Online Student Attendance and Feedback System Using MVC Framework

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Abstract - *There is a need to keep up with today's technology and fast growing development in web application as well as mobile development like Android. The student attendance plays a very important role and affects the overall academic performance of the student. The conventional method of taking the attendance by calling out the roll number or by passing the attendance sheet is very time consuming and hence inefficient. Their major problem occur in these case is when faculty member loses its attendance sheet or when student giving proxies for other students. So we are taking the attendance system to the web where only authorized users have the access and there is no risk of losing the attendance sheet. The students can view their attendance of the entire subject as well they will know whether they are in defaulter list or not, they can even see which lecture they have missed by them. Even their parents have the privilege to check the attendance of their children and monitor his/her attendance from home. A student can also give feedback and even the other students can give their opinion on a particular feedback. MVC architecture has been adopted by us because it has a wide acceptance for corporation software development. It plans to divide the system in three different layers that are in charge of interface, control logic and data access; this facilitates the maintenance and evolution of systems according to the independence of the present classes in each layer. With the purpose of illustrating a successful application built under MVC, in this work we introduce different phases of analysis, design and implementation of a database and web application.*

***Key Words*:** MVC architecture, feedback, Student attendance.

1. INTRODUCTION

There is an increasing trend for higher education institutions to be expected to monitor student attendance. On the assumption that better attendance leads to higher retention rates, higher marks, and a more satisfying educational experience that will be reflected in student feedback such as the National Student Survey as shown in Fig 1.[3] This software generates the results of research that are considered the effect of attendance on student performance; shared the results with colleagues including agreement on a Departmental policy change and assessed the approach academic staff should take towards poor attendance. The results are used to reflect on the extent to which the responsibility for attendance should lie with students or with academic staff. It is concluded that a graduated approach to attendance monitoring is the most effective response, in which sanctions have a place, although only as a last resort. Online Attendance and Feedback System is proposed software developed for daily student attendance in schools, colleges and institutes. If facilitates to access the attendance information of a particular student in a particular class or attendance of an employee in an organization or institution. The information is sorted by the operators, which will be provided by the teacher for a particular class. This system will also help in evaluating attendance eligibility criteria of a student and manage feedback from students.

2. PURPOSE

The purpose of developing attendance management system is to computerize the tradition way of taking attendance. Another purpose for developing this software is to generate the report automatically at the end of the session or in between the session. The purpose of developing a feedback system is to improve the quality of the feedback and each user can put forward their own view with the support of other user voting for the feedback. In this way get a more precise and filtered feedback.

Table -1: Sample Survey of attendance

No. of session attended	Mark 49% or under (fail)	50-59%	60-69%	70% or over	**Totals**
12		2	1		3
11		2	6	1	9
10			1		1
9		2	4	2	8
8			4	1	5
7		1	3		4
6	1	1	2		4
5	1				1
4	1				1
3		1			1
2			2		2
1					0
Totals	3	9	23	4	39

Note: The range of marks for this module was 33% -73%. [3]

Table -1 shows sample survey of the student's attendance and the marks of the student. It also shows the benefit of the attendance which affects their academics score.

3. DISADVANTAGES OF EXISTING SYSTEM

3.1 Not User Friendly:
The existing system is not user friendly because the retrieval of data is very slow and data is not maintained efficiently.

3.2 Difficulty in generating report:
We require more calculations to generate the report so it is generated at the end of the session.

3.3 Manual control:
All calculations to generate report are done manually so there is greater chance of errors.

3.4 Lots of paperwork:
Existing system requires lots of paper work. Loss of even a single register/record led to difficult situation because all the papers are needed to generate the reports.

3.5 Time consuming:
Every work is done manually so we cannot generate report in the middle of the session or as per the requirement because it is very time consuming. Attendance Management System [2]

4. FUTURE SCOPE

A web based application is developed using Model View Controller (MVC) framework i.e. CodeIgnitor and it can be accessed from any location with the help of internet connection. As we are using a MVC framework it becomes easy to manage the website and makes it easier for future alteration and updating in the website.

5. TECHNOLOGY USED
Framework: MVC – Code Ignitor
Language: PHP, HTML5, CSS3, AJAX
Backend: MySQL

5.1 MVC Framework

The Model View Controller (MVC) paradigm was first designed for user interfaces in applications implemented with Smalltalk, but from then it has become a design paradigm for user interfaces without

caring the implementation language and for web applications whose control components frequently change. MVC architecture is illustrated in Fig. 2, it divides the interactive system in three components each one specialized in a task. The model contains the application data and manages the core functionality. The view manages the visual display of the model and the feedback to the user. The controller interprets the mouse and keyboard inputs from the user, commanding the model and the view to change appropriately. The pattern may be passive, which means that it does not know about the existence of the view or the controller. For example if the model is a text that can only be changed by the user. However in most of the cases the model must have a link to the view to inform it on changes made to its state caused by internal procedures. The view and the controller are always connected. The controller communicates with the view to determine which objects are being manipulated by the user and to call model methods to make changes on these objects. The model carries out the changes and it notifies the view to update. The application view generally includes several nested MVC views. The controllers of these views should cooperate to assure that the appropriate control is interpreting the user entrance. For this purpose they form a hierarchical tree where the messages pass from controller to controller through the branches of the tree. Only the controller that has the focus takes an action. Each view is associated with a unique controller and vice versa, but the model can have at the same time more than one view-controller pair. Every time that the model changes each dependent view must be notified so that they change accordingly. The possibility to have multiple synchronized views is a significant benefit of the MVC architecture.[2][8]
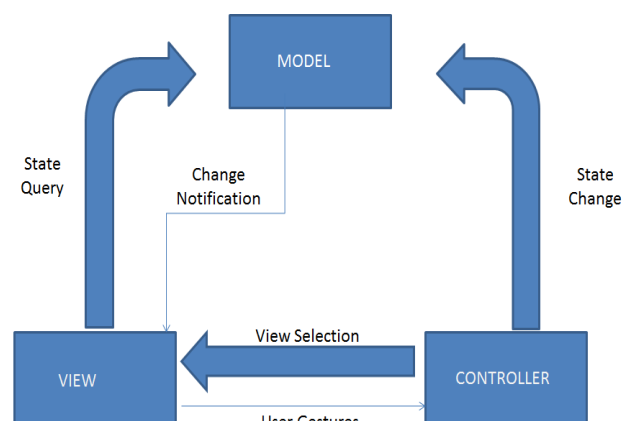

