Bangladesh University of Business & Technology (BUBT)

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING (CSE)

Faculty of Engineering (BSC in CSE)

Project Report On

Student Management System

Submitted To

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Submitted By

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DECLARATION

We, Md. Mahabub Jamil , Tahmid Bin Siddique & Md. Robiul Alim, hereby declare that this Piece of work original on our own effort and that it has never been published or presented to any University for any academic award. Where other works have been used, this has been acknowledged in the references. …………………………………………………….

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Approval

This project "Student Record Management System" submitted by Md. Mahabub Jamil (20215103102) Tahmid Bin Siddique (21224103102) students of B.Sc. in Computer Science and Engineering from Bangladesh University of Business and Technology in November, 2020 under the supervision of Sondip Pal Singha, Lecturer, Department of Computer Science and Engineering has been accepted as satisfactory for the partial fulfillment for the requirements of B.Sc. in Computer Science and Engineering and approved as to its style and contents.

ACKNOWLEDGEMENT

"Task successful" makes everyone happy. But the happiness will be gold without if we didn't state the person who have supported us to make it a success. Success will be crowed to people who made it a reality but the people whose constant guidance and encouragement made it possible will be crowned first on the of success.

This acknowledgement transcends the reality of formality when we would like to express deep gratitude and respect to all those people behind the screen who guided, inspired and helped me for the completion of our project work. We consider ourselves lucky enough to get such a good project. This project would add as an asset to our academic profile.

We express our gratitude to the help of our supervisor Sondip Pal Singha,for his constant supervision, guidance and co-operation throughout the project and for giving constant motivation and valuable help through the project work. We also would like to thanks to our honorable chairman Prof. Md. Saifur Rahman, for his support and giving us support and giving us permission to use the computer lab whenever we needed.

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Abstract

Organizations protect the information assets using different criteria. Therefore, a precise security policy framework can provide substantial improvements to business activities. This paper analyzed high-level security policies, standards and practices and described its goals and procedures. Thus, considering a detailed and systematic approach, towards information security programs. By going through guidelines

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INTRODUCTION

In this project an attempt is made to design a computer system for the Student Record that makes the management of recording Students details, The registrar of Bangladesh University of Business and Technology is responsible for handling student information and gathering them during enrollment. This information includes each student's background information, student results, fee details, performance record, and other information needed by the Institution.

1.1 OBJECTIVE

The main objective is to develop a robust Student Database Management System for Bangladesh University of Business & Technology.

 Specific Objectives;

i. To implement the system
ii. To test and validate the system

1.2 MOTIVATION

This project is basically designed for BUBT Students and Admin Programme. This learning institution provides a lot of services to students which includes; Practical training to students, Admits new students, keep students records, for every department. The project provides comprehensive Student Database System for BUBT. The system is able to capture, validate, sort, classify, summarize, store and retrieve data. Student Database System store students details, fee details, result details and all the details of students including their background information, educational qualifications and personal details etc.

BACKGROUND

The scope of the service is BUBT which provides structural help to vulnerable students in their cultural setting of the extended family. The university has more than 150000 students that take different courses. It is true that success of BUBT depends on its ability to acquire accurate and timely data about its operations, to manage this data effectively, and to use it to analyze and guide its internal daily activities. Student Database System deals with all kind of student details by tracking all the details of a student from the day one to the end of his or her course which can be used for all reporting purpose, tracking of attendance, progress in the course, completed semesters years, coming semester year curriculum details, exam details, project or any other assignment details, final exam result; and all these are purposed for future references when interpreting an organization performance.

2.1 SYSTEM ANALYSIS

System analysis is for finding out what happens in existing system deciding on what changes and new features are required and defining exactly what the proposed system must be. The process of system analysis is largely concerned with determining, developing and agreeing to the user's requirements. It provides prime opportunity to communicate well with the user and conceive a joint understanding of what a system should be doing together with a view of relative importance of the system facilities using interactive techniques.

2.2 EXISTING SYSTEM

According to student records manual prepared by BUBT (office of the registrar) the creation and maintenance of records relating to the students of an institution are essential to:

☐ Manage the relationship between the institution and the student;
☐ Controlling the student's academic progress and measuring their achievement. In addition, student records contain data which the institution can aggregate and analyze to inform future strategy, planning and service provision. A student is an individual who is registered for a pursuing a given course or program. A student record/data contains information directly related to a student, which include student name, student ID, student address, guardian information, medical information, Room number and name and attached student passport photo and a list of personal characteristics. Student records could be maintained in handwriting, print, computer's main memory, magnetic tape, and disk even on cloud backup for safety. 6 The student records are used by the organization to assist offices in support of their basic institutional objectives and to document student progress and achievement in the educational process of the institute. Educational institution is required to conform to fair information practices.

