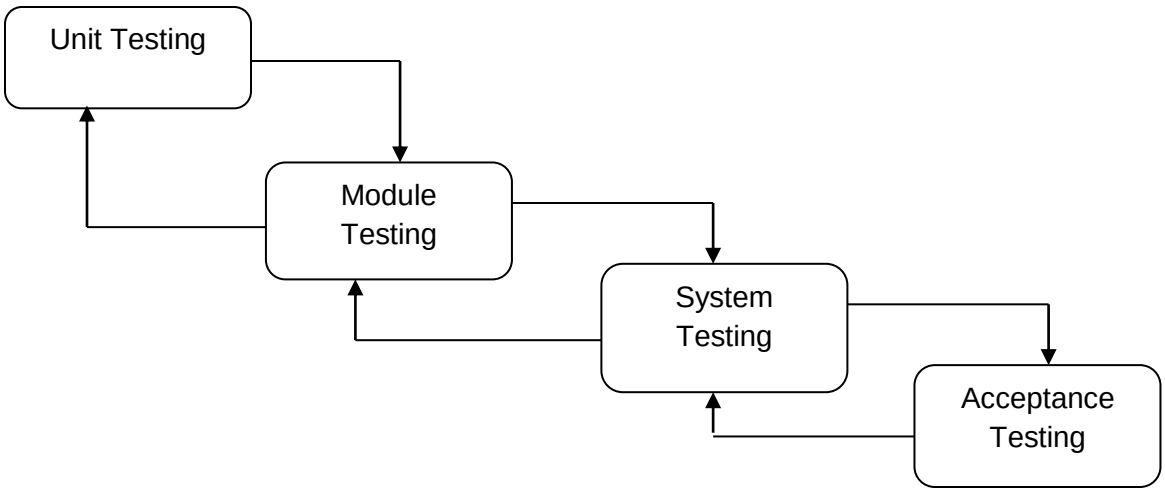


Figure 5.1 Testing flow process

5.3.1 UNIT TESTING

This involve the testing of an individual program (Shelly and Rosenblatt 2012). This type of testing is done to ensure that there are no errors is the system units with an aim to perfect the system units. Below is a figure showing the test of user registration of the proposed system:

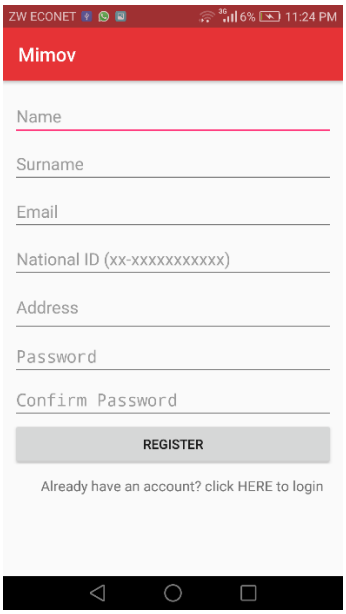


Figure 5.2 Unit testing Registration unit

5.3.2 MODULE TESTING

Module testing involves testing multipule units/ linked units to make sure if they are interacting with each other well. This type of testing is focused on verification of the system as it passes data between units. Dependency is exposed in this testing method. The diagram bellow shows how the policy creation unit works well with the claim creation unit:

