INFORMATION SYSTEM FOR PNG STUDENTS ON SCHOLARSHIP IN INDONESIA

ARTICLE

By

David R.S.P Turia

14012509

Information Systems Studies Program Bachelor (S1 level, Tier 1),

UNIKOM

ABSTRACT

Higher education has always been an expensive venture in Papua New Guinea (PNG). This being the case, national or international scholarship programs are a welcome alternative to gaining further education, such as the various government sponsored scholarship programs offered to PNG and other countries by Indonesia. A setback of this is the lack of information regarding the scholarship programs, individual experience and testimonies of students. A central location where interested persons, or an applicant already part of the program, can find information pertaining to the activities of everyday life, along with useful information of the different programs, all from a personal point of view.

In an attempt to overcome this setback, this research paper proposes a web-based information system that will hold the information relating to the identified problem. The research methodology used in this research is the object oriented method, with the use of UML diagrams. The system development method used is the prototype model, and employs PHP, HTML, and SQL coding.

The result of this research is a web-based information system where PNG scholarship students in Indonesia can share their experiences and testimonies, and in doing so enlighten anyone interested in studying in Indonesia.

Keywords: web-based information system, scholarship program, student testimonies.

I. INTRODUCTION

1.1 Background

Higher education in Papua New Guinea (PNG) is profoundly expensive, making government or corporate sponsored scholarships a welcome alternative for one's educational prospects.

Various scholarships are offered to Papua New Guineans from several countries including Australia, New Zealand, Japan, China, the Philippines, and, of course, Indonesia, along with others that this writer is not aware of. Information concerning these scholarship programs are not easily available to those interested in applying for the program. The majority of individuals learn about the scholarship programs through advertisements in the newspaper or on the radio, and word of mouth. Sometimes the respective agencies will also host a roadshow or seminar where individuals can attend to find out more. But they have to attend the seminar, or be fortunate enough to read the right newspaper, or talk to the right person to learn about the scholarship. This could prove to be rather difficult for individuals who live in rural areas or outlying provinces. While they still might learn that there are such programs, detailed information about life experiences won't be available to help them.

The Kemitraan Negara Berkembang (KNB) Scholarship program is one of the programs on offer to PNG, sponsored by the Indonesian government. The program caters for Master Degree programs at one of 15 prominent Universities in Indonesia; Universitas Padjajaran, Institut Teknologi Bandung, Universitas Pendidikan Indonesia, Universitas Negeri Malang, Institut Teknologi Sepuluh November, to name a few. The KNB program was launched in 2007 and have since accepted more than 600 applicants from over 64 countries. The KNB scholarship program is open every year. Some of the necessary requirements for this program are being no older than 35 years of age, and have already obtained a bachelor degree.

In our case, not that much information was given to us until we began to attend the month long informal training classes where we were taught the basics of Bahasa Indonesia, along with other useful information about Indonesia and the cities we'd be going to. However, this writer found out that, while what was learned before leaving PNG was necessary information, what was lacking was general information about everyday life. Which is somewhat ironic, no? Interested individuals were given information about the universities and the programs that are offered. Later, accepted applicants are given information such as language, living cost, and cultural differences. But little is said about the things that are a part of everyday life. As yet, this writer isn't aware of any such website or database that holds accounts, or testimonies or stories, of experiences had by students' current and former who spent time in Indonesia. An information system with the collected knowledge, and ability to collect more, that could give a more personal insight into studying in Indonesia. Not the hum and drum of being a student, but being a Papua New Guinean in Indonesia.

Technology in today's world plays such a significant role in day to day activities, both in the professional and personal sense. With regard to business, modern technology assists organisations and companies to carry out their everyday business effectively and efficiently. In a more personal sense, technology has made it incredibly easy and inexpensive to manage and access personal information, and whatever other information one may need, in so many ways. Along with social media and the applications that keep pouring out every month, technology is slowly blurring the line between business and personal use. Information technology (IT) that is primarily used include computer based information systems (CBIS), web technology, and database management systems (DBMS). These advances in technology have helped to improve the management of information in great and small amounts, and in several ways their exposure and access. Individuals and organisations need information to make critical decisions to achieve goals or see a task complete, which is why information management is essential.