 This means that persons who are subjects of data systems must:

Be informed of the existence of such systems   ☐Have identified for them what data about them are on record, ☐Be given assurances that such data are used only for intended purposes Be certain that those responsible for data systems take reasonable precautions to prevent misuse of the data.

2.3 NEED FOR THE SYSTEM

The researcher went to CCP and observed their daily as regards their current system and they were manually recording the student's records in registrars, and principal offices. A follow up was made to determine the time it took to carry out the student record management. I observed their system's weaknesses.

2.4 PROPOSED SYSTEM

The proposed system is intended to make life easy. The main purpose of the project is to build a student database system to facilitate easy access of student's records. The Student Database System will allow the registrar of CCP Vocational Training institute, Login to edit, update students details records. It also enhances efficient management of student's information and process and print out student's transcripts/ result slips

2.5 SCOPE OF THE PROJECT

This project is basically designed for Bangladesh University of Business and Technology. This learning institution provides a lot of services to students which includes; Practical training to students, Admits new students, keep students records, for every department. The project provides comprehensive Student Database System for BUBT. The system is able to capture, validate, sort, classify, summarize, store and retrieve data. Student Database System store semester details, course details, department details and all the details of students including their background information, educational qualifications and personal details etc.

2.6 PROBLEM DEFINITION

BUBT Programme is a Tertiary Institution with is still capturing and storing student's record details locally, where hard copies of files for every student is kept in office shelves, this seem to be tiresome and time consuming in case the registrar is looking of a particular student document. The problems facing the current manual system are data redundancy, difficult to update and maintain, inconsistent data, insecurity, difficult to impose constraints on various data file and difficult to backup. Therefore, because of these drawbacks that Student Record Management System has been developed to address the problems catalogued above.

2.7 FEASIBILITY STUDY

During system analysis, the feasibility study of the proposed system is to be carried out. This is to ensure that proposed system is not a burden to the company. This study can be categorized into three types. They are:

2.8 ECONOMIC FEASIBILITY STUDY

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of system is limited, the expenditures must be justified. Thus, the developed system was well within the budget and this was achieved because most of the technologies used are freely available. Only customized products had to be purchased.

2.9 TECHNICAL FEASIBILITY STUDY

This study is carried out to check the technical facility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This developed system has modest technical requirements, as only minimal or null changes are required for implementing this system.

2.10 SOCIAL FEASIBILITY STUDY

This aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the system but must accept it as a necessity. The levels of acceptance by the users solely depend on the methods that are employed to educate the user about the system and make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

SYSTEM CONFIGURATION

HARDWARE CONFIGURATION:

Processor   -   Core i5

Memory   -   512 GB SSD

Keyboard   -   105 Keys

Monitor   -   LCD

Mouse   -   USB mouse

SOFTWARE SPECIFICATION:

Operating System   :   Windows 10

Software   :   Netbeans

Documentation   :   MS Word

FUNCTIONALITIES

Function 1   **:** Code leads to start page.

Function 2   **:** Admin will go admin panel and students will go student panel.

Function 3   **:** On admin panel can insert or display record.

Function 4   **:** We can search or delete record.

Function 5   **:** The software shows students records.

Function 6   **:** To login, Admin email and password should match.

Function 7   **:** Admin can login as user by registering email and password.

Function 8   **:** Students can easily find their information, their result and fee details.

Function 9   **:** Admin can monitor the records and information.

IMPLEMENTATION

Implementation is the stage where the theoretical design is turned into a working system. The system can be implemented only after thorough testing is done and if it is found to work according to the specification. The implementation phase comprises of several activities. The hardware and software requisition are carried out. Implementation of a computer system is by replacing a manual system. The problem encountered are converting files, training users, creating accurate files, and verifying printouts for integrity.

Pre implementation and Post implementation are the two major types in Implementation procedure, pre-implementation is the first stage after testing phase is completed under this stage some types of error may occur at the time of installation. The error is collected and analyzed individually. Each and every step should be taken in rectification of errors, that software should be implemented thoroughly that we call as Post implementation.

A post-implementation review measures the performance against predefined requirements. A post-implementation review determines how well the system continues to meet performance specifications. A post-implementation review is an evaluation of a system in terms of the extent to which the system accomplished stated objectives and actual project costs exceed initial estimates. It is usually a review of major problems that need converting and those that surfaced during the implementation phase.

TESTING

System testing involves unit testing, integration testing, white-box testing, black-box testing. Strategies for integration software components into a functional product include the bottom-up strategy, the top-down strategy, and sandwich strategy. Careful planning and scheduling are required to ensure that modules that will be available for integration into evolving software product when needed a serious of testing are performed for the proposed system before the system is ready for user acceptance testing.

