**SYNOPSIS**

**Report on**

**<<Student Results Management System>>**

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**ABSTRACT**

The technological development and impact of computers and internet on our lives that has

been verified over time affected various sectors of activity. And almost every task today is being

run through computers. Getting information and quickly turning it into a product that

consumers want is the essential key to staying in business and all of this is done nowadays using computers and applications or information systems. And the education system is undeniably the backbone of the society, it focusses atpreparing the young talents for the future. However, currently the process of students’ result management and declaration at the Catholic University of Mozambique, is performed manually with extensive human intervention, the students’ results are generated through a spreadsheet application and then printed on a paper, attached to a wall for declaration and then stored. The current research aims at creating a webbased student result management system, reducing time, effort and improving security. The methodology adopted for the elaboration of the research is based on qualitative study. The research results in the development of a multi-user system, based on web technology with MVC (Model-View-Controller) architectural pattern and developed using Java programming language with Apache Tomcat Server and MySQL Database Management System support.

Keywords: Information System; MVC; Java; Results; Students.

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**1 Introduction**

The impact of computers and internet, on our lives today is probably much more than we really know. Getting information and quickly turning it into a product that consumers want is the essential key to staying in business and all of this is done nowadays using computers and applications or information systems. And the information systems will continue to change businesses and the way we live. Many corporate leaders are using technology to manage every aspect of their organization, from product creation to customer service. It has brought evolution in almost every field, it changed the ways of teaching, administration of activities such as e-learning, e-library and online portals where teachers and students communicate, and sharing of information has never been better. Student result declaration and management are amongst the most important activities within a university or any educational institution, since all other activities depend on it. Hence implementing an information system can be declared a significance result. The main objective of this research is to enhance and automate the management and declaration of students’ results using a computerized system.

**1.1 Problem Definition**

Currently, the process of declaring and managing the students’ results at the Catholic University of Mozambique, is performed manually with extensive human

intervention. The students’ results are generated through a spreadsheet application and then printed on a paper, attached to a wall for declaration and then stored. Despite having an application that generates the result, it is not very effective as the system consumes a lot of time and human resources in performing various tasks, it is costly, it lacks data security and efficiency. And at present, the institution needs an advanced and computerized environment. And once implemented, it will minimize all the problems mentioned.

**1.2 Scope**

The study aims at developing and implementing a web-based student result management system for the Catholic University of Mozambique, replacing the old manually done paper work and to minimize the security issues and the problems it possesses. The proposed is a multi-user system, developed using Java programming language with Apache Tomcat Server and MySQL DBMS (Database Management System) support. The system is confined to and intended for the students. They possess privileges to check their results after he/she is provided with a specific username and password for a secure login. The entire system is managed by a system administrator, who possesses the full control of the system, to read, write and execute the results and to assign privileges to teachers and students. And the teachers have the privilege to assign the students’ marks, through which, a result will be generated automatically and each student will have access to their results only, using their respective account.

**1.3 Research Significance**

The computerization of the current system will have an impact on the way the students access their results and, how it is managed and generated by the institution’s employees. The system will make the life much easier for the institution as they will be able to store data much better than how they were able to do earlier. The students will have a smart management of their results and will be able to keep track of their progress with an ease of access, from anywhere, anytime and any device that has an internet connection, and just by entering their respective credentials provided by the institution. Not only for the students, but for the teachers and the institution’s employees managing the system as well. They will be able to keep their data organized and secure. The system will allow the teachers to grade the students even from home, then automatically perform the grades calculation, and the students could easily access and print them. This avoids the teachers from doing all the work manually, and have a better work quality and management that would reduce time, human effort and errors.

**2 Literature Review**

According to Freund et al. (2017), nowadays people interact directly with technology

in fields such as education, government, finance, retail, entertainment, health care,

science, travel, publishing, and manufacturing.

And they also state that, educators and teaching institutions use technology to

assist with education. Most equip labs and classrooms with laptops or desktops. Some

even provide computers or mobile devices to students. Many require students to have

a mobile computer or mobile device to access the school’s network or Internet

wirelessly, or to access digital-only content provided by a textbook publisher.

And educators may use a Course Management System (CMS), sometimes called

a Learning Management System (LMS), which is a software that contains tools for

class preparation, distribution, and management. For example, through the course

management system, students access course materials, grades, assessments, and a

variety of collaboration tools.

Many schools offer distance learning classes, where the delivery of education

occurs at one place while the learning occurs at other locations. Distance learning

courses provide time, distance, and place advantages for students who live far from a

campus or work full time.

Referencing Wallace (2015), the LMS is an information system used to track

student progress, and manage educational records. Many offer other features, such as

online registration, assessment tools, collaborative technologies, and payment

processing. They also offer tools for creating or importing content.

And she also states that, people are so accustomed to social networking and other

web applications that it is an easy step to build these tools into an online platform or

environment.

And referencing Wundenberg (2015), LMS characterizes a complex, often web

based software system which pools multiple task specific subprograms under a shared

User Interface (UI).