The standard of technology being used in PNG when compared to the rest of the world is somewhat lacking. Business houses and corporate organisations have access to moderately modern IT resources and company paid for internet access, while the ordinary citizen has to resort to internet cafes, USB modems, depending on if they own a laptop or computer, or their own mobile phones to use the internet. Although smart phones have now become fairly common among citizens, they aren't able to fully utilize their internet capabilities due to the lack of facilities that western countries and most of Asia has easy access to. but to simply access information through web applications like a blog or information system that has a mobile friendly version, it should be more than enough.

1.2 Problem Identification and Formulation

1.2.1 Problem Identification

From the background information, the following issues can be identified concerning the lack of an information system detailing the personal experiences of Papua New Guineans studying in Indonesia:

1. There is not in existence a functional information system that holds personal accounts of Papua New Guineans that are studying or have studied in Indonesia.
2. Such an information system would have to be easily accessible to Papua New Guineans, taking into account that not everyone in PNG has access to a laptop or computer. An efficient and user friendly mobile version of the application would probably be for the best.
3. The information should revolve around personal experiences of living and studying in another country, and not focus purely on the academic.

1.2.2 Problem Formulation

Based on the issues that have been identified, the existing problems of the system can be formulated as follows:

1. How to collect the information needed to fulfill the objective of this project.
2. How to design a web-based Content Management System that can store the collected information and have it available for easy access by those interested in it.
3. How to maintain such an information system and modify it as needed.

1.3 Research Objectives

The main purpose and objectives for conducting this research are as follows:

1.3.1 Purpose

The main objective of this study is the design and development of a web-based content management information system that will allow Papua New Guineans who currently are or were studying in Indonesia to share their experiences and stories with those who are interested to know.

1.3.2 Objectives

1. To collect information that is related to the objective of this project, dealing more with personal experiences rather than academic matters.
2. To design web-based content management system to store the collected information, and make it available to any interested parties.
3. To maintain this information system, and modify it when needed.

1.4 Research Implications

It is expected that this study will be useful to the following parties:

1.4.1 Practical (Informational) Uses

The development of this web-based content management information system will allow individuals who are interested in, or already a part of the program, to learn more about what it will be like on an everyday level. Just to give them a heads up, so to speak.

1.4.2 Academic Uses

1. **Institutions**

This research paper will hopefully be used as a reference journal for future students who are working on similar projects. Although this writer wouldn't recommend it.

2. **Other Researchers**

The ideas and concepts created in this research may also be used by future researchers who wish to further their knowledge about information systems development.

4.5 Limitations of Study

Due to the time restrictions and limited ability of this writer, the main discussion of this study will be restricted to the following:

1. The collection of information and experiences and stories.

2. The development of the web-based content management information system that will store the information and make it available to those who would view it.

1.6 Time and Location

This research was conducted at Universtias Komputer Indoensia, Lebak Gede 40132, Bandung, Jawa Barat. The duration allocated for this research project was from March 3rd 2016 to the end of July 2016.

II. LITERATURE REVIEW

2.1 Understanding the System

An Information System (IS) is a set of interrelated tools and processes that are used to utilize data in order to provide valuable information that can be used to reach a set goal.

2.2 Basic Functions of a System

An IS acts as a service system that provides the user with information about the environment in which the user operates. The main task is to transform available primary information into ultimate information that can be applied to pursue his or her goals. The system receives raw data as input, processes this data into information that can be used, then presents the information as output in a form that can be understood. The information is then stored for later use.

2.3 System Characteristics

A system has several characteristics, the main characteristics being: it is made of components, has a defined boundary, receives input, carries out processing and produces output, and a system has a set of goals or target.

