A Student Grading Management System a Case Study of Mbarara Army Senior Secondary School

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ABSTRACT

The research was carried out at Mbarara Army Senior Secondary School, Mbarara district- Uganda. The study was mainly carried out in the department of academics. The academic department uses a manual filing system for the storage of students' results. The design of this study consisted of six respondents who were selected at random at Mbarara Army Senior Secondary School, which gave the researcher relevant information about the system at the school. Various methods of research finding methods were used to collect the data from the field questionnaire, interview and observation. Both secondary and primary data were collected using the methods identified above. The researcher faced problems like the delay of the respondents to return questionnaires in time because of the failure of the respondents about the new system and some respondents hid vital information because of the fear of losing their job. Problems faced by the current system in recording students' results; students' results can be lost at any time. The students' results management system will help MASSS to capture, process, store and disseminate students' results easily. SGMS was designed in Microsoft visual basic (6.0) and its related technologies of the database as the designing tools. It makes it easy to access information as faster as possible and this involves real-time reports. It also shows how the whole system can be made secure to avoid authorized access to its various resources. Role authentication is put into use so as to accomplish the goal of the whole project which is to provide students results management system that facilitates an effective, user-friendly and efficient students result management system (SRMS) at Mbarara Army Senior Secondary School.
Keywords: Academic department, SGMS, Database, Role authentication, Students' results management system.

INTRODUCTION

Mbarara Army senior secondary school goes through a difficult process in accordance with assigning or grading results to students. Usually, students at Mbarara Army Senior Secondary School sit for exams and mostly those that follow the school's guidelines such as paying school dues on time are the only ones allowed to do exams and it's through this process that results come out for each individual student are put down on papers and start grading. Then after marking and assigning grades they are put in files and taken to the Director of Studies (DOS)'s office in case of any references and future evidence. [1-3] This kind of grading in most of the urban schools was avoided far back after the introduction of the new computerized grading system because the process would take a long time wasting but nowadays the process is simple and improved and has eased the grading system in most schools. Mbarara Army Senior Secondary School is to adopt the new system because it's so fast, and most convenient for the DOS to assign grades to the students rather than the previous process which was time-consuming and the other catastrophes like fire, students' records/results would get burnt thus theft of students results and confusion and misunderstandings would erupt in the school between teachers and students, but when this new system is introduced in the school students will be able to get their results in time [4][5]. However, grades determine one's fate whether

he/she has passed on well or failed thus he/she is advised to either repeat or improve on weak subjects and those who fail completely are advised to work harder or try other schools where a top student get awarded for their better performances.

The Student grading management system generally needs a steady energy system that can last for at least ten hours. The incorporation of renewable energy such as solar photovoltaic system into the management system during the design can never be over emphasized and therefore the need to be integrated into the design for effective and efficient delivery is necessary. The authors in [6-20], detailed the solar photovoltaic optimizations, fabrication and utilization techniques to be applied in a particular zone for effective and efficient power delivery.

 From the review, it was observed that students' results are recorded manually after marking their papers whereby this process is untimely/slow and it can take like three (3) weeks for exams and then one week for marking those papers, more so the process is tiresome and encroaches on time for teaching. Once this grading management system is put in place, it will be used for capturing, processing, storing and grading students thus making it easy for teachers and the department to keep track of records and carry out their duties and roles.

Aim
To develop a system that will be used to capture, store and grade students easily.

Specific objectives
i) To examine the student's grading Management gets user requirements currently used at the school.
ii) To develop a system that can capture, process, store and grade students.
iii) To design a system that will be able to save time, resources (money) for allowances for teachers.
iv) To design a system that will reduce the cost of using a manual system that is buying stationary etc

Significance of the study
The study will aim at developing a system that will improve the record keeping and grading of students. When the system is put in place, the grading and storage of results will become easy for the teachers, and the department [21][22-30] It will help the management to realize the importance of information management systems over manual file systems and appreciate the accuracy and speed at which it can execute tasks, produce results, and solve problems. Recording retrieving of records and storing of information will become much easier with the new system.

Research Question
- What does it take to design a system that will reduce the cost of using a manual system that is buying stationery?
- What does it take to design a system that will be able to save time, resources (money) for allowances for teachers?
- How can a system that can capture, process, store and grade students be developed?

METHODOLOGY
Study population
This study consisted of the headmaster of Mbarara Army Senior Secondary School, the secretary, the director (DOS), and the teachers who were selected at random.

