Online Insurance Management System - A Case Study of Swico Kampala

1 Naluyima Viola, 2 Kyomuhendo Charoltte, 3 Gift Bafaki

Abstract: The aims of the research, which focused on a health insurance management system with a case study of Swico Kampala, were as follows: to gather the necessary information, conduct an analysis of the current management system being used by the selected case study, develop a design plan, test the prototype, and put it into operation. A database is an accumulation of connected data that is stored with the least amount of duplication possible to serve numerous users effectively and promptly. The user's ability to access databases should be made simple, quick, affordable, and customizable. The data pieces are connected by relationships, and extraneous data items are eliminated. Data are normalized to achieve internal reliability, the least amount of duplication, and the highest level of durability. This guarantees reducing the amount of data storage needed, reducing the likelihood of inconsistent data, and optimizing for upgrades. The development of the pertinent datasets will be done using the MS Access database. In order to enable customers quickly and efficiently access existing policy documents in the collection, the administration of commercial ventures in Uganda decided to adapt programs capable of assisting insurance to conveniently keep track of medical documents and save on wasted time by customers waiting.

Keyword: online insurance management system

Background of the study

According to Margaret & Lynch, David & Russell (2007) and Perception of Usefulness and Ease of Use (2007), insurance is the fair transfer of the risk of a loss from one organization to a different one in exchange for a price. An underwriter is a business that sells insurance, while an insured, also known as a policyholder, is a person or business that purchases an insurance policy. In an effort to more effectively match clients and insurance item offers, this proposal builds a dispersed multi-agent system for insurance businesses in which they and the consumers are gathered together. (Kunreuther, 2010) asserts that a risk is insurable if it satisfies the ideal standards for effective insurance. Also, it has been noted that an insurance agent is a person who has been given permission to act on behalf of somebody else to establish a legal connection with a third party. Assets are defined as being anything either intangible or tangible that can be possessed or managed to generate earnings and that is believed to have a significant financial worth (Sullivan, Arthur, and Steven, 2003). According to (John & Jordan, 2006), a claim is a demand for compensation for a loss made in accordance with the provisions of an insurance policy and may be filed by either the education policies covered or by a third party. According to Mehr and Camack (2011), indemnification refers to making one whole again or being put back in the position one was in, to the greatest extent feasible, prior to the occurrence of a specific occurrence or danger. A "pay on behalf" or "on representative of" insurance and a "indemnification" policy are the two main forms of insurance contracts that aim to defend an insured.

Problem statement

E-commerce and the Internet are progressively ranking among the most significant forces influencing corporate strategy change. By initially comprehending the development cycle of E-insurance marketplaces, it is simpler to comprehend how to make them stronger. E-insurance markets need to invest in their infrastructure in order to function efficiently and develop. This infrastructure comprises technical capability and resources, as well as the presence of favorable economic, legal, and political settings. The benefits of insurance have not yet reached a large portion of the developing world, despite the fact that it has grown to be a widely used financial service since its introduction in ancient Greece. According to Electronic Insurance Commerce, insurance businesses have mostly used the internet as a conduit for product distribution.

Specific objective

- 1. To analyze the existing management system used by the case study chosen.
- 2. To gather the requirements and design plan for well-functioning insurance management system.
- 3. It tests and implement the proto type.

Research Questions

- 1. What are the requirements for developing an online insurance management system through the gaps and challenges at hand?
- 2. How well is the proposed system be implemented to transform the design into working system?
- 3. How the system is be validated and tested so as to ensure that this functioning are proper and satisfying to user requirements?

Methodology

System Investigation

System investigation was carried out to help the researcher gather information about the objective/goals of the case study Swico, the nature of the scope of the problem under the study.

Population Study

The target population was of 20 people that included; administrators, clients, employees/ staff of Swico and Swico Kampala was chosen because the researcher was in position to access all the necessary information for the study.

Data Gathering Tools

Data gathering refers to the process of collecting and measuring gathered data on variables of interest, in an established systematic fashion that enables one to answer stated research questions and evaluate outcomes. The following are the data gathering tools.

System study

The obtaining of the requirements for designing an insurance Management System, a system study and Swico was to be carried out.

Interviews

With the aid of various organizations and the most recent technology, such as Swico staff members and participating clients, interviews were performed.

These were more in-depth than self-directed questions because they were completed by the interviewer based on the respondent's response. For instance: personal or key informant interviews; telephones.

To assess the research, two basic types of interviews were conducted.

In-depth interviews, which consist of a conversation between the interviewee and a professional interviewer, are characterized by thorough research. The interviewer followed a script that included questions or issues that needed to be learned about and assessed on, accelerating the interview process progressively.

Interviews where used because:

- 1. They helped to document personalities of prospective users of clients and admin that where both technical and operational.
- 2. They assisted to expand our understanding of the insurance company thus; the researcher had a better position to collect requirements.