2.4 Information

Data consists of raw facts and figures, such as an employee number or student ID. Information is a collection of data that has been organized and processed to be of valuable use. The IS acts as a go-between that transforms these raw facts into information.

2.5 Basic Concept of Information

Processed information has certain characteristics that determine how it can be used for different purposes. Valuable information can help people in their organisations perform tasks more efficiently and effectively. Some characteristics that make valuable information are that it is accessible, accurate, complete, flexible, secure, and reliable.

2.6 Components of an Information System

The components of an IS, at it's most basic level, are hardware, software, databases, telecommunications and networks and the internet, people, and procedures.

2.7 Research Case

The main case of this study is the development of an information system, or content management system, concerning PNG students on scholarship in Indonesia.

III. OBJECT AND RESEARCH METHODS

3.1 Research Object

The focus of this research is PNG students on scholarship in Indonesia, with more focus on those attending Unikom, for obvious practical reasons.

3.2 Brief History of Scholarship Programs in Indonesia

There are several scholarship programs on offer in Indonesia, both to national citizens and international students. The Kemitraan Negara Berkembang **(**KNB**)** is one such scholarship program offered by the Indonesian government. The KNB scholarship offers the opportunity of studying for a master degree. The scholarship is associated with over fifteen prominent universities in Indonesia. Officially launched in 2006 by the Directorate General of Higher Education of the Republic of Indonesia, this program has been attracting a significant number of applicants. By 2015, 896 students from 64 countries have been awarded this scholarship.

The Darmasiswa program is a scholarship program offered to students from countries which have a diplomatic relationship with Indonesia to study Bahasa Indonesia, traditional music, traditional dance, and Indonesian arts and crafts. The candidate is allowed to select the higher institutions where they will carry out the program. Darmasiswa is a non-degree scholarship program on offer at 59 of Indonesia's Higher Education Institutions, spread out through different cities around Indonesia. This program is organized by the Ministry of Education and Culture (MoEC) in Cooperation with Ministry of Foreign Affairs (MoFA) The interest of international students to participate in this program keep increasing year by year, especially in the last five years.

The Beasiswa Unggulan Scholarship Program has been on offer since late 2005 to both Indonesian citizens and foreigners, and provides the opportunity to study for a Bachelor degree at one of over 20 distinguished universities throughout Indonesia. The program covers several areas of study, including computing, social science, science, and law, to name a few. The main purpose of the Scholarship Program is to offer individuals, both foreign and domestic, the opportunity to continue their education for higher degrees in universities in and/or abroad.

3.2 Research Method

The research method used in this study is the qualitative, using interviews, questionnaires, and participant observation data to understand the focus of this study.

3.3 Primary Data Sources

In this research, primary data was collected from personal interaction with the system users through a questionnaire and personal observation.

3.4 System Approach Method

The system approach method used in this study is the object-oriented approach. This approach focuses on objects instead of actions, and data in place of logic.

3.5 System Development Method

The system development method used in this study is the development of a prototype model. A prototype model is a model or program that is built, tested, and then reworked as needed until an acceptable prototype is achieved from which the complete system or program can be developed.

3.6 Analysis and Design Tools

As the system approach used in this study is object oriented, the analysis and design tool used to model the system's processes is the Unified Modelling Language (UML). The UML is meant to be a unifying language that allows IT professionals to model computer applications. It is a graphical language used for specifying, visualizing, constructing and documenting the artefacts of software systems. The UML has several types of diagrams that provide different views of the system. These diagrams are the use case diagram, activity diagram, sequence diagram, class diagram, collaboration diagram, component diagram, and deployment diagram.

3.7 Software Testing

Software testing assesses the quality of a software product. The two main types of software testing are black box and white box testing. Black box testing focuses on determining whether or not a program does what it is supposed to do based on its functional requirements. White box testing looks at the inside of a software, reviewing the code and inner workings.

