Design and Implementation of Automated Interface System for Junior High School Candidates in Ghana

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Abstract
This paper deals with an automated interface system of statement of academic record for Junior High School (JHS) candidates in Ghana. The objectives of this paper is to design and implement a transcript of pupils academic record, query each candidate's results from first to final year (JHS1 – JHS3) for each subject studied and use the queried results to counsel the candidates for the choice of courses to be offered at the Senior High School. The queried results indicated the strengths and weaknesses of each candidate's academic performance for a specific subject termly. The system was designed using Microsoft access 2010 and Structured Query Language (SQL) was applied for the query of results at any point within the nine (9) terms of the academic calendar.

Keywords: Microsoft; Interface system; Communications technology

Introduction
Information and Communications Technology (ICT) has become an integral and accepted part of everyday life, more especially in our educational institutions. ICT is an important tools to meet Millennium Development Goals of access to and quality improvements of educational programming for all children [1].

Technology is increasing in transforming people’s lives at home, work places and it is expected that this trend will continue, to the extent that technological literacy will become a functional requirement for people’s work, social, and personal lives. The role of technology in teaching and learning is rapidly becoming one of the most important and widely discussed issues in contemporary education policy. Technology [3] can provide the necessary tools to enhance the teaching and learning process, opening new opportunities and avenues. For instance, it could enhance the customization of the educational process and implementation of student’s record systems.

The creative use of Information and Communications Technology in education has the capacity to increase the quality of people’s lives by enhancing teaching and learning. ICTs are making dynamic changes in society. They are influencing all aspects of life. The influences are felt more and more at schools. Because ICTs provide both students and teachers with more opportunities in adapting learning and teaching to individual needs, society is, forcing schools aptly respond to this technical innovation [4].

However, a well-designed student record system, whether using paper documents or automated interface systems, yields numerous benefits. The most important of these is the ability to report Information for decision making about individual students, schools and programs [5].

Hence, this paper aimed at designing an interface system which provides means to maintain accurate, up-to-date pupils statement of academic record, assess the performance of teachers for each particular subject and use the queried results to counsel the candidates for the choice of courses to be offered at the Senior High School.

Related Works
Automated interface systems using available computer technology offer tremendous advantages over traditional paper systems [5]. A well-designed automated student record system allows for the easy and efficient movement of student records among levels of the education system using standard formats. For instance, when a student moves from one school to another the information can be extracted, prepared, and transferred electronically [6]. In this “information age,” production of accurate, relevant, and timely information is the key to good decision making [6]. Student records are used for many important educational purposes, including instruction and guidance decisions [6]. An education organization’s ability to meet its standard is affected by the organization’s access [5] to complete, accurate, and timely information about its students.

To understand what student’s database [6] is, you must be equipped with the main difference between data and information and as indicated below:

I. Data constitutes the building blocks of information.
II. Information is produced by processing data.
III. Information is used to reveal the meaning of data.
IV. Accurate, relevant and timely information is the key to good decision making.

Concept of Database
A database [6] is a collection of tables, queries, forms, reports, program code, and the interrelations of these objects. Tables are the containers of data arranged into rows (records) and columns (fields). Queries are questions that are asked of our data. Forms are screens that are used to present or collect data in an organized manner (the data entry screen). Reports are the formatting of output for printing. Macro and Modules are user programs written to automate functions or create a complete database application. Microsoft Access databases are relational databases, which means they contain several tables that are linked together by special matching fields called primary keys.

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Received December 14, 2015; Accepted January 07, 2016; Published January 26, 2016


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Significance of Automated Interface System

I. Time and Cost Saving as compare to manual way of keeping records.

II. Quick Feedback of updated and the needed information.

III. Easy electronic transfer of information.

IV. Accurate and efficient pupils records are easily accessible.

Methodology

The automated interface system involved the following stages: Designing of tables, Forms, query for data entry and searching, programming, testing and debugging. The fields which were considered for the designing of tables includes: registration number of pupils, first name, last name, school programs (subjects), name of teacher for a particular subject, term in academic calendar which were codes as first year first term (1T1), first year second term (1T2), first year third term (1T3), third year second term (3T2) and mock examination respectively for the nine terms of the academic calendar.

The pupils registration numbers were generated using Microsoft excel 2010 and it serves as the primary key to search for the needed information within the SQL structure.

Some Interface Systems

Details of interface system are shown in Figures 1-3.

Conclusion and Future Work

An automated interfaces system has been designed and implemented to query statement of academic records for Junior High School candidates in Ghana. The paper focused on querying the results of each candidate so that the performance of such pupil can be assessed in order to offer academic guidance towards the choice of program to pursue at the Senior High School and at the same time analyzing the performance of each subject teacher.

Finally, due to time constrain, the future work will include web-based automated interface system where each school can input its results online. In this future work, the back-end database would be MySQL and Front end interface would be ASP.net in Visual Basic 2010.

References