Questionnaires

The researcher used the questionnaires through series of questions asked to the clients, Administrators and Sales Managers. The researchers used the Close-ended questionnaires to obtain statistically useful information about his topic that was used to design an Automated Insurance Management System.

Observation

Through observation of the manual tasks performed, the researchers were capable of implementing the intended system. Before establishing the desired intended online insurance, the investigators made sure to gather first-hand information about the processes of how the items were registered, added, and sold to the clients. Analysis of the Management System

Following the use of various data collection technologies, the responses of the respondents were examined in order to ascertain the specifications for the newly constructed proposed system. Also, it gave clear insight into the modifications that must be made to the newer technologies, identified and addressed the effects of the project "on Swico," etc. The data analysis served as a foundation for creating strategies that directed the project timeline and personnel appropriately.

System Design

Objective (b) of systems analysis and design of the proposed online insurance Management System was achieved by designing a database using conceptual, logical and physical database a design.

These were developed using tools such as Microsoft Visio cascading style sheet. Project management tools such as Microsoft project professional used to present the time schedules for the system development procedures, task dissemination and ordering

DATA FLOW DIAGRAM

Dataflow diagram is used to define the flow of the system and their resources. It is the way of expressing system requirements in a graphical manner. It is one of the most ingenious tools used for structured analysis. It is the starting point of design phase. shows the flow of information for user's log in into the system, up to the administrator updating the database and viewing of generated reports

ILLUSTRATION OF ADATA FLOW DIAGRAM

International Journal of Academic and Applied Research (IJAAR) ISSN: 2643-9603 Vol. 7 Issue 3, March - 2023, Pages: 67-76



Software Implementation

Using a client-server architectures, which required having a computer system that delivered data to other machines, known as the customers, that accessed it through the online, target (c) of the proposed online insurance Management System's software implementation was achieved. A server-side software is run by the server and is intended to be accessed by client programs via the internet.

The project was divided into smaller parts, and the actual coding of the system in those smaller units was to be done, using the system design requirements document produced during the previous stage as a guide. The language I suggested for use in implementing the aforementioned system included the use of HTML, CSS, php, sql, sublime, and java script. They were applied.

Server

Essentially the server was the computer with server software installed and running, connected to a network. The server was networked to connect it with other machines by connecting it to the clients. The system was to include a server-side application. The following applications were used to implement the server-side application.

Php

The researcher used visual studio due to the advantages that fall under the programming languages. Visual studio languages enhance the need to expand a program where a feature of the objects in the program was added independently without reorganizing the system.

Databases

The system has a database on which the rest of the applications were based on. The researcher was to use programming languages for the insurance management database application such as sql, php, and java.

Client interface

The user-facing element in a Client Server application was to provide the means to interact with it. The interface takes the form of a web application, connecting and interfacing with the database. The client interface's role overall was to sending a request to the server, which was to respond in return. The researcher was to develop the interface using on windows operating system platform.

System Testing

The system was to tested against needs addressed and gathered during the requirements phase to allow early discovery of errors that may disrupt the proper functioning of the system. During this phase, the researcher was to anticipate the many ways in which the system might fail.

RESULTS

System Study

The researchers have gathered primary data, or first-hand information, from the Swico management and personnel, which is part of the business in charge of providing clients with contracts and policies. To obtain data directly from sources, the investigator used a variety of data collection techniques and technologies. These techniques include: in-person interviews with various members of various officials from Swico's body that issues policies and contracts; a survey of the participant's clients; review and inspection of relevant documentation.

Data Analysis Results

The primary data that was collected by administering questionnaires to 70 respondents was analyzed by using excel spreadsheets. The following are the results of data analysis:

Response Rate

The researchers issued out questionnaires to randomly selected respondents (immigration officers and nationals). Of the distributed questionnaires, 95 (91.7%) were successfully filled and returned by the respondents while 5 (8.3%) questionnaires were not returned, which gave the response rate of 91.

The Challenges Faced while using the current system.

When questioned about the difficulties they have while employing the methods they employ to issue passports to citizens, the respondents all stated that they lack the tools to obtain all the necessary information digitally in order to issue passports. As a result, utilizing the present system from various points around the nation, it is still challenging for citizens to submit all the necessary data.

Suggestion for Implementing a New System

Finally, it was questioned of every responder if, in the event that the online insurance management system was deployed, they would utilize and adopt it. Table 4 shows their responses in further detail.

Table 1 Suggestion upon New System Implementation

Implementation of the New System	Frequency
Yes	53 (70.7%)
No	22 (29.3%)

Source: Primary data (2020)

Table shows that 53 (70.7%) of the respondents recommended that online insurance management system should be implemented while only 22 (29.3%) said that they were contented with the current system that involves a lot of physical movement, delivering and regular checks. Therefore, it was realized that the majority of the respondents suggested for the implementation of the online insurance management system.