3.8 Analysis of Current System

System analysis is the process of completely breaking down an information system to its components in order to study how each component works. This is to simplify the problem at the component. This will make it easier for developers to define any problems, and come up with a solution for it. To develop a new system, developers must analyse the current system, identify any problems it has, and analyse the system procedures and how it works. For this study, the current system being analysed is the web-based application for the KNB Scholarship program.

3.9 Evaluation of Current System

After the analysis of the KNB website, it is seen that the system has a few issues. While the system does provide information about the program, it offers very little else besides the university that cater to the program, and a somewhat helpful guide book.

IV. RESULTS AND DISCUSSION

4.1 System Design

The system to be developed for this study is a web-based information system for PNG students on scholarship in Indonesia. The system aims to raise awareness and general knowledge of studying in Indonesia as a Papua New Guinean.

4.2 System Design Objectives

1. This web-based information system aims to assist Papua New Guineans gather more first-hand knowledge about studying on scholarship in Indonesia.

2. This web-based information system will also provide information about the various scholarship programmes offered by the Indonesian Government.

4.3 Proposed System Overview

This proposed system will utilise server-client concept. It will be installed and run on PHP and MySQL servers, which can then be accessed by users through a web browser through the internet.

4.4 Proposed Design Procedure

For this study, the design of the proposed system will be illustrated through use case diagrams, activity diagrams, sequence diagrams, class diagrams, collaboration diagrams, component diagrams, and deployment diagrams.

4.4 Implementation

The anticipated web-based information system will be developed using the PHP programming language, and the database will be developed through MySQL. System implementation involves allowing the users to use the system to determine is it meets their purposes. Through this phase, the users can go through the system and provide feedback so that the developers are able to improve the system.

4.5 Implementation Limits

The implementation limitations for this anticipated information system are the following:

1. Access is limited to two types of users; the system administrator, and the browsers.
2. Implementation of this information system is aimed specifically for individuals studying in Indonesia.

4.6 Software Implementation

The proposed system can be implemented on PCs running Windows, Mac, Ubuntu, and Linux operating systems, which are connected to the Internet. The software requirements for running the proposed system are as follows:

Implementation of PC software:

1. Windows XP / 7 / 8/ 10 operating systems.
2. XAMPP 1.8.1 or WampServer 2.4 as a host server and for local database storage.
3. Adobe Dreamweaver, Sublime Text, or Notepad++ for the PHP coding.
4. Mozilla Firefox or Google Chrome as a browser.

4.7 Hardware Implementation

The hardware requirements for running the proposed system are:

Hardware implementation:

1. Processor: Intel (R) 2:10 GHz Core2Duo
2. Memory: 2GB RAM
3. Hard drive: 500GB WD
4. VGA: Intel (R) HD Graphics
5. Monitor: 15”

4.8 Database Implementation (syntax SQL)

This section lists the SQL code used to create the database for the system.

4.9 Interface Implementation

The intended system is made up for two end users, the admin, and the users or visitors. Each are given limited access according to their access levels.

4.10 Testing

After the system has been implemented, test were carried out to ascertain the functionality of the system. The black box testing method was employed for this study. The results from the carried out tests determined that the system was functioning well.

V. CONCLUSIONS AND SUGGESTIONS

5.1 Conclusions

To conclude, based on this research paper entitled "Information System for PNG Students on Scholarship in Indonesia", the following conclusions can be made:

1. The development of the web-based information system for PNG scholarship students is an effective way to overcome the lack of personal information regarding studying in Indonesia, while at the same time improving the availability and exposure of said information.

2. This information system could also act as an intermediary between interested individuals who have questions, and current or former students who are able to answer them.

5.2 Suggestions

This information system is most likely going to be used by a small number of people over time, but maintenance and responses should not be neglected. Also, a mobile version of the system should be created as people like to use their mobile devices to search for information.

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INFORMATION SYSTEM FOR PNG STUDENTS ON SCHOLARSHIP IN INDONESIA

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