American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science &Technology (FST)

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Section: I

Group No: 04

School Management System

A software Engineering project submitted
By

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The project will be Evaluated for the following Course Outcomes

CO3: Choose appropriate software engineering model in a software development environment	Total Marks
Project Background Analysis (needs, goal, benefits, etc.) [5Marks]	
Appropriate Process Model Selection [5Marks]	
Argumentation for model selection with Evidence [5Marks]	
Completeness, Spelling, Grammar and Organization of the Answer [5Marks]	
CO4: Explain the roles and their responsibilities in the software project management activities	Total Marks

Content Knowledge (e.g. System Requirements, System Design) [5Marks]	
Project Role identification [5Marks]	
Responsibility Description [5Marks]	
Completeness, Spelling, grammar and Organization of the Answer [5Marks]	

1. PROBLEM DOMAIN

1.1 Background to the Problem

In a school, officer has to deal with a lots of information like student's admission documents, employee appointing and personal information, course related information and many other information of the school. So, it is kind of difficult to keep track of all these information including searching, updating, deleting and adding. Again it is also difficult to keeping track on employee's curriculum in the school.

The root reason of this problems are lack of employee in the management section or, time consumption. The information is huge but working people is small. This small bunch of people cannot handle all this information in a short time so the school management cannot works in fluent way. It will be hard to take any frequent decision if an issue occur.

1.2 Solution to the Problem

The solution of this problems it to use a management system. Through using this management system officers can keep track with the information of all aspect of the school as all the information will be stored in a database and the system has access to the database. So that an immediate step can be taken if an issue occur.

In the software there is employee and teacher section, admission section, salary and workhour management section and also course section. In all this sections contains information about their individual characters. So that the management officer can track the employees as well as the students. So the discipline of the school will be maintained.

Our software is a complete Dynamic Academic Institution Management software, which is user friendly Web Based Software. This Software Cover Academic Management, Account & Fees Management, Attendance Tracking, Library Management, Online Fess Management etc. The special feature we are providing is the feedback section where the guardians, students and teachers can provide their advices and feed backs about academic curriculums. Our solution is essential for every Educational Institute like English medium School, Bengali medium School

The existing software solutions are available to solve the aforementioned problem are Gradelink, AdminPlus, PraxiSchool, BigSIS, STARS, iGradePlus, Classter, PowerVistaRollCall.

2. PRODUCT AND PROJECT DESCRIPTION

2.1 System Features

1. System Login

Functional Requirements
The software shall allow users to login with their given username and password
If the username and/or password has been inserted wrong for more than three times, the random verification code will be generated by the system to retry login.
If the number of login attempt exceed its limit (5 times), the system shall block the user account login for one hour.
Priority Level: High
Precondition: user have valid user id and password

2. Searching Data

Functional Requirement
The software shall allow users to search about the desired information.
If the searching data do not exist the software will show not existence notification.
Priority Level: High
Precondition: user have to log in as an admin.

3. Creating Profile

Functional Requirement
The software shall allow users to create a new profile.
If the ID number of the profile is same as any other profile the software notify.
Priority Level: High
Precondition: user have to log in as an admin.

4. Updating Data

Functional Requirement
The software shall allow users to update any information.
Priority Level: High
Precondition: user have to log in as an admin.

5. Deleting Data

Functional Requirement
The software shall allow users to delete the desired information.

If the data which the user want to delete is do not exist the software will show not existence notification and before deleting the data the software will ensure if the user really want to delete it or not by showing a yes/no notification.
Priority Level: High
Precondition: user have to log in as an admin.

6. Searching Data

Functional Requirement
The software shall allow users to give feed backs in the feedback section.
Priority Level: Low
Precondition: User have to login as admin or, student.

2.2 System Quality Attributes

Availability: The software will be available for 24/7. As the software will be online based it will be easy to do any kind of operations from anywhere at anytime if any inconvenient issue occurs.