These subprograms support, for instance:

• Allocation and organization of learning content for different learning scenarios;

• School administration;

• Information management;

• Online school business related communication.

**2.1 Learning Management System Features**

Dias, Diniz and Hadjileontiadis (2014) state that, LMS Moodle (Modular Object-

Oriented Dynamic Learning Environment), a free and open-source platform based on

socio constructivist perspectives developed by Dougiamas in 1999, allows users to

incorporate various resources and functionalities in a modular structure. Additionally,

seen as a Course Management System (CMS), Moodle can be used to manage the

students’ path, to monitor their performance, to create and distribute content, to

organize e-activities, to evaluate, as well as to provide tools for communication,

collaboration and interaction between the peers involved in the educational process.

However, it is important to underline that incorporation of a wide range of

activities in the LMS per se does not seem sufficient to enhance the teaching learning

process. These kind of learning platforms (e.g., Blackboard, Formare, Moodle

Teleformar, WebCT) should be seen as an opportunity for institutions to develop learning materials, online courses, tests and evaluations, databases and to online monitor students’ progress. Furthermore, Wundenberg (2015) states that, an LMS also has to represent a number of characteristics to satisfy the stakeholders’ needs:

• User friendly, intuitive design and self-explanatory functionalities;

• Adequacy for the users’ levels of experience and knowledge;

• High system robustness against data-loss or system failure;

• High data security standards;

• Easy accessibility;

• System flexibility for institutions’ individual configurations and concept adaptations. According to Foreman (2018), an LMS differs from other information systems and it has its own features that allows schools and institutions to manage users and courses and administer the system.

• The user management features of an LMS include user account creation, authentication, user profiles, and roles and permissions.

• The course management includes managing lessons and assignments, post a course syllabus, learning goals, and schedule, provide interactive activities such as surveys, quizzes, and polls, upload and download multimedia course materials, conduct web conferences, send instructor-student messages and messages among students and establish student groups.

• The academic features are those that require special permission and, generally, are not accessible to students. They include class rosters and gradebooks, reports, analytics and statistics, and tools for developing courses and lessons in the system. Moreover, the current research focuses on the section where the professors and students are registered into the system and are enrolled in respective subjects, allowing the professors, to grade the students and monitor their progress. And allows the students to view their own progress or results on each enrolled course.

**3 Research Methodology**

A research methodology is the elaboration of a clear strategy for gathering evidence, including the specific data collection methods to be used, the kinds of evidence to be collected, and the approach for analysing the evidence (Darian-Smith & McCarthy, 2017). It is the path to solve a research problem. Hence it must be planned according to the objectives of the study.

**3.1 Research Design**

The research design used in this study is qualitative. Dawson (2015) states that, a qualitative research method is a scientific method of observation, used to gather nonnumerical data and that enables to conduct in-depth studies about a broad array of topics. They are more common within the field of information science and involve methods such as case studies and surveys.

**3.2 Data Collection Method**

Refers to the methods used to obtain and gather all the required data and information for the execution of the current research. The data was collected using both, by primary data collection methods as well as secondary sources. Primary data are the original data that has been collected specially for the purpose in mind. And data collected from the original source using one or more of the primary data collection methods such as, interviews, observations, surveys, etc. (Darian-Smith & McCarthy, 2017). In the current research most of the information were gathered through primary sources. And the methods that were used to collect the primary data are: on site observation, structured interview and document analysis. Secondary data is the one that was collected and that has already been analysed by someone else other than the user. This means that huge data sets are already out there, either completely unanalysed or ready to be analysed in new and creative ways. Furthermore, many of these data sets are inexpensive or freely available to researchers. And for an average scholar, doing secondary research on existing data can be more convenient, much faster, and less expensive than trying to do one’s own primary research to collect new data (Darian-Smith & McCarthy, 2017). And the secondary data was collected through: books, thesis and internet or Web.

**3.3 Data Analysis**

The classification and tabulation transform the raw data collected into useful information by organizing and compiling the bits of data into graphically understandable manner, and in the current research, it was done with the help of a UML (Unified Modelling Language) modelling tool, Astah.

**3.4 System Development**

System development is a set of activities used to build an information system. System development activities often are grouped into larger categories called phases. This collection of phases sometimes is called the system development life cycle (SDLC), each system development phase consists of a series of activities (Freund et al., 2017). And in the current research, to develop the Web-Based Student Result Management System, the incremental model was employed, which is now the most common approach for the development of application systems and software products. Incremental development is based on the idea of developing an initial implementation, getting feedback from users and others, and evolving the software through several versions until the required system has been developed. Rarely a complete problem solution is worked out in advance but it moves toward a solution in a series of steps, backtracking when realized that some mistake have been made. By developing the software incrementally, it is cheaper and easier to make changes in the software as it is being developed (Sommerville, 2016).

**5.Project / Research Outcome**

Student Result management System The main objective of the project is to provide the examination result to the student in a simple way. This project is useful for students and institutions for getting the results in simple manner**.**

1. **Proposed Time Duration**

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