Requirements Specification

User Requirements

The users of the system were asked about what they expected of the online insurance management system and the following were the findings:

- 1. A system that is easy to learn and use.
- 2. A system that is fast, flexible and convenient.
- 3. A system that authenticates users.
- 4. A system that has an element of error validation.
- 5. A system that provides attractive interfaces with easy navigation.
- 6. A system that stores data and produces feedback timely and accurately.

Functional Requirements

Functional requirements capture the intended behavior of the system. Thus, the online insurance management system has the following functional requirements:

- 1. The system should enable the users to register or signup to use the system.
- 2. It should enable the official to issue a policy and contract.
- 3. It should provide users with feedback.
- 4. It should enable the users to provide all the necessary data needed for issuing of policy and contract.

Software	Minimum system	
Operating system of the pc	Windows 8-10/Linux /windows server	
Database management system	MSQL server	
Hard ware		
Processor	Intel Pentium 11 /above	
Processor speed	800mhz/above memory 128mb RAM /above	
	depending on the O.S	
Hard drive	10GB and above	

Non-Functional Requirements

Non-functional requirements specify the criteria that can be used to judge the operation of a system, instead of specific behaviors. Thus, the online insurance management system has the following non-functional requirements:

- 1. It should prevent unauthorized access to the system with user authentication via log-on system.
- 2. It should be user-friendly. This ensures the ease with which the system can be learned or used.
- 3. It should have high performance and reliability level.
- 4. It should be scalable

System Design

This section includes the system architecture, process and data modeling of the online passport processing system.

Process Modeling

Data flow diagrams (DFDs) were used to demonstrate the information and how it flows between specific processes in the online insurance management system.

Client	Policy	Administer
Client id no PK	Policy id no PK	Admin id no PK
User id FK	User id FK	User id FK
F/L name	F/L name	F/L name
Password	Password	Password
Gender	Policy type	Gender
Email /tel		Email/tel
User type	User type	User type





Client orders one to many policies and policy can be ordered by only one client.

Admin

1...1 confirms 1*

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Policy

An admin confirms one to many policies and can be confirmed by one admin

Admin

1...1 updates 1...*

Policy

An admin updates one to many policies and it can be updated by one admin

ER DIAGRAM

An ER diagram gives a clear idea of logical relation between two or more entities. These diagrams help us to understand the technical design of database involved in the project.

The following relational diagrams show the logical relation between the entities.

ILLUSTRATION OF ER DIAGRAM



The primary quality control method used in software engineering production is testing. Its primary purpose is to find software errors. For the system to operate properly, testing is required. Four levels of testing must be completed. Unit testing concentrates confirmation work on the software's tiniest unit, the component's design. Here, key control pathways are checked to find faults inside the module's border using the detail design as a reference.

Unit testing is always white-box focused, and numerous modules may be tested simultaneously.

A methodical approach to building the program's structure and running tests at the same time to find interfacerelated issues is known as integration testing. The goal is to remove the unit. Validation testing demonstrated the traces the requirements of the software. This was achieved through a series of black box tests.

System testing was actually a series of different tests whose primary purpose was to fully exercise the computerbased system. Although each test had a different purpose, all works should verify that all system elements had been properly integrated and perform allocated functions. The various tests include recovery testing, stress testing, and perform testing.

Maintenance and Implementation

Corrective maintenance

Unit Testing

Integration Testing

Validation Testing

System Testing

These actions were to correct errors that are uncovered after the software is in use.

Adaptive Maintenance

These applied when changes to the external environment precipitate modifications to software.

Preventive maintenance

This was to improve future maintainability and reliability and providing basis for future enhancements.

DATABASE DESIGN

The system's data must be both stored and managed from a database. Database design is a component of system design. At the analysis stage, the data items and database systems to be stored were determined. To construct the data retention and access system, they are organized and combined.

A database is an array of connected data that is stored with the least amount of redundancy possible to serve numerous users effectively and promptly. The user's ability to access databases should be made simple, quick, affordable, and adaptable. The data pieces are connected by relationships, and extraneous data items are eliminated. Data are normalized to achieve internal reliability, the least amount of duplication, and the highest level of stability. This ensures minimizing data storage required, minimizing chances of data inconsistencies and optimizing for updates. The MS Access database has been chosen for developing the relevant databases. **Conclusion**

In the modern world, the use of computers is becoming rampant. More so, recent developments in the ICT Industries has revolutionized and consequently brought about a paradigm shift in the way activities are accomplished. As a result, the Transformational System needs to embrace these new technologies. This report has presented a simple, convenient, cost-effective, but efficient Library with a user-friendly, sensitive and intelligible interface

Recommendations

The Management of business enterprises in Uganda opt to adapt applications that can aid insurance to easily keep track of insurance records and save on time wasted by clients queuing was to effectively help the clients to access their policy records in the library in a fast and efficient way.

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