Performance: The software loading time will be maximum 15 seconds. That's mean if a trained user command for an operation the output will be shown in maximum 15 seconds.

Efficiency: 25 percent of the processor capacity and RAM available to the application shall be unused at the planned peak load conditions. So that user still can get instant response if the number of users is high.

Integrity: The customer have the privilege of two factor authentication if they want. Also the software will ask for authentication if the user changes his/her device. Only admins have the privileges to change, create, update or delete any kind of information whether student users only can see the regular curriculums and can give feedbacks. Again the software will terminate any kind of operation from the user if the user try to hide their location or identity.

Reliability: The software do not fail no more than five experimental run out of 1000.

Robustness: The software will automatically log out the user after 10 minutes to avoid being hacked, cause sometimes the user forget to log out from the system. Again the software saves data in every 10 seconds while the user is inserting something so that if the user got any inconvenient issue he can just start his data insertion from where he left. Also if the user do any typing mistake while giving a feedback it will correct the mistake automatically.

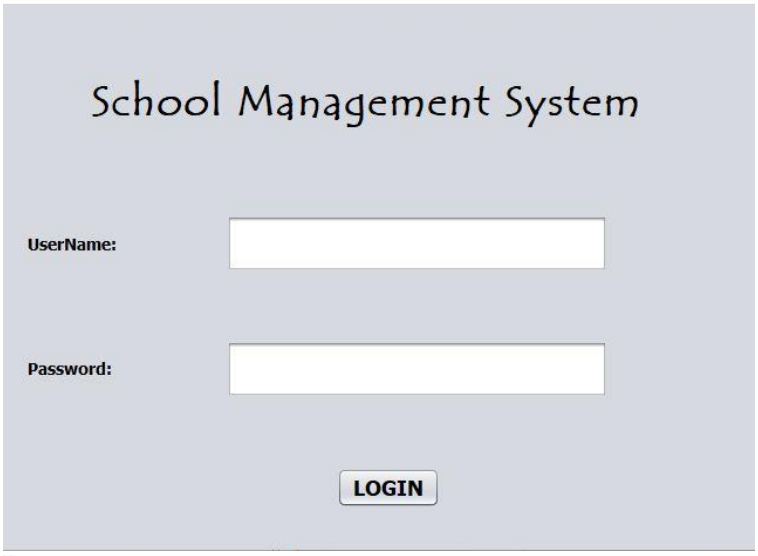
Usability: A trained user shall be able to submit a complete request for a creating, updating, deleting, searching a profile in 1-2 minutes

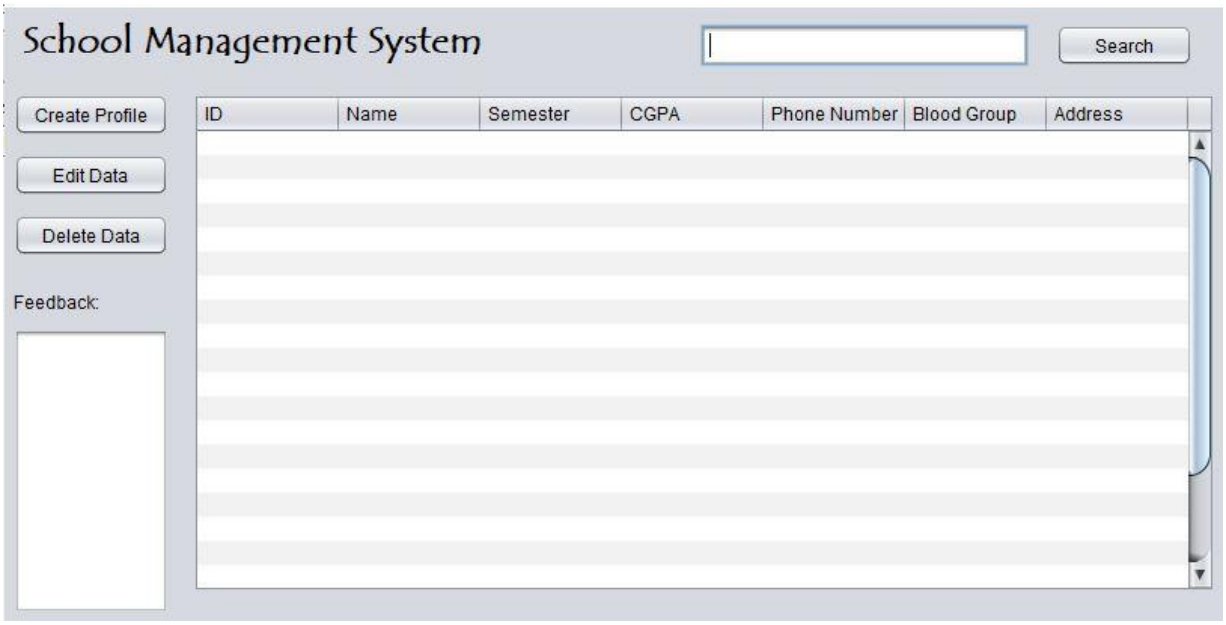
Maintainability: A user can easily modify any information if it inserted wrong but for it he have to go through security phases.

