Web Application of Attendance and Result System

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Abstract:- Web Application of Attendance and Result system deals with the upkeep of the student's attendance and results details. It generates the attendance details on the idea of presence in school and result details supported their performance in their exams. The scholar is provided with the username and password to test their attendance and results status. The staffs are given with the separate username and password to form the student's status. The staffs handling the actual subjects are responsible to form the attendance and results for all the scholars. On condition that the scholar present on it particular period, the attendance are calculated. Thee scholar attendance report supported weekly and consolidate are generated. And also the results will be produced by the staff handling the actual subject for the scholar. Access to those results are denied by the opposite staffs.

Keywords:- Database; PHP; CSS; HTML; Students; Results; Library; MySQL;

I. INTRODUCTION

➢ *About*

Over the years, the manual attendance and result management has been carried across most of the educational institutions. To beat the matter of manual managing these areas, "Web-based Attendance and Result Management System" developed. Attendance and Result Management system relies on web server, which may be implemented on any computer. In this application, PHP is server side language, MySQL and PHP is used as back end design and HTML and CSS are used as front end tools. The system communicates with databases residing on a remote server. It calculates automatically, the attendance percentage of students without any manual paper based work. It also displays the results of the student provided with their respective login credentials. The system helps the end users with interactive design and automated processing of attendance and result management system.

➢ *Aim*
The main aim of this project is:
- To eliminate redundant data entry and errors in time, attendance and result entries.
- To minimize paperwork and save time.
- To automate the calculation of grades.
- To provides access to department library.
- To maintain staff information for easier use.

➢ *Scope*

In most educational institutions the attendance is taken and results are recorded and maintained manually. It is not only time consuming, but it is also unsure and unreliable and it can be lost. some institutions are using Hollerith card for taking attendance while this will be difficult for teachers to keep track of large dozen number of students because of using Hollerith card, a student can make use of other students or his/her friend to punch their card even the other student may be absent or come late at school and to keep the record of results of all students of each section and semester is very difficult, so it is not reliable. To beat these problems web-based is developed; it is fully responsive where a user can use in mobile, tablets and different computer systems. In this, system records are kept safe and secure, and therefore, attendance and results information of particular or all students of particular class can be accessed easily and without time consuming, the report is generated automatically.

II. LITERATURE SURVEY

In early years punch card was used for data storage, it is also known as Hollerith cards, through these cards institution were able to store and access via entering the card into the computer system. Nowadays, Hollerith cards are used as one of the most popular attendance system. Students are using this card for in and out, they only need to wave the punch card near a reader then it will ensure the presence of the student and attendance will be marked.

And in terms of maintaining the records of the results of the students, the work was done manually by the respective teachers handling that particular subject. It was not reliable at all maintaining such huge records manually.

Many desktop application for attendance and results has been developed. There are some examples:

Desktop application for attendance developed to take daily attendance of students. Then information of particular class is stored by the operators that will be provided by the teacher

➢ Jainetal has developed a desktop application in which when the lecturer start the application then all registered lists of students of particular course will be displayed. The attendance is done by clicking of checkbox next to student's name that are present, and then for marking their presence a register button is clicked.

III.   REQUIREMENTS

➢ *Hardware Requirements.*
- RAM: 4GB
- HARD DISK: 20GB
➢ *Software Requirements.*
- OS: Windows 7 and above
- Editor: Notepad++
- Database: MySQL
- Languages: HTML, CSS, JavaScript, PHP, Bootstrap, JQuery
- Web server: WAMP
- PhpMyAdmin

IV.   SYSTEM ANALYSIS

Analysis can be close study of operation performed on system. The main reason of the study is to define the boundaries of the system and define determining whether a candidate system should consider the related systems. While performing this analysis information is collected on files regarding decision points and transactions handled by this method. This helps in further analysis using structured tool.

A. Problem Definition

In most educational institutions the attendance is taken by calling roll-calls and attendances are maintained manually, which is time consuming, insecure, unreliable as they have to maintain the record of all students of each section and semester is very difficult. Some colleges are using punch card for attendance while this will be difficult for faculties to keep track of the dozen numbers of students. Using this method, one student can put proxy to other students even if that student is not present in class or come late in class. To overcome these problems web based is developed; it is fully responsive where a user can use in mobile, tablets and different computer systems. Here records are kept safe and secure and the attendance and results information of any students of any class can be accessed easily and without time consuming, as the report is generated automatically.

