

FACULTY DASHBOARD

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Abstract

This project titled " Faculty Dashboard" involves the creation of a platform which the faculties of educational institutions can utilize to streamline their daily bureaucratic duties through the use of multiple modules such as one for petitioning for or keeping track of existing leave, another for viewing their schedules along with the academic timetable (which displays examination weeks and exam duty allocation) as well as a module for displaying the various courses handled by each faculty. Here, the faculty will be able to create assignments, upload resources and will also have access to enter the marks of the students. All of the above modules are accessible through the use of credentials unique to each faculty that directs them to their respective dashboards.

1. Preview

- **Introduction**

Faculty Dashboard provides various services such as timetable, academic calendar, gate pass and attendance management as well as course management. The various modules integrated are briefed below.

- a. **Login**

Login page is used to access faculty dashboard. Each faculty will be provided with an ID and a password using which they can access their dashboard. They can enter their dashboard either through their mobile number or their faculty ID. Along with login authentication, forget password is provided where two security question are to be answered to change the password again.

- b. **Profile**

In the profile tab, the details of the faculty are displayed including their personal and professional details including publication details of the faculty. The faculty will be provided with the capability to edit their details including updating their photos. They can also change their password.

- c. **Schedule**

In the schedule tab, the following are displayed,

- i. The timetable of the faculty
- ii. Academic calendar which displays examination weeks and exam duty allocation for all the faculties.

- d. **Attendance System**

- i. This module contains faculty's attendance history which covers the leave types such as Maternity Leave, On-duty, Casual Leave and Earned Leave. It also computes and displays the remaining leaves the faculty is allowed to take.
- ii. A leave form is also present in this module which can be used by the faculty to apply for leave.
- iii. Approval Status will be visible for the applied leave displaying whether it is pending or approved.
- iv. Only the dashboard of the head of faculty will display the pending leaves and he will have the access to administer the leave forms.

e. My Courses

My courses module will display the subjects handled by the faculty. The faculty will be able to create assignments, upload resources and will also have access to enter the marks of the students.

f. Gate pass

In the gate pass module, the faculty would have the ability to accept or reject the gate passes applied by the students based on the reasons. If the pass is approved it will be followed to the head faculty for the final approval of the pass.

- **Need and Motivation**

The need for the project was to ease the faculty burden and provide cloud automated services aforementioned.

- **Tools used**

Product Backlog	Jira
Front End	HTML, CSS, JavaScript
Back End	MySQL, PHP
Server	Apache
Unit Testing	PHPUnit
UI Testing	Selenium
Continuous Integration	Jenkins
Build	Dockers
Cloud Service used	AWS
Static Code Analysis	SonarQube 6.7, Psalm
Use Case /Dataflow diagram	StarUML
Wireframe designs	InVision
Penetration Testing	ZAP
Security Testing	SqlI, Burqlite

2. Product Backlog

The agile product backlog in Scrum is a prioritized features list, containing short descriptions of all functionality desired in the product.

2.1. Status Report – JIRA

JIRA is a tool developed by Australian Company Atlassian. This software is used for bug tracking, issue tracking, and project management. The basic use of this tool is to track issue and bugs related to your software and Mobile apps. It is also used for project management.

A **burn down chart** is a graphical representation of work left to do versus time. The outstanding work is often on the vertical axis, with time along the horizontal. Burn down charts are a run chart of outstanding work. It is useful for predicting when all of the work will be completed.

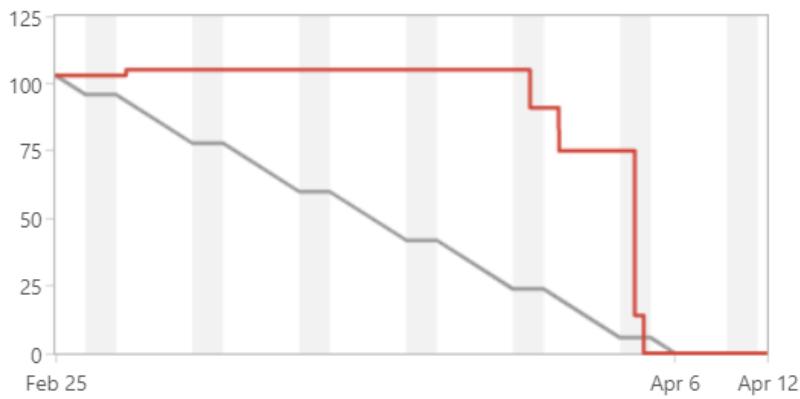
2.1.1. Sprint 1

1. Burndown Chart

CED Sprint 1 ▾

Closed Sprint, started by **Sivasini Netra S A**, ended by **Sivasini Netra S A** 25/Feb/21 12:38 AM - 12/Apr/21 2:44 PM