5.1 UNIT TESTNG

Instead of testing the system as a whole, Unit testing focuses on the modules that make up the system. Each module is taken up individually and tested for correctness in coding and logic.

The advantages of unit testing are:

Size of the module is quite small and that errors can easily are located.
Confusing interactions of multiple errors in wide different parts of the software is eliminated.
Modules level testing can be exhaustive.

5.2 INTEGRATION TESTING

It tests for the errors resulting from integration of modules. One specification of integration testing is whether parameters match on both sides of type, permissible ranges and meaning. Integration testing is functional black box test method. It includes testing each module as an impenetrable mechanism for information. The only concern during integration testing is that the modules work together properly.

5.3 WHITE BOX TESTING (CODE TESTING)

The code-testing strategy examines the logic of the program. To follow this testing method, the analyst develops test cases that result in executing every instruction in the program or module so that every path through the program is tested. A path is a specific combination of conditions that is handled by the program. Code testing does not check the range of data that the program will accept.

Exercises all logical decisions on their true or false sides.
Executes all loops at their boundaries and within these operational bounds.

5.4 BLACK BOX TESTING (SPECIFICATION TESTING)

To perform specification testing, the analyst examines the specification, starting from what the program should do and how it should perform under various conditions. Then test cases are developed for each condition or combinations of conditions and submitted for processing. By examining the results, the analyst can determine whether the programs perform according to its specified requirements. This testing strategy sounds exhaustive. If every statement in the program is checked for its validity, there doesn't seem to be much scope for errors.

5.5 FUNCTIONAL TEST

In this type of testing, the software is tested for the functional requirements. The tests are written in order to check if the application behaves as expected. Although functional testing is often done toward the end of the development cycle, it can—and should, —be started much earlier. Individual components and processes can be tested early on, even before it's possible to do functional testing on the entire system. Functional testing covers how well the system executes the functions it is supposed to execute—including user commands, data manipulation, searches and business processes, user screens, and integrations. Functional testing covers the obvious surface type of functions, as well as the back-end operations (such as security and how upgrades affect the system).

5.6 STRESS TEST

The application is tested against heavy load such as complex numerical values, large number of inputs, large number of queries etc. which checks for the stress/load the applications can withstand. Stress testing deals with the quality of the application in the environment. The idea is to create an environment more demanding of the application than the application would experience under normal workloads. A test environment is established with many testing stations. At each station, a script is exercising the system. These scripts are usually based on the regression suite. More and more stations are added, all simultaneous hammering on the system, until the system breaks. The system is repaired and the stress test is repeated until a level of stress is reached that is higher than expected to be present at a customer site. Race conditions and memory leaks are often found under stress testing. A race condition is a conflict between at least two tests. Each test works correctly when done in isolation. When the two tests are run in parallel, one or both of the tests fail. This is usually due to an incorrectly managed lock. A memory leak happens when a test leaves allocated memory behind and does not correctly return the memory to the memory allocation scheme. The test seems to run correctly, but after being exercised several times, available memory is reduced until the system fails.

5.7 STRUCTURE TEST

White-box testing, on the other hand is concerned with testing the implementation of the program. The intent of this testing is not to exercise all the different input or output conditions but to exercise the different programming structures and data structures used in the program. White-box testing is also called structural testing and we will use the two terms interchangeably.

5.8 VALIDATION TEST

After the culmination of black box testing, software is completely assembled as a package, interfacing errors have been uncovered and corrected and final series of software validation tests begin. Validation testing can be defined as many, but a single definition is that validation succeeds when the software functions in a manner that can be reasonably expected by the customer. Validation refers to the process of using the software in a live environment to find errors. During the course of validation system may occur and the software will be changed.

5.9 OUTPUT TEST

In this output is tested by entering sample data and checking out for its efficiency.

5.10 USER ACCEPTANCE TEST

In this type of testing, the software is handed over to the user in order to find out if the software meets the user expectations and works as it is expected to. In software development, user acceptance testing (UAT) - also called beta testing, application testing, and end user testing - is a phase of software development in which the software is tested in the "real world" by the intended audience. UAT can be done by in-house testing in which volunteers or paid test subjects use the software or, more typically for widely-distributed software, by making the test version available for downloading and free trial over the Web. The experiences of the early users are forwarded back to the developers who make final changes before releasing the software commercially.

5.11 CHANGE OVER PLAN

Testing commences with a test plan and terminates with acceptance testing. A test plan is a general document for the entire project that defines the scope, approach to be taken, and the schedule of testing as well as identifies the test items for the entire testing process and the personnel responsible for the different activities of testing.

