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API Based Course-Result Management System

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Abstract

The current university course and result management system in Bangladesh is not fully web based. It is partially manual and it is time consuming. It is also cost ineffective, and average return is low and diminishing. Currently, students and teachers can walk-in parallel system in order to see the schedules, results and enroll courses. Students are informed manually using notice board. The goal of this research is to automate university course and result management service and so that student and teachers can aware about all activity digitally and store all the information in automation system. They can go in online system to find any kind of information regarding the result and courses concerned to the students and teachers. As it is an API based system users can also use it with the android or iOS system and users can access another operating system easily. This system is developed by MVC (Model, View, Controller) which followed the Code First approach. To develop a database system which can easily store, retrieve and update data. Each and every input and outputs is done by API. So that it is cross domain supported. It can be connect with, windows, iOS, Android or any other operating system by API.

Key Words: Web based result; API system; MVC (Model, View, Controller); android or iOS system

1. Introduction

The API based University Course and Result Management System installed at any educational institute elevates their management process and makes the work flow such as documentation much faster. The system provides with such a tool to manage and perform the routine work much quicker and easier. There are some University management software that are web based so that the information and data are carried out and accessed at anywhere with a simple internet connection. Management of this kind of online university

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management software is much easier for various departments of one particular educational institute such as a university, and much more centralized and integrated to all departments of the university [1]. But this research paper is focused on developing courses and results management system for a department.

The Software is designed to be used for management of data of the students, courses and teachers of a department. The Software for student management, either window based or web based now becomes the necessary requirement for the institution management. The window based software may be installed when it required for one place or one department with management of resources at the system where it is installed. The requirement of online university management application can be utilized when the system is required for the management of multiple departments in a university management system deals with all kinds of student results, course details, courses assigned to the teachers, teacher's details, class routine details and assigning room for the classes. It tracks all the details of a courses and schedules from the day one to the end of his course. This design can facilitate us to explore all the activities happening in the university [2]. Here almost all work is computerized so it will be possible to maintain the accuracy.

The university course & result management system is an improved course service that increases the ability of information sharing. It can handle all details about a student and a teacher. The details includes modules ranging from basic database of students, course taken and grades to tracking performance and up to date information of the students. So the University management system is designed to be managed by a department. It is the job of the department to insert, update and monitor the whole process. The system will serve the management to reduce cycle times, keep track of data, and improve the service and information sharing.

2. Objectives of the Research

This research is aimed by the web API based application which can be used to input process and view student information. The main objective is to create a user friendly database system that can manage all the work of a student management system. The database stores all kinds of information about student result, courses and teacher assigned to the course. It provides information easily when admin wants to view the information about the student. Displaying student information can easily represent the present status of the student. Admin can easily insert, edit and delete data to update information in this database. Above all, this system is very helpful for the administration to manage student information. This research covers the enrollment of students in a particular semester with the facility of choosing his desired course and assigning teacher. The system has some pre-defined check-points.

The objective of developing such a computerization system is to reduce the paper work and reduce time spent for such management. The research provides us with the information about student record, timetable, fees, examination result and notice board. The system provides the flexibility of generating the required document on screen as well as in printer when required.

3. API

API is the acronym for Application Programming Interface, which is a set of routines, protocols, and tools for building applications. In general terms, it is a set of clearly defined methods of communication among various components. Every time an application input or output any data, it reacts through an API. This project is based on API. Each and every input and outputs is done by API. So that it is cross domain supported. It can be connect with, windows, iOS, Android or any other operating system by API.

The purpose of this paper is to provide a brief review of these efforts. This management system is helpful to computerize the student's result information, course assigning and enrolling information class activity / schedule record keeping which is very large and difficult task and it will maintain these whole information.

3.1 Activity Diagram

Activity diagram are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. An activity diagram shown as a rounded box containing the name of the operation. This activity diagram flow of stepwise activities performed in recruitment system. The student details are Add and stored in database. Select The Course from the given Course by student. Search Profile and Result With login and if Data present in the database. The searched data is displayed if available and then Logout.