To finish login page, faculty profile and attendance system



2. Status Report (Story Points: 97)

Completed Issues					View in Issue navigator		
Key	Summary	Issue Type	Priority	Status	Story Points (95 → 97)		
CED-2	As a faculty,I want to login into my profile using my credentials,so that only I can access my profile	Story	↑ Highest	DONE	7		
CED-3	As a faculty ,I want to use both my official-id and my phone-no as login ,so that I can use either of them	Story	↑ High	DONE	7		
CED-4	As a faculty I want to have a forgot password option so that I can send the change my password	Story	↓ Low	DONE	7		
CED-5	As a faculty ,I want to have an option to keep me signed in,so that I don't have to login every time or after timeout	Story	↑ High	DONE	7		
CED-6	As a faculty I want my password to be encrypted while I type so that I can prevent leak of my password and thereby prevent any misuse of my account	Story	↑ Highest	DONE	6		
CED-8	As a faculty I want to check and edit my profile so that I can view and update them periodically	Story	↑ Highest	DONE	6		
CED-9	As a faculty I want to check my balance in amrita e-wallet so that I can decide whether to reimburse my wallet or not	Story	↑ High	DONE	6		
CED-11	As a Head faculty, I have to approve/deny the leave applications of faculties so that I can keep track of who is available	Story	↑ High	DONE	7		
CED-12	As a faculty, I want a option for cancelling and updating my leave application so that I can cancel my application if I don't need leave or have to increase/decrease the days I want as leave	Story	↑ High	DONE	7		
CED-13	As a Faculty, I have to select the purpose of leave and the no. of days in the leave form so that I can mention whether I am on OD or off for personal reasons	Story	↑ Highest	DONE	7		
CED-14	As a faculty, I want to know the percentage of leaves I can apply so that I can plan upon my leaves	Story	↑ Highest	DONE	7		
CED-16	As a faculty, I have to apply for leave to the head faculty and be informed about the status of my application so that I can inform I will not be available and arrange for substitutions	Story	↑ High	DONE	7		
CED-17	As a faculty I want to change the password so that i can have my own credentials	Story	↑ Highest	DONE	7 → 8		
CED-19	As a faculty I want to change my profile picture so that my profile picture is up to date	Story	↑ High	DONE	7 → 8		

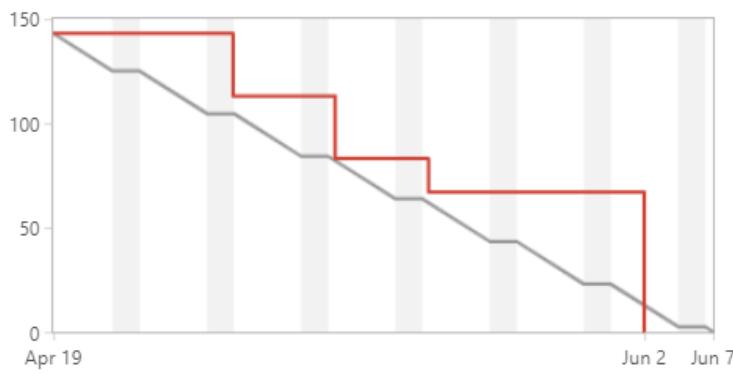
2.1.2. Sprint 2

➤ Burndown Chart

CED Sprint 2 ▾

Closed Sprint, started by [Sivasini Netra S A](#), ended by [Sivasini Netra S A](#) 19/Apr/21 2:00 PM - 02/Jun/21 11:25 AM [Linked pages](#)

To finish my courses, creating Schedules and academic calendar and gatepass management. Integration of sprint 1 and 2 and upload in cloud