Data collection
The researcher first obtained an introductory letter from the faculty which allowed him to have access to respondents and records in the area of study. The researcher identified the respondents and collected the data using both primary and secondary data sources.

Primary data source
This was first-hand information that was obtained from the field using the data collection instruments like questionnaires and interviews and other related reviews [31-38]. This technique was chosen since it produces accurate and reliable information since the researcher collected it personally.

Secondary data source
This contained the information that already exists about the subject matter under the study. Mainly the researcher focused on current records in SRMS.

Data collection techniques
Interview
This technique was used to obtain the required information on the existing systems to establish the possibilities of developing a new system. The researcher would ask direct additional questions to clarify the research [39]. The interview method was chosen because of its reliability, accuracy and gives satisfactory results.

Questionnaires

A questionnaire was designed based on the research objectives and questions. The questions were both close-ended and open-ended questions and this was to give a chance to respondents to express their opinions [40][41]. The questionnaires were to be distributed to the respondents which are teachers, students and others who would be selected at random. Then the researcher was to collect them after they are answered.

Observation

The researcher was to observe carefully the current system in use, the methods to store the results and the problems faced. The observation method was to be carried out with interviewing to obtain clear information. This method would be able to give more relevant and accurate information.

RESULTS

System design model

The design of the information system depended on the following factors
- i)   The environment in which the organization must function.
- ii) The organization's cultures and policies.
- iii) The type of organization that is political, business government.

System testing

Testing was to be carried out to ensure that the system software created was working correctly and efficiently. The testing followed the same resting and validation techniques as in [22-28]. Testing is also aimed at examining the internal efficiency and external effectiveness of the software. External effectiveness of the system tests to verify the functionality of the software in relation to the system design and internal efficiency tests the efficiency of the developed computer code its standard and the documentation.

Requirements analysis

During the feasibility study, an analysis was carried out to establish the basic requirement for the development of the computer-based information system. It also followed the teaching analyzing techniques and interpretations as in [32][33]. The availability of necessary requirements and the commitment of the management to invest in this project was key factor to the success of the project.

System requirements include;

- i)   The inputs to be used
- ii) The resource required
- iii) The operation to be performed
- iv) The expected output.

Hardware requirements

A researcher should have a personal computer with a memory capacity of 256MB and 2.0GHZ processor speed. The computer should be of Windows XP Professional operating system.

Software requirements

The software required to develop the computer-based information system includes;
- An operating system with Windows XP professional software programs.
- Microsoft Word used for word processing
- Microsoft access used for database design
- Microsoft visual studio with 6.0 design tool interface and form designs.