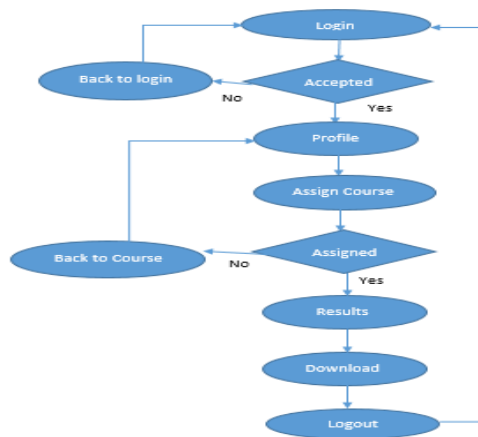


Figure 1: Activity Diagram.

3.2 Entity Relationship Diagram (ERD)

This is System create for the Admin. He can store the University Database details about university students, Teacher, Courses, Class Schedule, the semester, Result, A student took a particular course (and his mark and grade if he completed it), and what degree program each student Or Teacher is enrolled in. The database is a long way from one that'd be suitable for a large tertiary institution; A program has a name, a program identifier, the total credit points required to graduate, and the year it commenced. Each course in a program is sequenced into a year (for example, year 1) and a semester (for example, semester 1) [3].

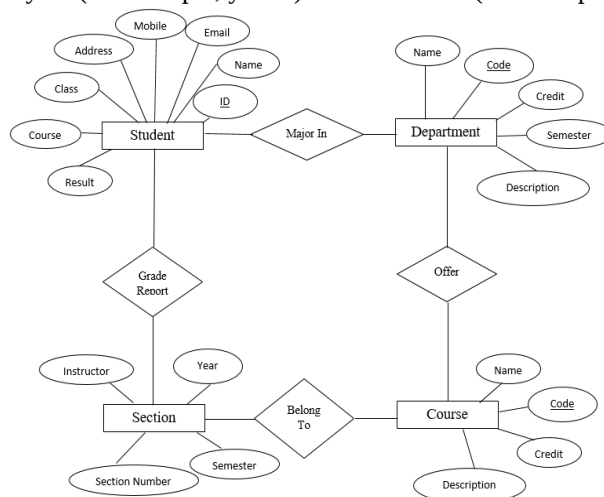


Figure 2: Entity Relationship Diagram.

3.3 Data Flow Diagram

This system contain two level Data Flow diagram, one is Level) DFD which contributes the Admin or User login this system. Rearrange data (updates or deletes) from the database. The Second or Level 1 DFD which arrange for the student Teacher And Department .Student Or Teacher Assign Courses. Student should find out the Result and enroll the courses [4].