B. Existing System
➢ *Existing Attendance System*

In most universities, this system is followed where the students name is called out to determine their absence. Though this method is expensive it requires much time to record the attendance while, in other case, teachers ask students to sign in attendance sheet just next to their surnames. Both practices have their drawbacks.

In the first case, calling out student names is time consuming for large group of class; in the second case, friends of absent students may write down their names and surnames. These practices place universities at considerable disadvantages when it comes to taking attendance.

➢ *Offline Result Display*

Offline result display is the system where the semester end exam marks are evaluated and recorded in an excel sheet which is printed on paper and displayed on notice boards of department. Several colleges use this system for their results declaration.

➢ *Disadvantages*
- Tedious and time-consuming
- Waste of paper
- Need regular checks and updating

C. Proposed System

The proposed system is a "Web-based application of attendance and results". The project is designed to automate the process of storing the attendance and results of the students in a very efficient manner. The student or the staffs has to first register themselves to the application by submitting their personal information and their respective ID are provided by the institution. The staffs will be specified with which class to be handled and at what time. Similarly, the students will have their class details with what course to be attended and who will be handling which subject. It is a very simple approach to create attendance and result percentage by the teachers for their respective course. The staffs can make all of their respective students attendance and results status by just one click and then students, by entering their own login credentials will be shown the status of his/her attendance and results. The attendance and results data will be imported to the application from the CSV files. The database will be regularly updated on the daily basis to generate the reports of attendance of the students.

➢ *Advantages of the proposed system*
- Reduces paperwork
- data backup is taken
- quick access to information
- data redundancy is reduced
- data can be updated easily
- access to library and books account is maintained
- automatic grades calculation

V.   SYSTEM DESIGN

This is the stage for deciding the basic building block for the system. During this stage, the overall structure and style is decided. Organization of system into respective subsystem is done in this stage. In addition, the architecture provides the context for the detailed decisions that are made in later stages. The whole system is divided into components and is designed separately.

A. System Architecture

System architecture is a conceptual model that defines the structure, behavior, and more views of a system. Architecture is viewed as blue print of a system, all arranged in a systematic way that supports reasoning about the structures and the behaviors of the system. System architecture mainly concentrates on the interfaces of

internal components or subsystems of the system, and the interface(s) between the system and its external environment, especially the user.

The following are the main modules intended to design.
- Student Module
- Staff Module
- Admin Module

➢ *Student Module*

In this module, the student can register themselves to the application if they are a fresher. Then they can login to the application; can view their attendance status and results of current or previous semesters. Students can access library, where they can borrow or return books from the library. Fig 1 provides the explanation of the student module in details. The student module is which holds information about students' data such as student name, DOB, Gender, and Email, Phone, Address, Session, Program, and semester in the form of rows and columns. It also holds the information of the marks of their respective subjects, with course code, course name etc. the student module registers with the above specified information on the web application. They can view their attendance in each subject. They can also view the results of their particular semester. They are not authenticated to modify or update any data with respect to their attendance and results. Students can also access the library, they can check how many books are available in library, and can even borrow and return the books to library.
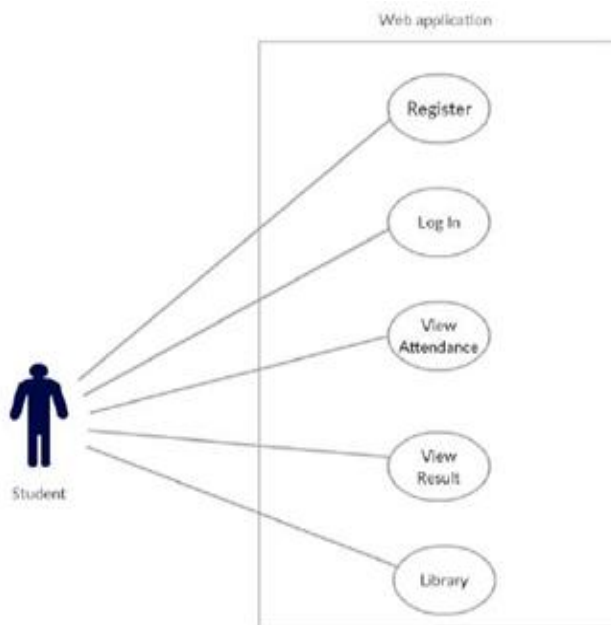

Fig 1:- Use case diagram for student.