5.12 Flowchart
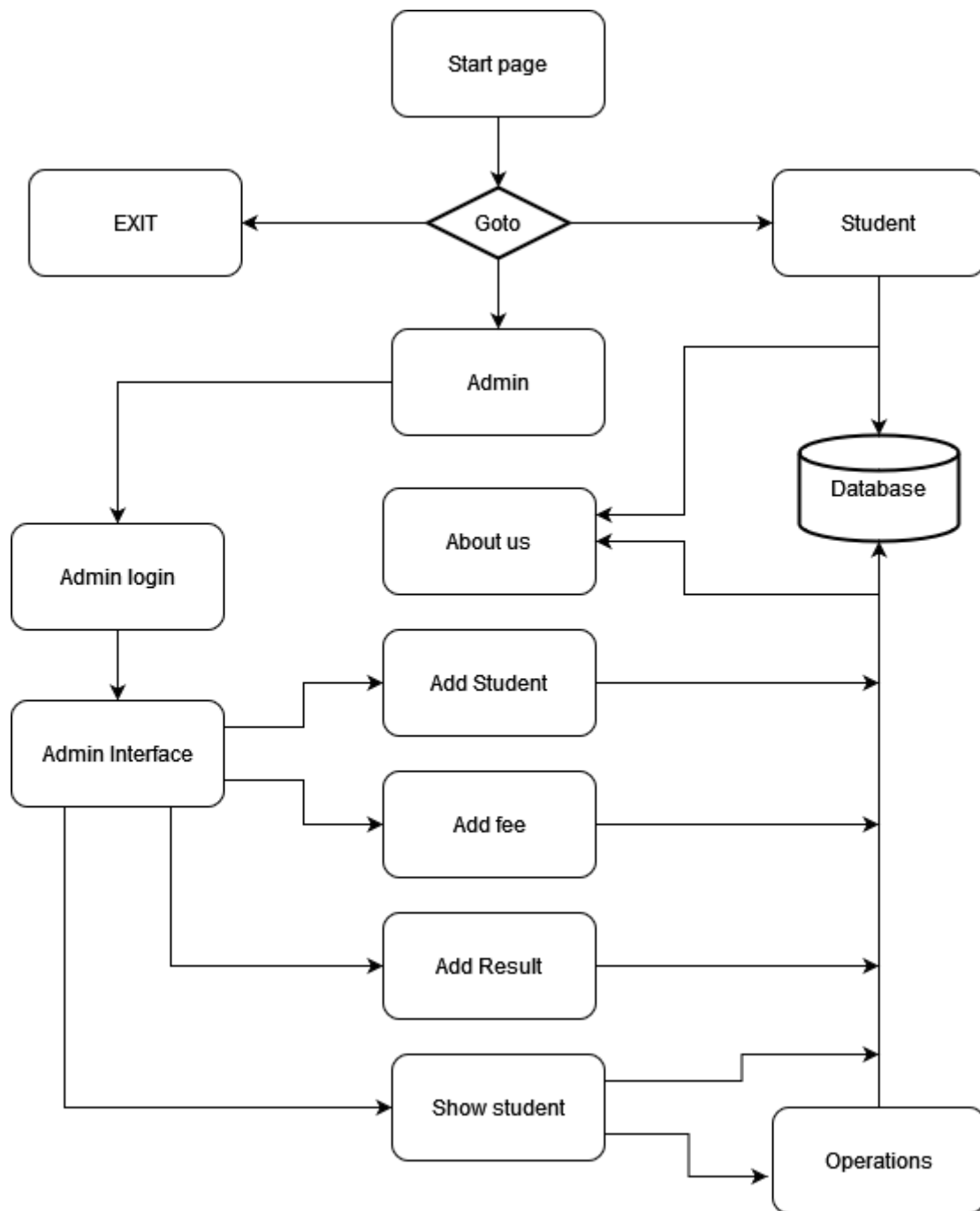
6.1 CONCLUSION

Finally, since the data generated daily by Student Management System Programme increase geometrically according to the registrar, it is worthwhile and holistic to develop robust student database management system for the Institution to hold the large amount of data that is generated. The proposed system, SMS, should be able to stand the test of time because student records should be kept as long as is necessary to: Fulfill the promised obligations established between the institution and the student. Provides information on the academic career and achievements of the student, and as part of their lifelong learning record. The information gathered whilst reviewing existing literature on student information management system has been very useful in the development of the proposed system. The project when completed will provide an efficient way to store and organize data than spreadsheet.

6.2 Referance

- Google
- Youtube
- Java for Developing
- Javapoint
- W3School