Figure -1: MVC Architecture

5.1.1 Model-View-Controller

MVC is defined as the software pattern architecture that separate the information view from the user view. It means user cannot get the information about the representational definition of data. To manage all this flow, the controller is defined as the mediator between the model and the view. This includes the observation to the view change and data change so that the updated model will be implemented without any notification. This architecture pattern emerges with different language environments such as java or spring.

5.1.2 Model-View-Presenter

This architecture is the derivation from the MVC design pattern. Many of the existing web technologies and the software applications use this architecture as the user interface. The presenter component defined in association with view component so that the reference view is generated. The presenter is also responsible to do the required changes in different sub components based on external requirements including the application based and environment based. This also includes effective logic based user interaction so that the model will not be affected from the changes performed by the user on the model component.

5.1.3 Model-View-View Model

This model is UI based development respective to the platform and application in a user interactive environment. It includes representation through programming languages and the frameworks. The language and its framework including in this model are HTML5, Windows Presentation Foundation (WPF), Silver light, ZK Framework etc. The main benefit provided by this view model is the separate development of GUI from the programming model or the business model. This GUI code is defined under the HTML5 so that the support to different application environment will be achieved. This graphical model is supportive to the mobile based web environment. The database logic and business logic not affect this UI model so that the platform and browser independent approach is provided under this model. HTML5 is the core UI generation scripting language adapted by this model.[1]

6. OVERVIEW

Attendance Management System basically has two main modules for proper functioning: First module is admin which has right for creating space for new batch. Any entry of new faculty, Updating in subject if necessary, and sending notice. Second module is handled by a user which can be a faulty or an operator. User has a right of making daily attendance, generating report.

Attendance can be displayed in two different ways:

1. *On basis of Class*
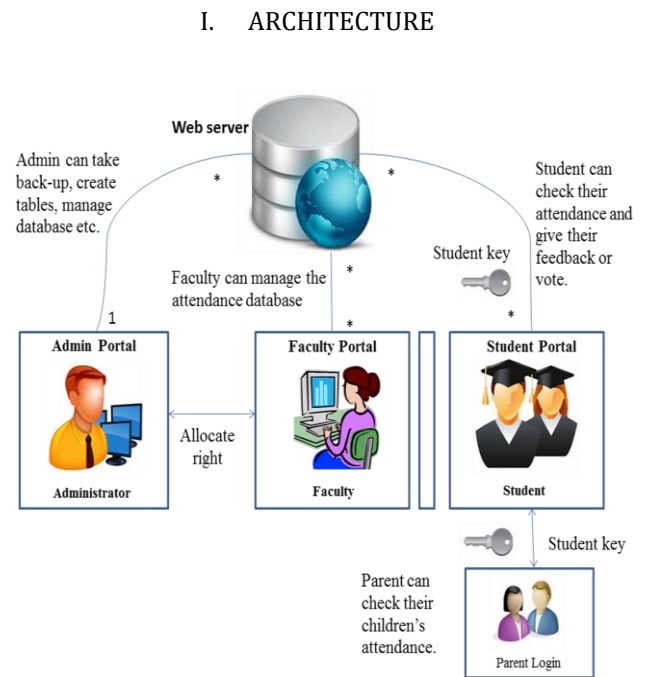2. *On the basis of Subject and month.*

I.   ARCHITECTURE

Figure-2: System Architecture

The system architecture contains the central webserver which manages the data of the student as well as the attendance of the particular subject. There are different portals namely admin, faculty, student and the parents. The admin can create and manage the database on the web server and also takes the backup of the server and adds the student's data to the particular department and allocates the staff to the respective subject. The faculty updates the attendance of the student for the particular subject. The system automatically generates the attendance percentage according to the set criteria. The student can view their attendance through their login and also can give the

feedback about the particular faculties. There is also a portal for parents, through which parent can check the performance of their children. The student and parent can access their portal by means of the private key i.e. student key along with password and date of birth.

7. CHARACTERSTICS OF THE PROPOSED SYSTEM

7.1 User Friendly:

The proposed system is user friendly because the retrieval and storing of data is fast and data is maintained efficiently. Moreover the graphical user interface is provided in the proposed system, which provides user to deal with the system very easily.

7.2 Reports are generated easily:

Reports can be easily generated in the proposed system so user can generate the report as per the requirement (monthly) or in the middle of the session. User can give the notice to the students so he/she become regular.

7.3 Very less paper work:

The proposed system requires very less paper work. All the data is fed into the computer system and reports can be generated through the system. Moreover work becomes very easy as there is no need to keep data on papers.

7.4 Computer operator control:
Authorized system operator controls the application and there will be no chances of errors. Moreover storing and retrieving of information is easy. So work can be done speedily and in time.

8. CONCLUSION

Online attendance and feedback system is operated at a high level of efficiency and it is more manageable by using latest technology and all the teachers, students and users associated with the system understands its advantage. The system solves the problem which was intended to solve as per requirements specified.

Thus we can successfully implement this system to generate online attendance reports as well as take the feedback of the students on different issues.

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