➢ *Staff Module*

In this module, the staffs can login to the application, update their personal and professional information and can also view them, view and update the attendance and results of students for whom they are handling and can borrow and return books from the library. Staffs can access library,

where they can borrow or return books from the library. Fig 2 provides the explanation of the Staff Module in details. The staff module provides records of staffs, such as staff name, DOB, gender, e-mail, phone no, degree, salary, and address, and also about their career. Also, the staffs are provided with various functions. The first function that is performed by this module is that it can update and view the percentage of attendance of each student of their respective class. The staff module is also responsible for the insertion and modification of the results of the students in subjects handled by the particular staff. The staff can upload the results and attendance into the database using csv files. Staff can also access the library, they can check how many books are available in library, and can even borrow and return book the books to the library.
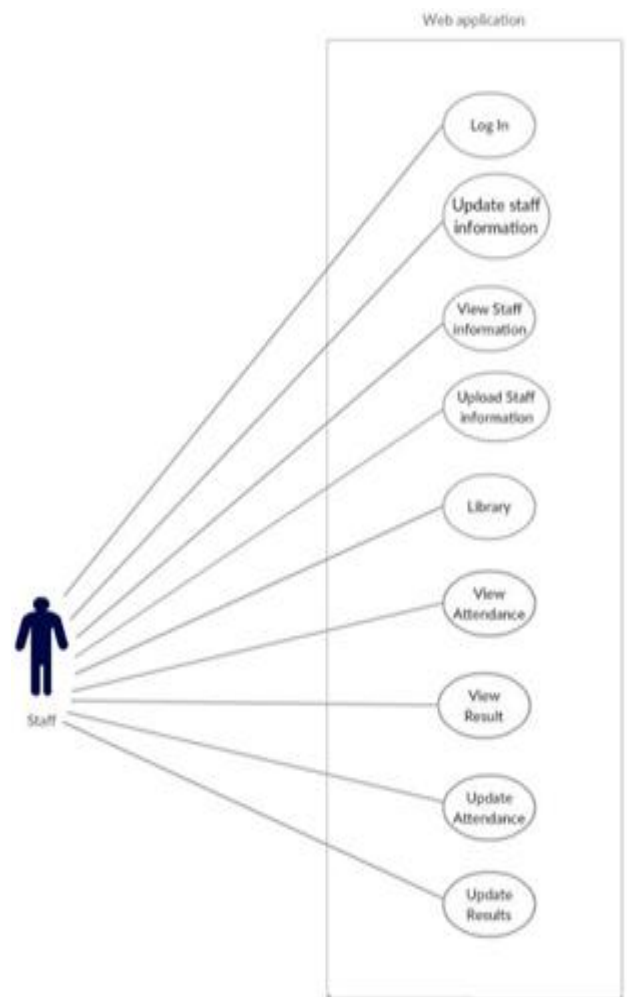

Fig 2:- Use case diagram for staff

➢ *Admin Module*

In this module, the admin can login to the application, allocate subjects for all staffs, update and view student information, add new staffs, view staffs information. Admin has complete access to the library, where admin can add books, students to the library, and also admin Issue and take back the books of library from students and staff. Fig 3 provides the explanation of the Admin Module in details. In the web application, the admin module takes the personal details the staff/students to register them with the