3. Status Report (Story Points: 143)

Completed Issues					View in Issue navigator		
Key	Summary	Issue Type	Priority	Status	Story Points (143)		
CED-15	As a faculty I want to check my timetable so that I can check my classes	Story	↓ Low	DONE	8		
CED-18	As a Head faculty, I can roll back the approved leave application, so that the respective faculty can come and meet me to get approved	Story	↓ Lowest	DONE	8		
CED-120	As a faculty, I want the classes corresponding to the courses I'm handling to be specified So that I find it easier to co-ordinate my classes.	Story	↑ High	DONE	7		
CED-121	As a faculty, handling the entry of grades, I want a separate column for the entry of marks alongside their grades So that it provides a side-by-side comparison into the academic performance of students scoring similar grades.	Story	↑ Medium	DONE	7		
CED-122	As a faculty, I want to create assignments So that I find it easier to evaluate and document such assignments	Story	↑ Medium	DONE	8		
CED-123	As a faculty, I want the option to modify submission date for assignment. So that I can provide a deadline extension in case of unforeseeable circumstances.	Story	↑ Medium	DONE	8		
CED-124	As a faculty, I want to specify different file formats that are supported for assignments. So that there is a uniform file format that is followed.	Story	↑ Medium	DONE	7		
CED-125	As a faculty, I want the option to upload resources. So that students can access said resources	Story	↑ Medium	DONE	8		
CED-127	as a faculty i want my timetable to be displayed with breaks in my account so that i wouldn't miss any classes	Story	↑ Highest	DONE	8		
CED-128	as a faculty i want staff meetings to be added in my timetable along with class timings so that i wouldnt miss the meetings	Story	↑ Highest	DONE	8		
CED-129	as a faculty i want to see the date and time i am invigilating and time i am invigilating the exams including the room numbers in the calendar so that i would be present before the students arrive	Story	↑ Medium	DONE	8		
CED-130	As a Faculty I want notifications to be displayed in my account 15 minutes prior any classes so that I can revise my notes for the class	Story	↑ Medium	DONE	8		
CED-132	As a Head faculty I want the option to schedule a meeting so that the respected faculties could attend them on time.	Story	↑ Highest	DONE	8		
CED-133	As a Faculty I want the timetable to be color coordinated and provide a legend so that I would be able to easily view the classes rather searching each row.	Story	↓ Low	DONE	8		
CED-134	As a faculty I want to approve the gate pass of students so that they can use that and go out of campus	Story	↑ Highest	DONE	7		
CED-135	As a faculty I want the ability to rollback leaves applied by the students so that the purpose of leave can be verified	Story	↓ Low	DONE	7		
CED-136	As a faculty I want to approve student leave applications on working days so that I can grant permission if the reason is acceptable	Story	↑ Highest	DONE	7		
CED-137	As a faculty I want to forward the leave application to head faculty for approval so that the student can get their leave approved.	Story	↑ Medium	DONE	7		
CED-138	As a faculty I want to approve emergency passes provided fair justification so that students can leave campus in case of emergencies	Story	↑ Medium	DONE	6		

2.2. Epic 1 - User Authentication

User Story 1: As a faculty, I want to login into my profile using my credentials, so that only I can access my profile

- a. Retrieve from database where the credentials will be stored.
- b. Check whether the username and password match with credentials in the database if yes route to the dashboard else display error message.
- c. Load the screen as per the username and his role
- d. Establish connectivity to connect front end to backend
- e. Do validation checking for username and password
- f. Do unit testing to check if the flow is working.

User Story 2: As a faculty, I want to use both my official-id and my phone-no as login, so that I can use either of them

- a. Store both the phone no. and the official id in the database
- b. A toggle can be made to select login with either phone-no. or official-id
- c. Connect frontend with backend
- d. The password must be mapped with both these fields
- e. Reflect unsuccessful login attempts in UI
- f. Do unit testing to check if the work flow is appropriate.