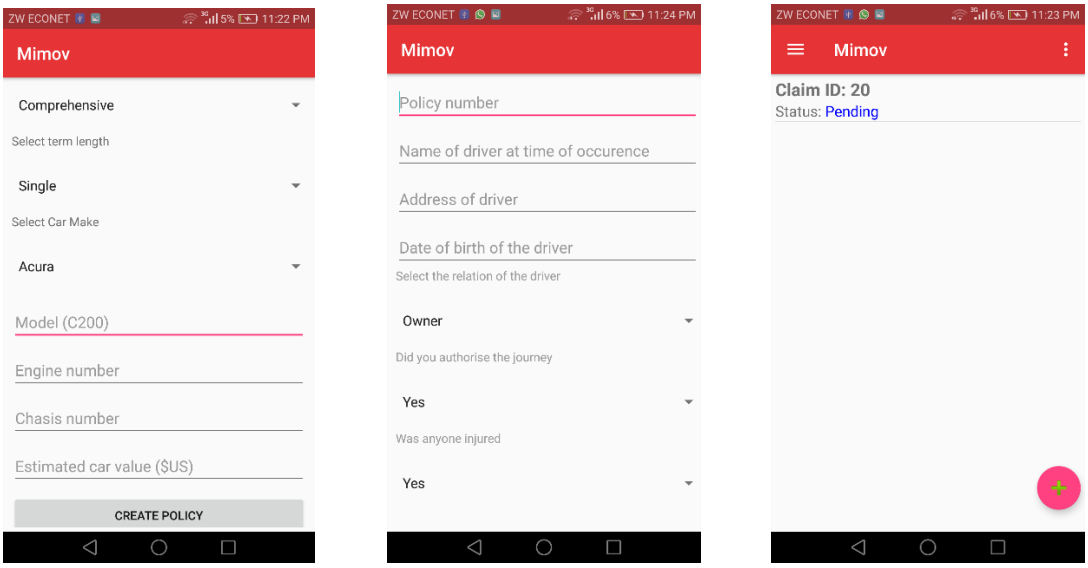


Figure 5.3 Module testing

5.3.3 SECURITY TESTING

The system is tested concerning its security. Security being the freedom from intruders accessing and manipulating the system and its data and protection against malware. The system has been made to operate on a secured network with a great firewall to block unauthorised access to the system. A security feature using a secrete phase has been used to access the system data by the use of the login as shown below:

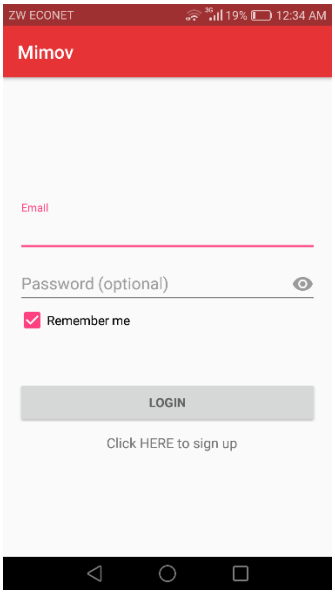


Figure 5.3 Security testing

5.3.4 SYSTEM TESTING

System testing involves the testing of the whole system that is every unit and module is tested on the system testing as one big information system. Various tests are conducted with the aim to fix every problem within the system and to exercise the system as a whole. This is done as an error evaluation process. Some tests done as part of the system testing are as follows:

- **Black Box Testing**

  Also known as exhaustive testing where a sample data of values is created to represent all possible values for the system (Saleh 2009). Data is manipulated producing all possible limits of data to test how the system will handle different data. Its termed black box as no knowledge of the system is used except inputs and outputs. This kind of testing with an expected outcome from the data set being used.

- **White Box Testing**

  With the white box testing the system is tested with the knowledge of how it works and in white box testing every statement of the program is tested. This kind of testing is likely to shine a light on errors missed by black box testing as the tester prepares a test that will target all the areas of the system.

5.3.5 ACCEPTANCE TESTING

Users are given a chance to talk, suggest and air their view on the system as a whole and this will determine the success or failure of the proposed system. User views will indicate if the systems specifications and objectives are met. To do this test the following steps are followed:

- **Alpha Testing**

  This is the testing done by the developers of the system within the developing organisation (Agarwal et all 2010). Data from the previous system is used to check on the performance of the proposed system. This test is usually done at the development site.

- **Beta Testing**

  Beta testing involves putting the system into the hands of the users that is the organisation that the system was designed for or the client that will have to use the system. Users are given the chance to explore, and try almost everything they can on the system so as to see how the system handles the data and operation. They system is provided as a Beta system meaning that it's a test system for the users and the users views on the system are considered

5.3.6 SYSTEM OBJECTIVES SOLUTION

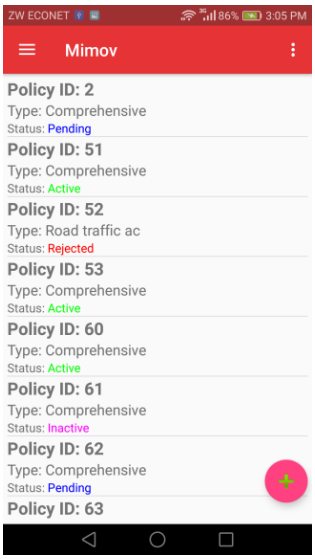
Objectives are system requirements that the system is supposed to perform. The following are objectives met and these are supported by figures :

5.3.6.1 OBJECTIVE

To provide an online platform were clients acquire insurance policy`s and get insurance quotations.