application. This module controls the level of access each authorized person has and it also checks that only authorized users are allowed to access the application. It can update and also modify the details if required by the staffs or the students. It can also modify the details of library such as adding books to library, issuing the books, and maintaining the track of library activities.
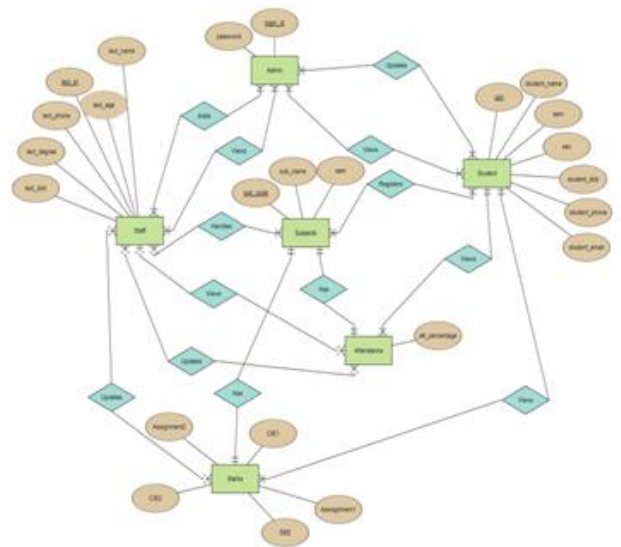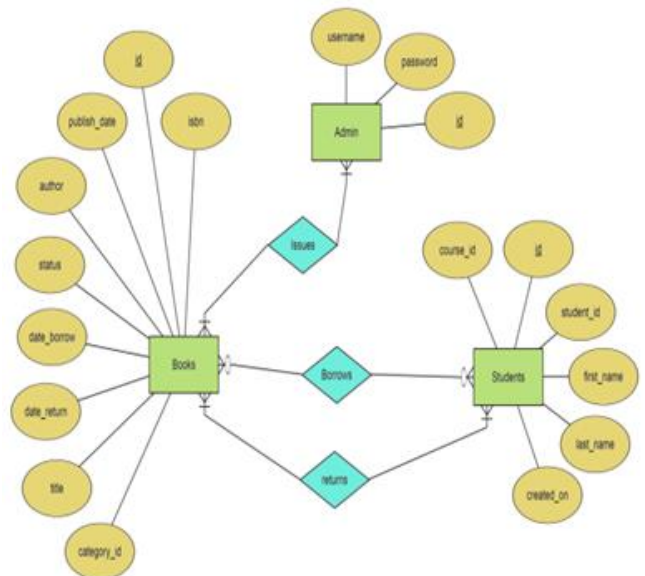

Fig 3:- Use case diagram for Admin.5.1 DATABASE

A structured set of data held in a computer, especially one that is accessible in various ways. A database is a collection of information that is organized so that it can be easily accessed, managed and updated. Data is organized into rows, columns and tables, and it is indexed to make it easier to find relevant information. Data gets updated, expanded and deleted as new information is added. Databases process workloads to create and update themselves, querying the data they contain and running applications against it.

An entity-relationship diagram (ERD) is one of a data modeling technique that graphically illustrates an information system's entities and the relationships between those entities. An ERD is a conceptual and representational model of data used to represent the entity framework infrastructure. Fig 4 and Fig 5 shows the ERD of attendance-result system and library.