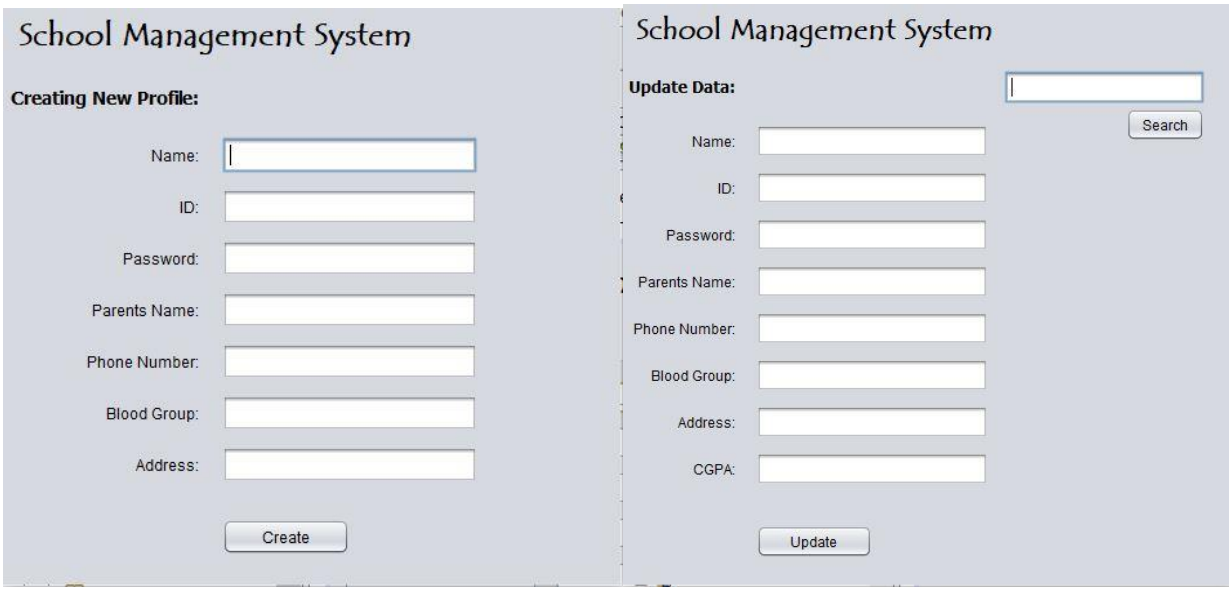
Reusability: We can reuse the system structure to build another management system for other school, college or universities.