Manual System

Currently, at Mbarara Army Senior Secondary School, the student sits for exams, after sitting for exams, they are marked and recorded. He later receives the results on a result slip. The current system is clearly shown by using a data flow diagram below.
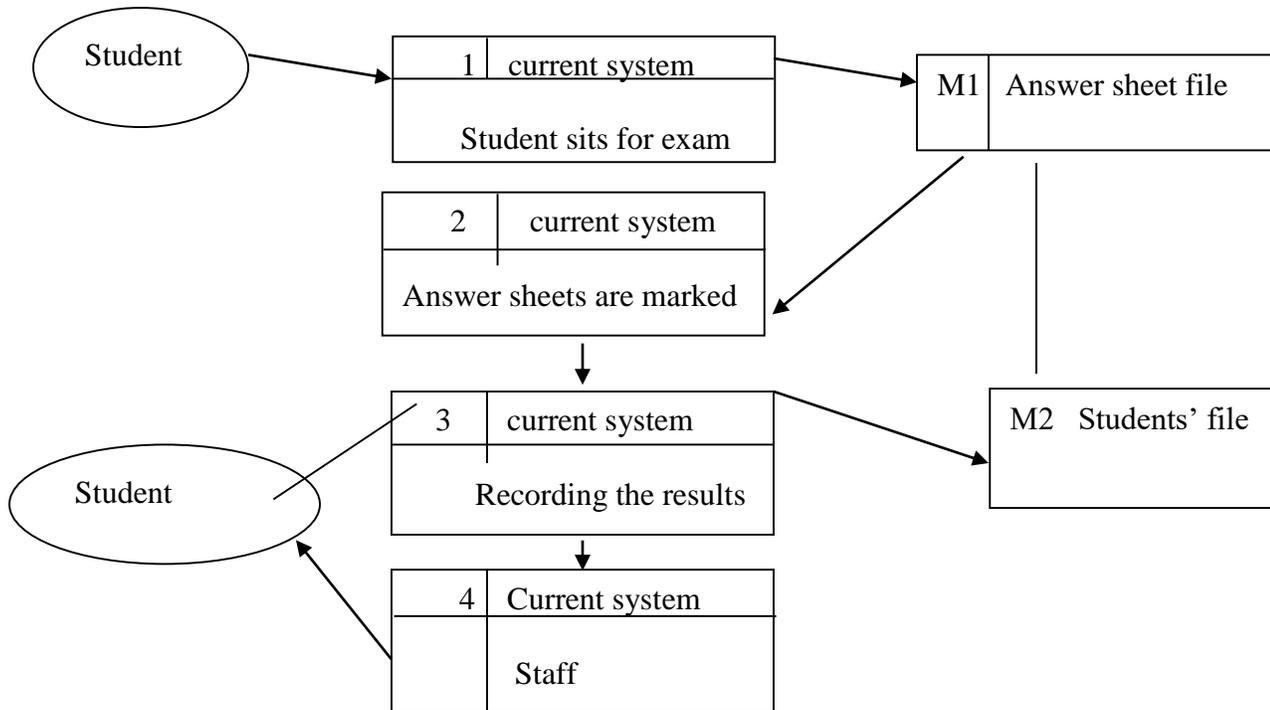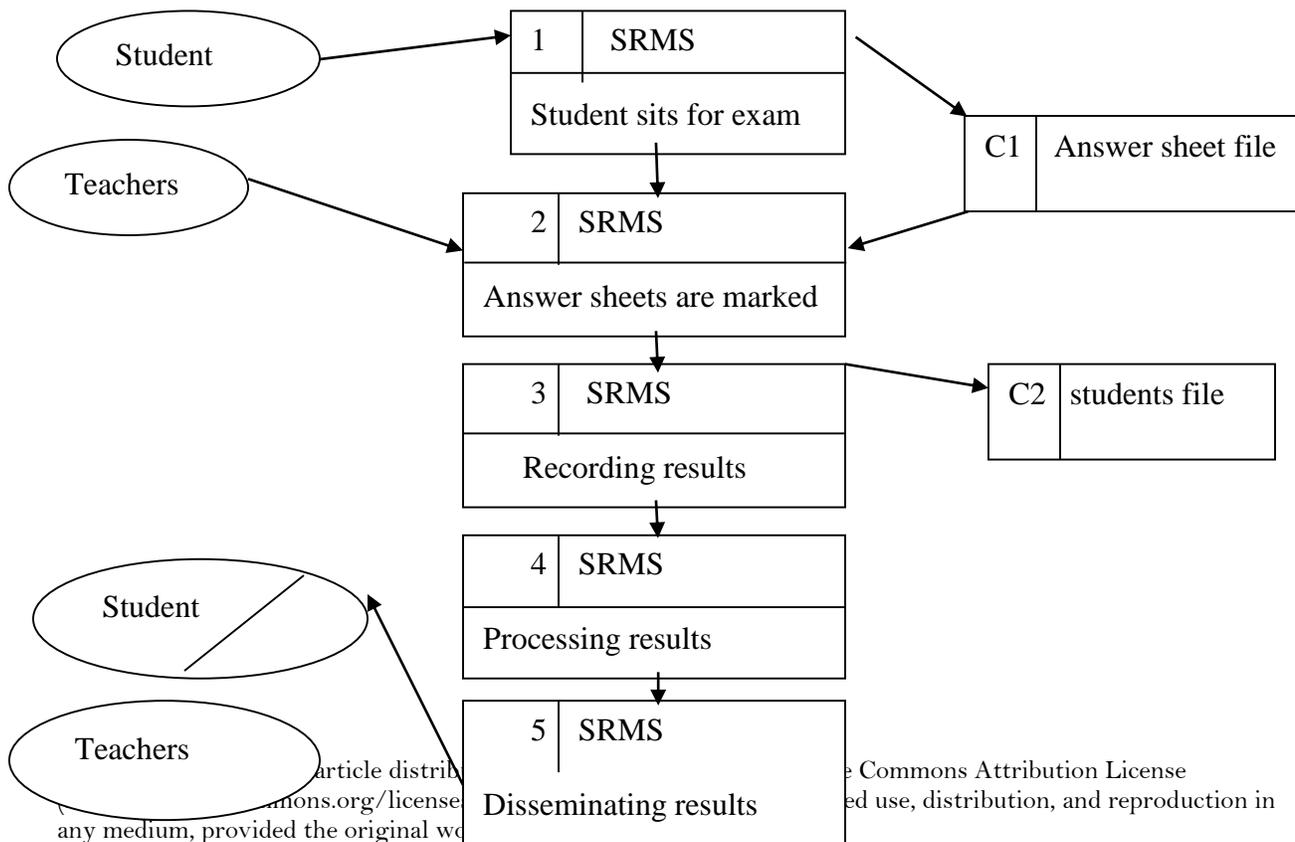
| Student |