Fig 4:- ER Diagram of attendance and result

Fig 5:- ER Diagram of library

A database schema is that the skeleton structure that represents the logical view of the complete database. It defines how the data is organized and the way relations among them are associated. It formulates all the constraints that are to be applied on the data. A database schema defines its entities and also the relationship among them. It contains a descriptive detail of the database, which might be depicted by means of schema diagrams. It's the database designers who design the schema to assist programmers understand the database and make it useful. Database schema is meant when the database doesn't exist in the slightest degree. Once the database is operational, it's very difficult to create any changes thereto. A database schema doesn't contain any data or information. The following Fig 6 and Fig 7 give you the complete information about the current database.
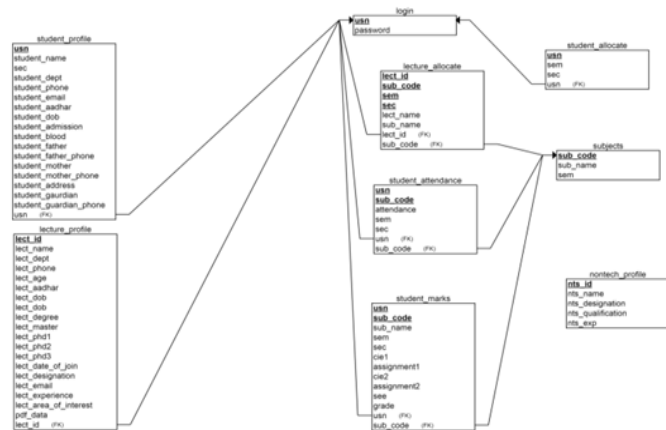
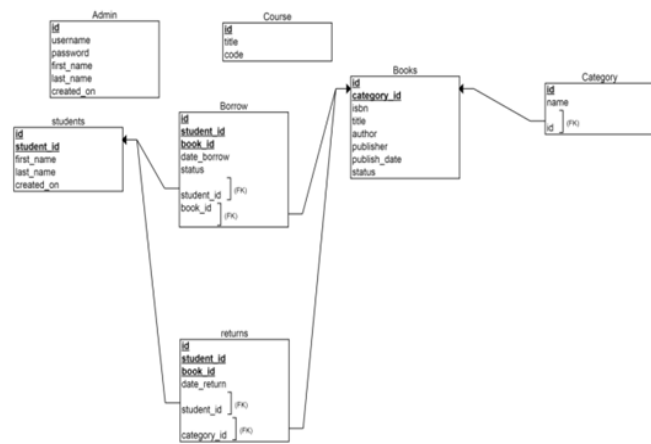Fig 6:- Schema diagram of attendance and result

Fig 7:- Schema diagram of the library.

VI. IMPLEMENTATION

Implementation refers to the last stage of moving the solution from development status to production process, this process is often called deployment or installation or even implementation.

There are many ways to implement an application. It depends on the characteristics of your project and the solution. Some implementations are as easy as saying "we are now live". This type of implementation can work when the solution is brand new and you are developing and testing in what will become the production environment. In these cases, implementation is just a state of mind. One day the solution is in development, and the next day it is in production.

At the other extreme are implementations that might be projects within themselves. For instance, you may have software application that needs to be deployed to your division offices all around the world. This could take months to accomplish and require a full life cycle of planning, analysis, design, etc. In this case, you might structure the implementation as a separate project.

A. Connectivity function

> *mysqli_connect(server,username,password,dbname):*
mysqli_connect() function is to open a database connection. This fucntion takes four parameters namely server, username, password, dbname and returns a MySQL link identifier on success or FALSE on failure.
> mysqli_query($Conn, $sql)
The mysqli_query() function performs a query against the databse. Conn specifies the MySQL
> ysqli_fetch_assoc(result): this function fetches a result row as an associative array. Result specifies a result set identifier returned by mysqli_query
> session_start(): PHP sessions helps to make data accessible to all pages of entire website by creating a file in a temporary directory on the server where registered session variables and their values are stored.
> session_destroy(): this function destroys PHP session.
> mysqli_connect_error(): Function returns the error description from the last connection error, if any.
> mysqli_num_rows(): Depending on whether buffered or unbuffered result set are being used, behavior of this function is decided. This function simply returns the number of rows in the result set.
> preg_match(): this function performs a regular expression match
> mysqli_free_result(): it frees the memory associated with the result.

B. Modules

> *Admin*
• Allocate subject for lecturer
"INSERT INTO lecture_allocate VALUES ('$lname','$lid','$sname','$code','$sem','$sec')";
• view student information
"SELECT * from student_profile WHERE sem='$sem' and sec ='$sec'";
• Add staff
"INSERT INTO lecture_profile VALUES ('$lname','$lid')";
• View staff
"SELECT * FROM lecture_profile";
• Add books
"INSERT INTO books (isbn, category_id, title, author, publisher, publish_date) VALUES
('$isbn', '$category', '$title', '$author', '$publisher', '$pub_date')";
• Issue books
"SELECT *, students.student_id AS stud, borrow.status AS barstat FROM borrow LEFT JOIN
students ON students.id=borrow.student_id LEFT JOIN books ON books.id=borrow.book_id
ORDER BY date_borrow DESC";
• Return Books
"SELECT *, students.student_id AS stud FROM returns LEFT JOIN students ON
students.id=returns.student_id LEFT JOIN books ON books.id=returns.book_id ORDER BY
date_return DESC";

➢ *Staff*

• Update marks

Staff can update the marks of the student by uploading csv file containing the marks.
"INSERT INTO student_marks (usn,sub_code,sub_name,sem,cie1,assignment1,sec) "."VALUES" ."('$getData[0]','$sc','$sname','$sem','$getData[1]','$getData[2]','$sec')";

• Update attendance

in the same way as the marks, attendance can also be updated by csv file.