Solution (a)

The proposed system allows a user to get an insurance policy via the android application as show by **Figure 5.4:**



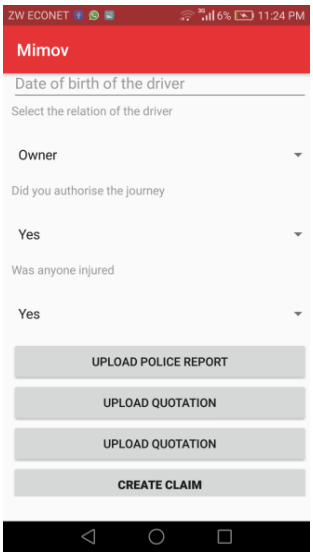


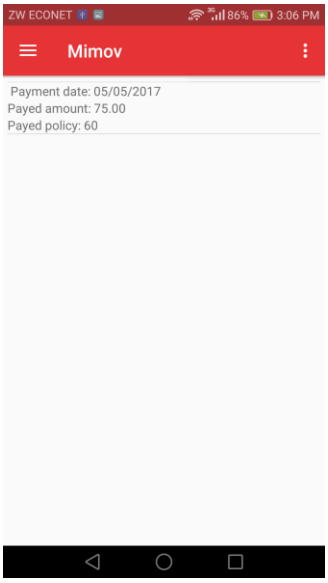
Figure 5.4 Screen shot for Objective 1

5.3.6.2 OBJECTIVE 2

To provide an online platform were clients can pay premiums and submit claims.

Solution (b)

Clients can pay their premiums and submit their claims through the use of the mobile application as shown in **Figure 5.5** below:



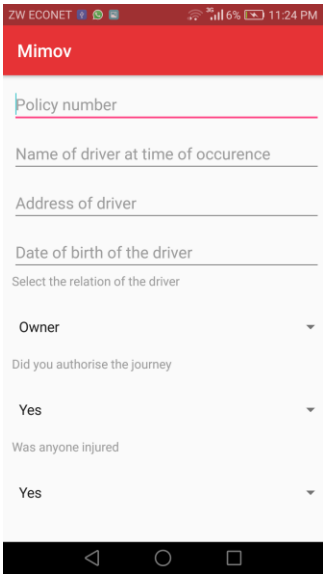


Figure 5.5 Screen shot for Objective 2

5.3.6.3 Objective 3

To allow clients to track their payment history and track policy status

Solution (c)

Clients are able to track their premium payments as show in **Figure 5.6** below:

Figure 5.6 Screen shot for Objective 3

5.3.6.4 Objective 4

To provide an accidental guide to help clients in recording accident details

Solution (d)

Clients now can refer to the accident guide if they get involved in an accident, **Figure5.7** below shows the guide:

Figure 5.7 Screen shot for Objective 4

5.4 INSTALLATION

Installation involves the setup of a software incorporating its binaries to the local file system so that it can be used by the receiving organisation. This step is achievable if the proposed system development has been completed. Involved in this installation stage are changeover strategies and user training to mention a few and they are as follows:

5.4.1 HARDWARE INSTALLATION

Hardware installation involves the setup and arrangement off the physical components of the system. These physical components enable the software to run smoothly. The setup of the servers, nodes and the network setup is done to ensure a great system setup.

5.4.2 SYSTEM INSTALLATION

This involves setting up the software part of the system by incorporating the system files into the local file system of the organisation. This is achieved by the use of setup applications to install database software and webserver applications that work hand in hand with the proposed system. These application are installed within the host organisation which will be using the system.