| 1 | current system |
| Student sits for exam |

| M1 | Answer sheet file |

| 2 | current system |
| Answer sheets are marked |

| 3 | current system |
| Recording the results |

| Student |

| M2 | Students' file |

| 4 | Current system |
| Staff |

Figure 1: Data flow Diagram of the current system
Proposed system
Here the student sits for the exams, answer sheets are taken for marking, and results are recorded in the computer system from where the results are processed and reports given to students at a short interval. The proposed system is clearly shown by using a data flow diagram (DFD), with records and the ways in which data is processed.
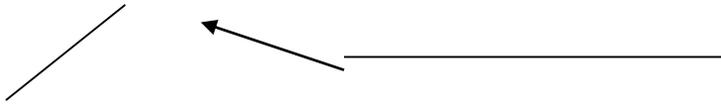
| Student |

| Teachers |

| 1 | SRMS |
| Student sits for exam |

| C1 | Answer sheet file |

| 2 | SRMS |
| Answer sheets are marked |

| 3 | SRMS |
| Recording results |

| C2 | students file |

| 4 | SRMS |
| Processing results |

| 5 | SRMS |
| Disseminating results |

| Student |

| Teachers |

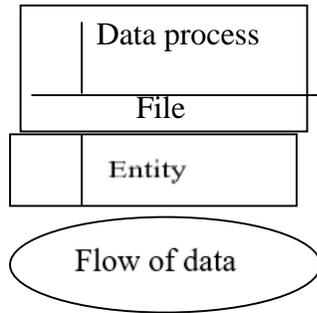**Figure 2: Proposed system**

Figure 3: Key

The advantages of the proposed system

- Data consistency: reduce the risk of inconsistencies occurring if the data is stored once in a database.
- Sharing of data: database belongs to the entire organization and can be shared in the move of the data.
- Improved security: this protects the database from unauthorized users.
- Economy of scale: combining all of the organization's operational data into one database, with applications that are required can result in cost savings.

System entity relationship

This is concerned with the way how different system modules are related and how they interact with one another to give a complete information system
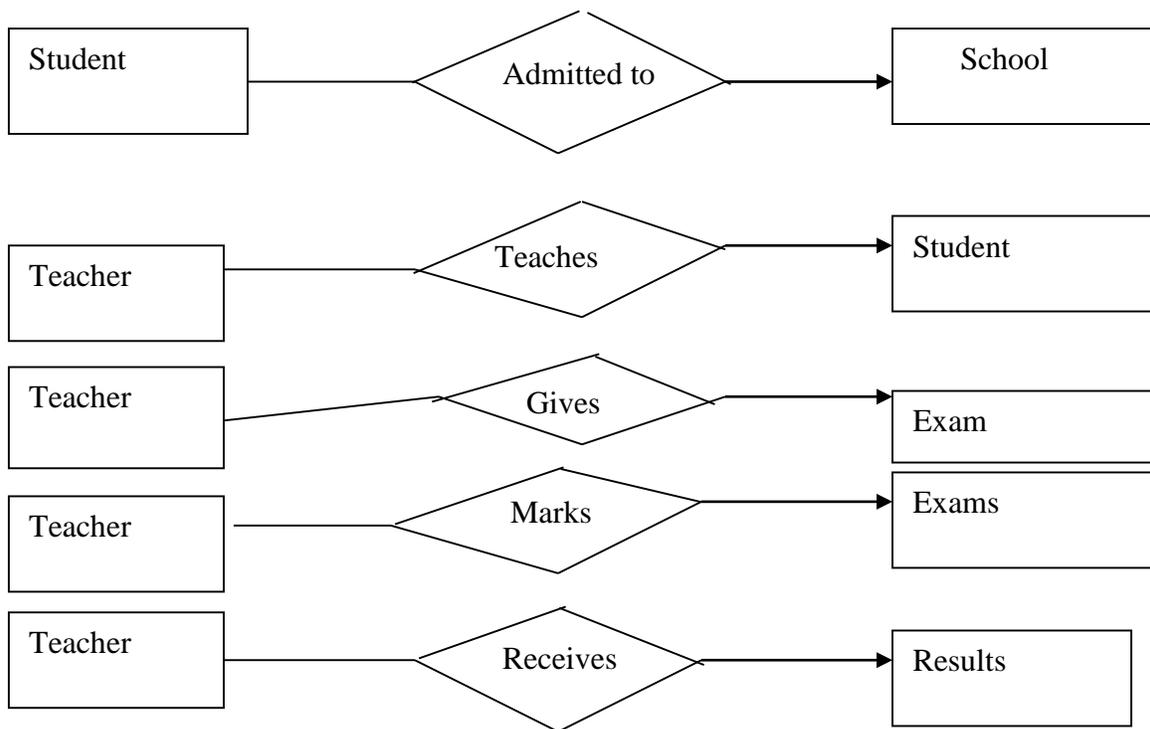
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Figure 4: Entity relationship diagram