• Update personal information: a staff member can update their personal details by logging in to their account.

➢ *Student*

• View attendance: Students can log in to their account and check their attendance details by entering their semester
"SELECT * FROM student_attendance WHERE sem= '$semester' and usn= '$id' " ;

• View Result: Students can view their marks in their subjects by entering the semester they are in or interested in.
"SELECT * FROM student_marks WHERE sem= '$semester' and usn= '$id' " ;

• Library: The student can check if a book is available or not in the library. They can also borrow books from library and keep a record of the books they have borrowed which is displayed on their profile.
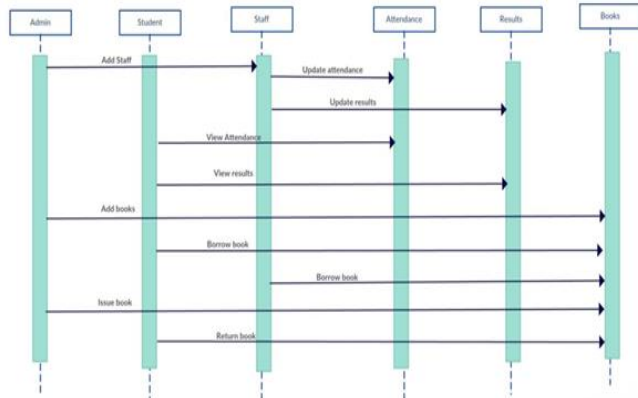

Fig 8:- Sequence diagram for the web application

A sequence diagram shows object interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Fig 8 is the sequence diagram for the web application where the main functions of each module are shown. After the admin adds staffs to the database, those staffs can update attendance and results of their respective students. Those students can then view their attendance and results later. The staffs and students can borrow and return those books which were added by the admin and the admin issues those books to students and staff.

VII. SYSTEM TESTING

The purpose of testing is to find errors. Testing is the process of trying to find every conceivable fault or weakness in an exceedingly work product. It provides some way to test the functionality of components. It's the method of exercising software the intent of ensuring that the software systems meets its requirements and user expectations and doesn't fail in an unacceptable manner. There are various]]types of test. Each test type addresses specific testing requirements.

A. Types of tests

➢ *Unit Testing*

Unit testing is a level of software testing where individual unit/s components of proposed product is tested. All decision branches and internal code flow should be validated. The purpose to test each and every unit of software is check whether it is performing as designed. A unit is the smallest testable part of any software, it usually has one or a few inputs but usually a single output.

➢ *Integration Testing*

Once the unit testing is done then we check for integration tests as to check each integrated software components to determine if they actually run as a program. The main aim of this stage of testing is to find out if any faults in the interaction between multiple integrated units.

➢ *Functional Testing*

Functional testing is a type of software testing where the proposed system is tested against the functional requirements or specification by feeding them input and examining the output.

➢ *System Testing*

We obtain a completely integrated system after the integration testing level. This integrated system is then tested for compliance with specified requirements. One of the main aims of system testing is to test for inconsistencies between the already tested and integrated software, and the hardware on which it is present. System testing is performed on the entire system to either test its functional requirements or its system requirements.

➢ *Acceptance Testing*

Acceptance testing deals with customer satisfaction. It takes in realistic data as inputs and outputs are tested to prove with satisfaction to the customer that the system works properly and according to his specification. The functional behavior of the system is dealt more, rather than the internal working of the software. The entire project is once run to affirm acceptance from the customer in it.