Figure 3: Level 0 DFD

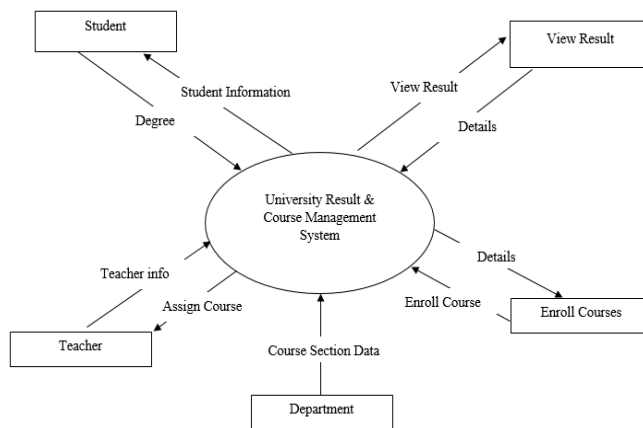


Figure 4: Level 1 DFD

3.4 Database Diagram:

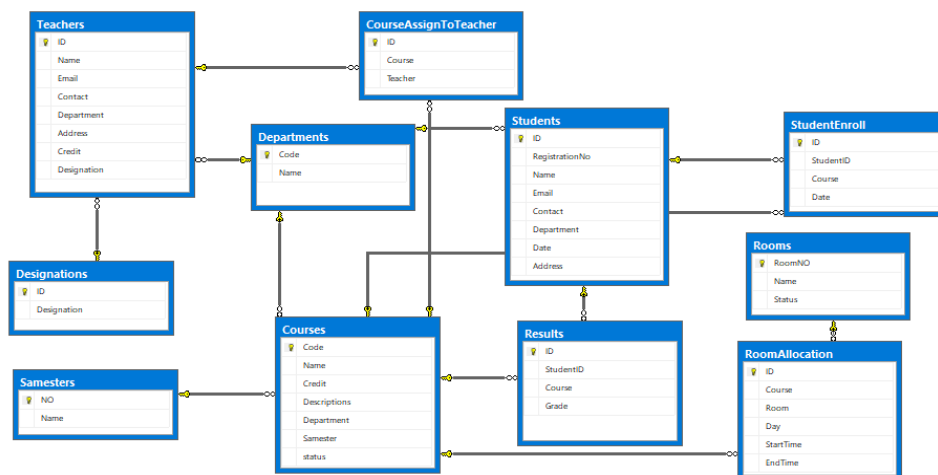


Figure 5: Database Diagram

4. Implementation

4.1 Login

Login page for user, admin. Authentication and authorization is checked by using identity framework. Provided login credentials will check with username/email and password of database. If login credentials are valid, then system will define the role of the user and give access to the pages.

Log in.

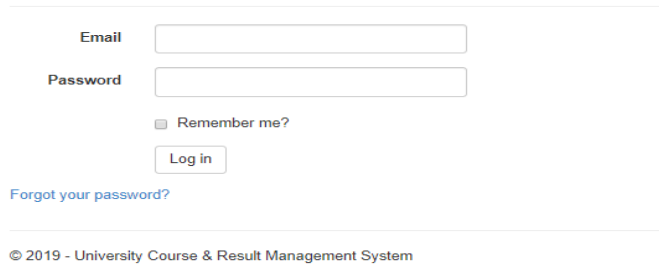


Diagram of the Log in page. It features a form with two input fields: 'Email' and 'Password'. Below the 'Password' field is a checkbox labeled 'Remember me?'. A 'Log in' button is positioned below the checkbox. A link 'Forgot your password?' is located below the 'Log in' button. At the bottom of the form, there is a copyright notice: '© 2019 - University Course & Result Management System'.

Figure 6: Log in. Diagram

Others activity implementation steps as like as create department, view departments, add Course, view courses, add teachers info, course assign to teacher, register student, enroll student to a course and set student result has been created as the same procedure of the previous log in diagram.

4.2 View Student Result

Enrolled students Id will be loaded on the dropdown list. Results of all enrolled courses of that Student will show to the below fields. By clicking Make PDF button, a PDF file of results along with student information will be created.

Student Results

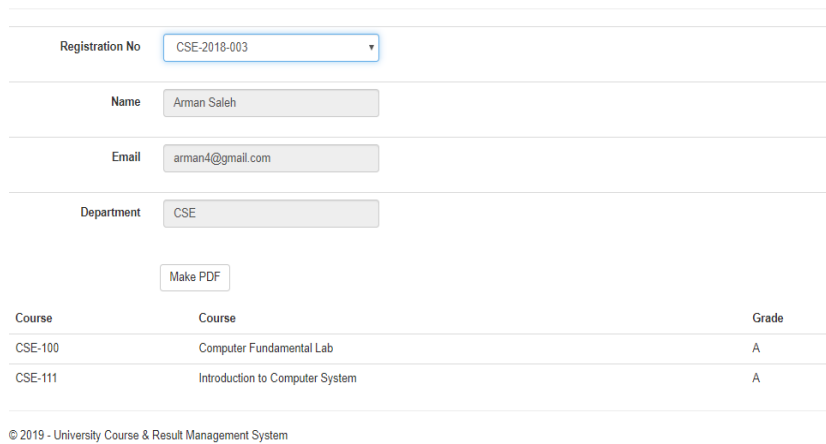


Diagram of the View Student Result page. It features a form with a dropdown menu for 'Registration No' (selected: CSE-2018-003). Below this are input fields for 'Name' (Arman Saleh), 'Email' (arman4@gmail.com), and 'Department' (CSE). A 'Make PDF' button is located below the 'Department' field. Below the form is a table showing student results.

Course	Course	Grade
CSE-100	Computer Fundamental Lab	A
CSE-111	Introduction to Computer System	A

At the bottom of the form, there is a copyright notice: '© 2019 - University Course & Result Management System'.

Figure 7: View Student Result

5. Conclusion

The advancement in modern day technology leads us now-a-days towards taking an alternative approach to previously used management trends and this web based system also applied to management of universities as well. With the advancement in technology the university also needs to be updated to consolidate their position as modern day education institute. Though the student management module is not fully integrated to any system and not tested real time, the system prototype demonstrates easy navigation and data are stored in a systematic way. But this research has improved and simplified the work processes for web based result management system. And all the objectives have been met; the system still has scope for improvement. The system is strong and flexible enough for future upgrade using advanced technology and devices.

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