User Story 3: As a faculty, I want to have a forgot password option, so that I can send the change my password

- a. Have a forgot password option in the front end
- b. The security Questions must be taken in from the database as per the username
- c. If the security answer is correctly given a field should be provided to enter new password
- d. Connect front end with back end
- e. The security question answer should be kept encrypted and should be checked with the value received from the front end
- f. Reflect the new password in the database and route to login page

User Story 4: As a faculty, I want to an option to keep me signed in, so that I don't have to login every time or after timeout

- a. Display a keep me signed in checkbox in the front end
- b. If the users uses the same browser again the cookies must be accessible
- c. If login is done thru' existing credential access the cookie and login
- d. If the checkbox is ticked during a successful login save the username and password as cookie
- e. Display a popup whether to use the existing credentials or login using new one
- f. Establish connectivity.

User Story 5: As a faculty, I want my password to be encrypted while I type, so that I can prevent leak of my password and thereby prevent any misuse of my account

- a. Use input tag and type as password.
- b. Test using use cases and if errors are encountered, notify the developers' team.
- c. Align the password and username box using flexbox.
- d. Provide the option for Show password.
- e. Using Figma tool, design the UI for the login page.
- f. Update the version code at GitHub repository

2.3. Epic 2 – Faculty Profile

User Story 1: As a faculty, I want to check and edit my profile, so that I can view and add my new accomplishments

- a. Get the data from database of faculty profile
- b. The application will have to provide a button to modify and update the accomplishments records
- c. There will be a save button to store the accomplishments into database
- d. The application will have a cancel button in case of a return
- e. Secure session connection
- f. Implement unit testing to check the flow

User Story 2: As a faculty, I want to use both my official-id and my phone-no as login, so that I can use either of them

- a. Get the data from database of e – wallet
- b. Establish connectivity
- c. Display the amount in the front end
- d. Develop a function to pop a message to the user incase the amount in the e-wallet is small.
- e. Unit testing to check the flow.
- f. Update the version code at GitHub repository at the end of each iteration

User Story 3: As a faculty, I want to check my timetable, so that i can check my classes

- a. get the data of the classes handled by the faculties with respective faculty names or ID
- b. in the front end create a table listed with the classes and time
- c. in the UI part, include class room number as well
- d. have a filter option based on course code or subject name
- e. Unit testing for verification of work flow.
- f. Reflect the new password in the database and route to login page

User Story 4: As a faculty, I want to change the password, so that I can have my own credentials

- a. Retrieve from database where the credentials will be stored
- b. A new page will be routed to change the password
- c. Confirm with the previous password to enter new password
- d. Establish connectivity to the front end and back end
- e. Have a confirm button to save the encrypted credentials into database
- f. Use testcases to test the work flow

User Story 5: As a faculty, I want to change my profile picture, so that my profile picture is up to date.

- a. Allot a space in UI design for the profile picture
- b. Retrieve the image from the database.
- c. Provide an edit button to facilitate the profile change.
- d. Provide the user, the option to browse through local directory for the image
- e. have a save button to store the image into database
- f. Test the code and update in GitHub.

2.4. Epic 3 – Attendance System

User Story 1: As a faculty, I want to know the percentage of leaves I can apply so that I can plan upon my leaves.

- a. Retrieve data from the database on the no. of days off the faculty took, total no. of working days in the semester
- b. Create a neat layout (indexed with type of leave) in the front end to organize the data returned from the function and connect it with backend
- c. Have a filter to filter the type of leave and auto refresh the page when the filter button is pressed
- d. Device a mathematical function in the backend which will compute the percentage of leaves a faculty can apply in future
- e. Clicking on a specific type of leave will show the leave history under that type of leave
- f. If they have taken more than 80% of the allowed leaves show the percentage in red color.

User Story 2: As a Head faculty, I have to approve/deny the leave applications of faculties so that I can keep track of who is available

- a. Retrieve data from the database and show the list of pending applications
- b. Establish connection from front end to back end
- c. Write back to the database if the application is approved updating the leaves taken by the particular faculty
- d. Clicking on the pending application to review it where all the details about the application must be shown
- e. In both cases remove the pending request only when the transaction is successful. Implement this process as transaction
- f. Implement unit testing to check the flow

User Story 3: As a faculty, I have to apply for leave to the head faculty and be informed about the status of my application so that I can inform i will not be available and arrange for substitutions