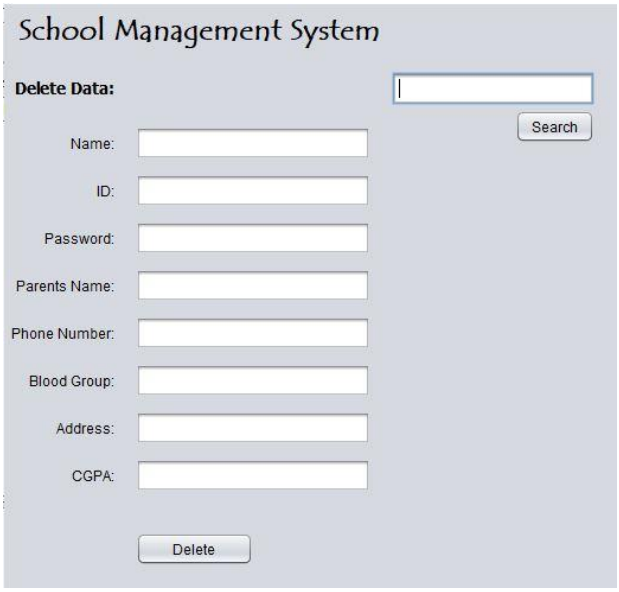
Testability: The maximum cyclomatic complexity of a module does not exceed 20. So, if the product will be modified often because it will undergo frequent regression testing to determine whether the changes damaged any existing functionality.

2.3 System Interface









2.4 Project Requirements

As my project is a semi-detached project. So,

Project complexity = 1.2
SLOC dependent coefficient= 0.35
SLOC not more than 8000.

From this information we found, to complete this project we will need 37 labor working hours, 9 days and 4 employee and as we are going to build this project so our expected budget will be 34,320$.

3. SOFTWARE DEVELOPMENT LIFE CYCLE

3.1 Process Model

We are selecting SCRUM method to complete my project. As the project is dividend in three phases including pregame, development and postgame which is inspired by the game rugby. In pregame phase we will plan and collect all the requirements, information that we need to complete the project by sprint planning first phase meeting. After that we will collect the tools, do effort estimation, create product blockage list by second phase sprint planning meeting. Then we will start the development phase. Where the employee or, team members will start to work on their estimated topic. This phase is treated as "Black Box" where the unpredictable is expected. So the phase is developed in sprints as a result it analyze every work after it get done and also the design. If the work is done correctly then it delivered to next phase or, if the work is not done correctly then get to the pregame phase by backlog sprint and sequentially do the previous process. After the development phase we go for testing where we integrate the new problems. If we do not find any problems or lacks then we will release the project and if we found any other issues we will solve the problem by using backlog sprint, all this we will be done in sprint review meeting. During our working process we will have a daily scrum meeting. It will be no longer than 15 minutes which is for to let all the team members know about the project progress and to discuss about the problems they have faced on earlier days.

3.2 Project Roll Identification and Responsibilities

Scrum Master: There will be a scrum master who will be responsible for ensuring that the project is carried through according to the practices, values, and rules of Scrum and that it progresses as planned. He will interacts with the project team as well as with the customer and the management during the project.

Product Owner: There will be a product owner who will be officially responsible for the project, managing, controlling, and making visible the Product Backlog list. The product owner will be selected by the Scrum Master, the customer, and the management. He will make the final decisions of the tasks related to product Backlog.

Scrum Team: Scrum Team is the project team that will have the authority to decide on the necessary actions and to organize itself in order to achieve the goals of each Sprint. The scrum team will be involved in effort estimation, creating the Sprint Backlog, reviewing the product Backlog list and suggesting impediments that need to be removed from the project.

Customer: There must be customers. They will participate in the tasks related to product Backlog items for the system being developed or enhanced.

Management: The Management will be in charge of final decision making, along with the agreements, standards, and conventions to be followed in the project. It also will participate in the setting of goals and requirements.