5.4.3 USER TRAINING

User training involves the users familiarizing themselves with the new system. In this step knowledge is to be imparted on the users of the system by a session of training lessons/ sessions done on the system in an effort to get the users educated on operating the system. This process can be facilitated by the use of user manuals so the users can refer to the manual if they face a challenge.

5.4.4 SYSTEM CHANGEOVER

At this stage the receiving organisation has to do away with the current/old system and adopt the new/proposed system. This changeover is a process that takes time to achieve and the organisation can adopt on of the changeover strategies there is. The change over strategies are as follows:

- **Pilot Operation**

  This changeover strategy involves implementing the new system to some part of the organisation. This is called/ termed low scale implementation. The organisation analyses how the system works in the small part of the organisation and it uses that as a bases to fully implement or drop the new system. The old system is substituted if the pilot implementation is successful.

- **Direct Cutover**

  This approach implies an immediate change from the old system to the new system Shelly and Rosenblatt (2011). Data migration in this strategy is intensive as the new system is to be setup quickly to operate as soon as possible. This is considered a risky operation as data loss and flopping of the new system will result in delaying or not meeting the organisation goals.

- **Parallel Operation**

  This changeover strategy states that the new and old systems operate together at the same time. This allows the organisation to fully compare the two systems leading to a more definite decision from the receiving organisation. This approach is considered to be expensive but it is the best strategy for risk elimination.

- **Phased Operation**

  Phased changeover involves replacing the system one step at a time, unit by unit, module by module. This strategy often shines a light to the units/ modules that are faulty from the new system. Errors are detected from individual modules as they are replaced with time.

With the setup of the system the developer suggested the use of the parallel operation changeover strategy as it eliminates the risk of data loss and business halting. This is a more suitable changeover strategy that allows users to adopt the system in their time so as to allow early adopters, regular adopters and laggards to use the system at their own time of understanding.

5.5 MAINTENACE

This is the process of refining the system so that it will always meet the business/ organisation needs (Dennis et al 2012). Not only is maintenance refining but also measures that are put in place to avoid system malfunction. Maintenance has many approaches and some of them are as follows:

- **Corrective Maintenance**

  It focuses on rectifying faults that were made during implementation and operations testing so as to return the system to its original state (Saleh 2009). These errors are found in the logs of the new system and measures are put to fix them or to avoid their occurrence in the system.
- **Adaptive Maintenance**

  This approach involves a constant monitoring of the system rectifying the errors and problem that occur so as to keep the system operable/ usable. Modifications can also be present so as to make the system more suitable for the organisation. This kind of maintenance can only be done when the system has been delivered to the receiving organisation.
- **Perfective Maintenance**

  Constant communication is witnessed with this type of maintenance as the developer is always seeking ways to improve the new system. The system is always constantly being

improved to the user's expectation and request. The developer is open for suggestions on the system and this mainly results in the system being altered.

- **Preventive Maintenance**

  Preventive maintenance involves constant correction, inspection, detection and prevention of anticipated failure before their occurrence. This type of maintenance is associated with risk prevention for the system. Identification and rectifying of the risk is done and the new system operates as intended.

All types of maintenance are great for the system. The developer recommended the perfective maintenance as it always seeks to improve the system in use and through this type of maintenance errors are always rectified leading to an efficient and effective system.

5.6 RECOMMENDATIONS FOR FUTURE DEVELOPMENTS

As the system maintenance continues development of the system is done then. The developer recommended the development of a light system compatible to many platforms and performing quicker. Security is always a factor and a suggestion to increase the security of the system was put on the table.

5.7 CONCLUSION

After all procedures have been identified and done in this phase of the system and document, this marks the end of the system for this project. Maintenance continues as the system is used and as technology also advances. This project has been a success.

APPENDICES

APPENDIX A: REFERENCE LIST

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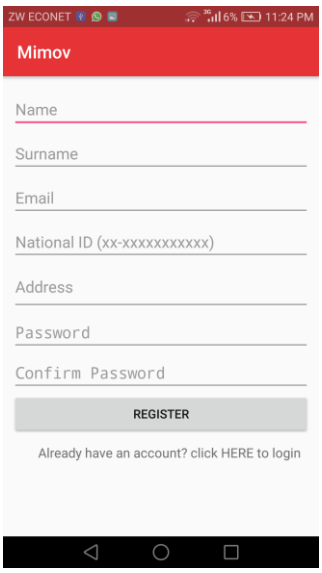
APPENDIX B: USER MANUAL

A user manual is a step by step guide of how a system works. It has instructions on the systems operability and functionality so a user can refer to it in times of not knowing what they can do and it is used to understand the system as a whole.