This means that a student is admitted to school, one teacher teaches many students, the teacher gives exams, marks them and the student receives their results.
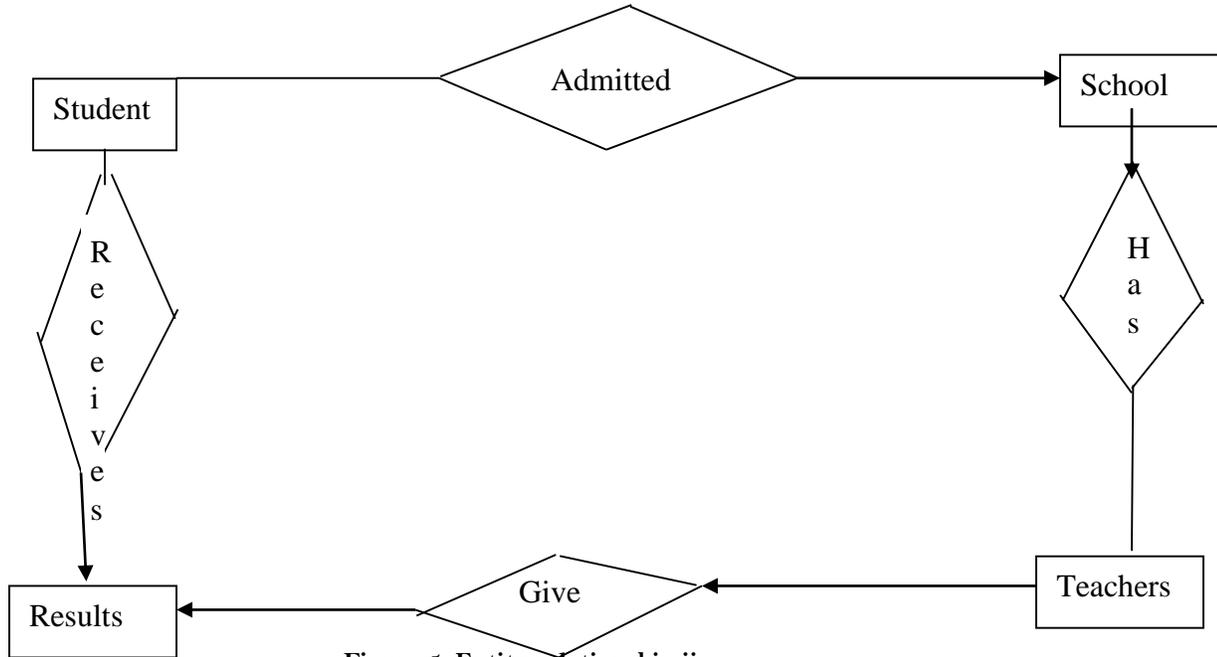
Figure 5: Entity relationship ii

The computer based information system was to help the entire staff and school staff to develop the managerial plans and skills through use of the system designed for them thus bringing efficiency in management controls

DISCUSSIONS

Problems encountered

i)   It was difficult to get information from respondents who were not aware of the information system.

ii) Time was not enough since the researcher had to attend to other duties assigned to him and attend lectures.

iii) Some respondents hide vital information from the researcher because of fear of losing their jobs.

Recommendations

There is a need to buy more computers so that each office can have its own computer for easy accessibility of records. The researcher also recommends that the school should establish networking for easy sharing of software and records from one office to another.

CONCLUSION

In conclusion, the computerized system will help Mbarara Army Senior Secondary School to solve problems of data capturing, storing and disseminating of results hence reduction of the manual work that has been in place. The management must consider the standards put on the student's results and thus this needs a backup of a computerized system to ensure quality and efficiency in SRMS.

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