➢ *Test Results*

Sl. No.	Name of test case	Feature tested	Sample input	Expected output	Actual output	Remarks
1	Server Connection	Logging in	Enter credentials and log in	Logged in	Logged in	Pass
2	Retrieving right results	View attendance	Sem and sec	Display attendance in all subjects	Display attendance in all subjects	Pass
3	Retrieving right results	View marks	Sem and sec	Display marks in all subjects	Display marks in all subjects	Pass
4	Update results	Updating attendance	Csv file	Updated attendance	Updated attendance	Pass
5	Update results	Updating marks	Csv file	Updated marks	Updated marks	Pass
6	Library	Issue book	Usn, bookID	Book issued	Book issued	Pass
7	Library	Return book	Usn, bookID	Book returned	Book returned	Pass
8	Staff allocation	Class allocating for lecturer	StaffID, course_code, sem, sec	Lecturer allocated	Lecturer allocated	Pass
9	Display details	Staff details	StaffID	Display staff details	Display staff details	Pass
10	Display details	Student details	Usn	Display student details	Display student details	Pass

Table 1

VIII. CONCLUSION AND FUTURE ENHANCEMENT

A. Conclusion

The basic purpose of the project is to make available student, staff and department information online through a web application in order to reduce paper work, data redundancy and quick and easy access to information. This way, student can always access his marks and attendance details online and department can also have updated staff and student particulars at one place without being lost. And also to provide librarian a better alternative to keep track of the book in the library.

B. Future Enhancement

The project can be enhanced by using bio-metric attendance system for students and staff whose details will be directly dumped in the database. This can be used to calculate the attendance percentage and display the shortage of attendance for students. Further the project can be enhanced by entering the Semester End Exams lab and theory marks of the students against their name which will be updated in the database dynamically.

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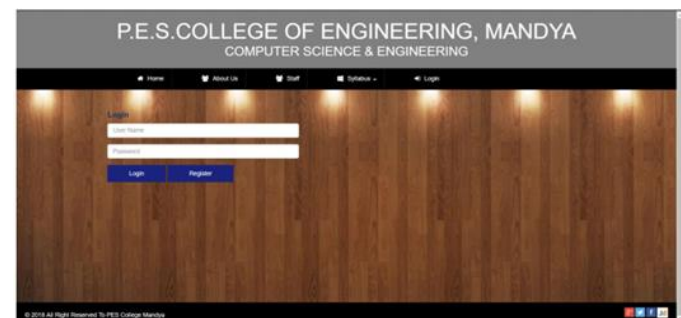[8]. https://www.w3schools.in/dbms/
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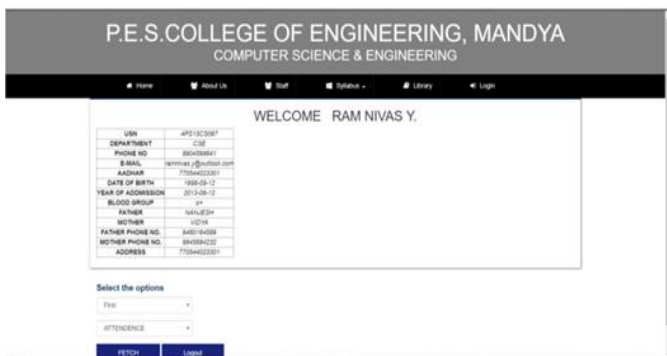
APPENDIX – A

➢ *Snapshots*

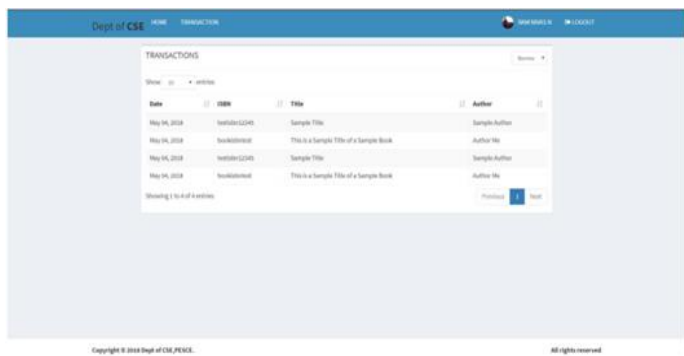Snapshot 1 Home page of the web application

Snapshot 2 Login page- where admin, staff, student can login

Snapshot 3 Login-in to the student profile

Snapshot 4 Showing profile of one of the student

Snapshot 5 Showing the student library account, which is also same for staff