Getting Started

The Motor Vehicle Insurance system is a mobile based system that allows the users/ clients to acquire policy's, make policy payments, get quotations, submit insurance claims and provides an accidental guide for users. Users can use this system by first downloading and installing the mobile application for the organisation website. Once they open the application they will be welcomed by a login screen. This screen has an option to let the user register or login in. the user has to first register to access the system.

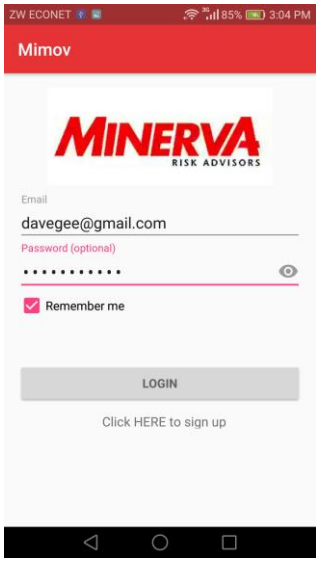
Register page



- The user has to fill in the details to register. After re glistering the user id directed to the login page once more

Login

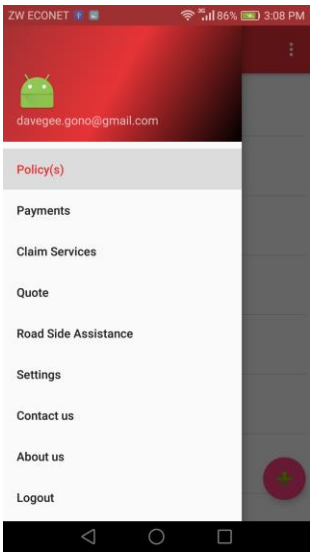
For the user to gain access he or she must first login and it is at this login page were the user has to login to access the system. After a successful login the user is directed to their home page



- The user must enter their login details that is their email and password.

Home page

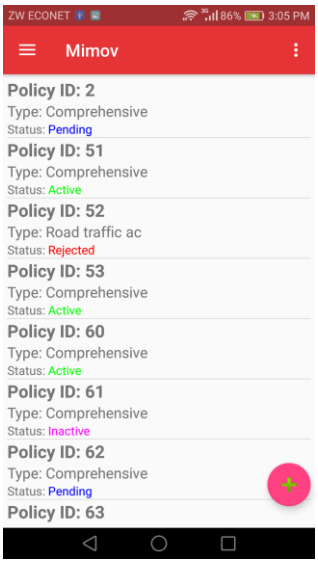
The home page contains a menu were all the systems main functions are displayed and it is on this menu they can start operating in any section of the system.



- This is the menu page were the user selects what they want to do in the system. To apply for a policy the user selects the Policy(s) section and a policy page appears.

Policy page

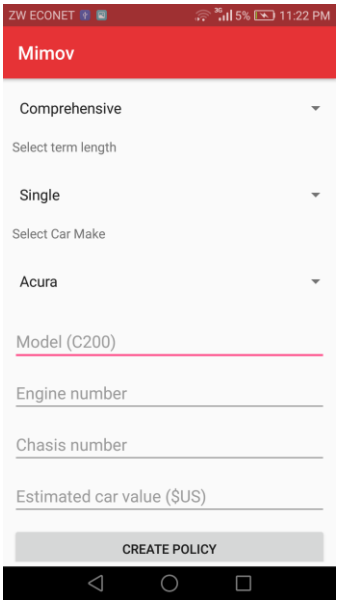
The policy page is where the user can see their policy(s). On this page the user can apply and view an existing policy.



- The user can see the policy's they have and they can add a policy by clicking on the add button

Policy applying page

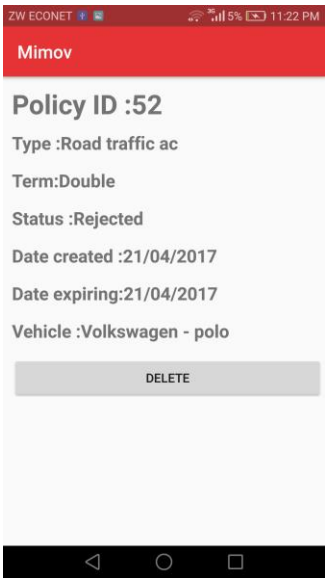
The user is allowed to enter the details pertaining to the policy which they are applying for. After this stage the user is directed back to the policy page were they will see their applied policy and its status.



- The user fill in the details required and the application is submitted to the organisation

Policy viewing page

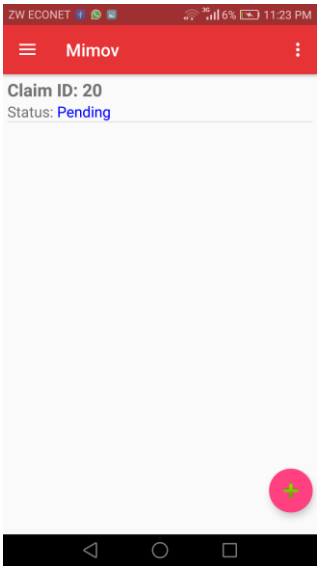
The user can view the policy status and more details after applying for one. They can then action the policy once it is approved form this page. They can then pay for the policy so as to active the policy.



- The user can view the policy view the policy details

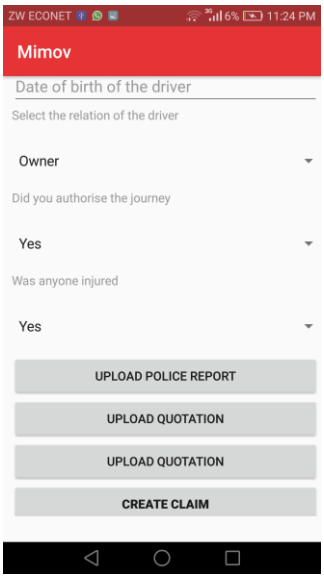
Claim page

If the user is to select the claim section in the menu then this is the page to which they will be directed. It shows the users filed claims and their status. At this page the user can file a claim by clicking on the add button.



Claim filing page

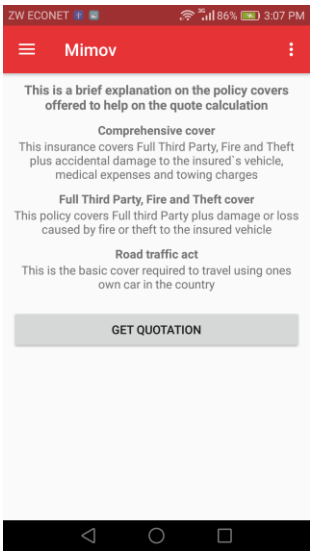
This page is made visible after the user clicks on the addition button on the claim page. On this page the user enters the details to file the claims.

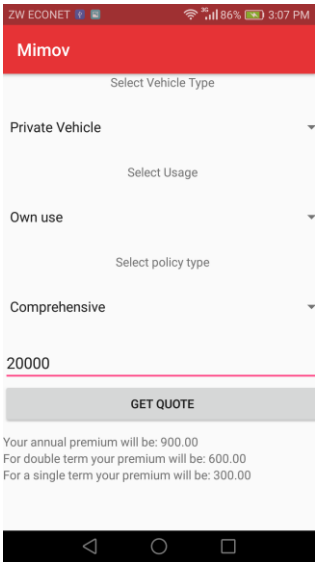


- After filling the fields with the details a claim is filed and the user is directed to the claims page

Quotation page

At the home page if the user selects the quote tab they are directed to this page. Here the user can enter details of the car they want a quotation for. A calculation is done and a quotation is produced for the user.





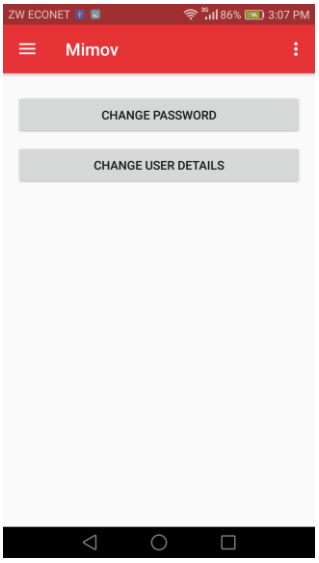
- The user gets a quotation after filling in with details and pressing the get quote button

Road Side Assistance page

This is the page the user is directed when they click of the road side assistance tab. This page has instructions to help the user when they are involved in a car accident.

Settings page

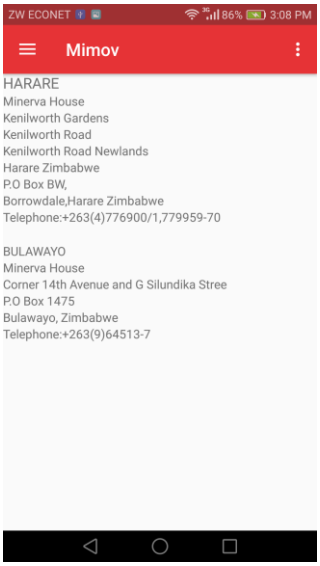
The user is directed to this page after selecting the settings tab on the menu. This is where the user can make changes to their details and password.



- The user is asked to enter the details they want to change at this page after selecting the area they want to change

Contact us

At this tab the user is given details pertaining contacting the organisation. This page is made visible after the user select the contact us tab.



Logout Tab

After selecting this tab under the home page menu the user is directed to the login page as they would have exited the system. The user will have to login again to access the system.

APPENDIX C: INTERVIEW QUESTIONS

INTERVIEW GUIDE FOR MINERVA VEHICLE INSURANCE ANDROID APPLICATION

Section 1: INTERVIEW DETAILS

1. Interviewee's position……

Section 2: INTERVIEW QUESTIONS

1. Do you have motor vehicle insurance YES NO
2. What processes are involved in motor vehicle insurance?

   ……

   ……

   ……
3. May you please briefly explain the processes you have mentioned?

   ……

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4. May you briefly explain your system in terms of inputs, outputs and storage?

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5. Do you have any reports and if so how are they compiled and how well do you think they are illustrate the state of process?

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6. Looking at the way the current system is operating; do you think everybody is comfortable with it?

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7. What suggestions would you give to improve the current system

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   ……

8. Would it be beneficial if a mobile application is to be developed to support the current system

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   ……
   ……

APPENDIX D: QUESTIONNAIRE CHECKLIST

QUESTIONNAIRE FOR MINERVA VEHICLE INSURANCE ANDROID APPLICATION

I am Davison Gono, a student at the Midlands State University of Zimbabwe pursuing a Degree in Information Systems. One of the requirements for this award is a project supported by a working software system. This questionnaire is designed to find out the requirements for the above mentioned system (Motor Vehicle Insurance application).

I kindly request you to assist me with the required information in this questionnaire. I promise to keep all the given information confidential. Thank you for your cooperation.

1. How long does it take to acquire an insurance policy…….hours

2. What are the processes involved when acquiring a policy?

   .....

   .....

   .....

3. Tick where applicable

   i. Are you satisfied with the current system? ☐ Yes ☐ No

   ii. Are you satisfied with the service offered? ☐ Yes ☐ No

   If not suggest proposals and recommendations

   ……

   ……

   ……

4. Are you in favor of the new system to support the current system?

   Yes ☐ No ☐

   If NO please give reasons

……

……

5. What are the anticipated changes you expect to see in the new system?

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6. Is the system being introduced ensuring business objectives of the organisation will be met?

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7. Are there any further ICT technologies you would wish to integrate into the operations of this system?

……

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……

8. Is the introduction of this system a competitive tool?

Yes ☐ No ☐

Date: ……. **Time** ……

Thank you for your cooperation

APPENDIX E: OBSERVATION SCORE SHEET

OBSERVATION SCORE SHEET FOR MINERVA VEHICLE INSURANCE ANDROID APPLICATION

Observation guide schedule.

Date…… **Observer……**

Time……

Department……

Observation

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Conclusion

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