- a. Show a leave form which will accept input from the user
- b. Retrieve the status of the application from the database and display it to the user
- c. Pass the session variable and connect it to the backend
- d. When the user presses the Apply button the leave application must be written into the database
- e. Refresh button to check the database again and initiate popups if any change in status of application
- f. Show all the applications the user has made along with their status

User Story 4: As a Faculty, I have to select the purpose of leave and the no. of days in the leave form so that I can mention whether I am on OD or off for personal reasons

- a. A neat google form like layout must be made
- b. The leave percentage of the selected leave must be retrieved from the database or can be kept as internal state
- c. If the user fails to input correct data in forms or he misses out on any required detail the field must go to different color to notify the mistake
- d. Purpose of leave field will be maintained as a dropdown from where the user can select
- e. While the user selects the number of day it should be checked with the database whether it could be done

The session must be maintained locally after it passes all the conditions can be written to the database

User Story 5: As a faculty, I want a option for cancelling and updating my leave application so that I can cancel my application if I don't need leave or have to increase/decrease the days I want as leave

- a. The application log is displayed in faculty profile, a particular application can be opened
- b. The application opened will have a update button on which the details can be edited and then the updates records should be stored to the database
- c. If the leave application status is approved and the application is not cancelled a day before the (day asked for leave) the leave is taken so update in the database
- d. The opened application will have a cancel button if the status is approved to remove the application from the database
- e. A method should be implemented to check if the application is overdue and can be said rejected
- f. Implement unit testing to check the flow

User Story 6 (optional): As a Head faculty, I can roll back the approved leave application so that the respective faculty can come and meet me to get approved

- a. Update the status of the application as rollback in the database
- b. An alert message must be sent to the dialogue box maintained in every faculty profile
- c. Provide a mechanism to approve all the rolled back messages
- d. To roll back the applications on a certain day where leaves will not be permitted
- e. If it's not yet approved cancel the application
- f. Update the version code at GitHub repository at the end of each iteration.

2.5. Epic 4 - Improving schedule for faculty that display timetable and academic calendar

User Story 1: As a Faculty I want my timetable to be displayed with breaks in my account so that I wouldn't miss any classes.

- a. Collect and create database of faculties' timetable using SQL.
- b. Use flexbox element in CSS to create a customizable table.
- c. Decide on where the schedule should be visible in UI design using Figma tool.
- d. Use PHP to connect the database with the UI.
- e. Include buttons to navigate to see the 5 working day timetable
- f. Include JPEG images to create an attractive UI.

User Story 2: As a Faculty I want staff meetings to be added in my timetable along with class timings so that I wouldn't miss the meetings.

- a. Allot a space in the UI design for this notification.
- b. Provide a button for refreshing this section so that the meetings displayed are up to date.
- c. Test task 2 and check for implemented improvements
- d. Retrieve staff meeting data from the database
- e. Create a notification bar for nearing meetings to be displayed
- f. Update the code in GitHub repository.

User Story 3: As a Faculty I want to see the date and time I am invigilating the exams including the room numbers in the calendar so that I would be present before the students arrive

- a. Use google Calendar API to enable a calendar for academic purpose.
- b. By means of the database in MySQL, write scripts in SQL to retrieve the date and time.
- c. Using HTML/CSS, highlight the data, time and room number.
- d. Establish the session variable

- e. Test this function and remove bugs if any and create a bug report as well. In that case, send it to the developers' team for revision.
- f. Update the function in the GitHub repository after matching the UI design.

User Story 4: As a Faculty I want notifications to be displayed in my account 15 minutes prior any classes **so that** I can revise my notes for the class

- a. Use system time in order to display notification 15 minutes prior.
- b. The notification should pop up in the dashboard exactly 15 minutes before class.
- c. Along with it, update the class of the subject, the faculty is handling for a clearer output.
- d. Implement this using HTML/CSS/JS.
- e. Test for various testcases and if error is encountered, notify the developers' team.
- f. Update the code in GitHub project repository at the end of the day.

User Story 5: As a Head faculty, I want the option to schedule a meeting, **so that** the respected faculties could attend them on time.

- a. Use a drop-down box for the head faculty to input the timings for the meeting.
- b. Use a textbox for inputting the name of the meeting.
- c. Use Save and Cancel button to make the meetings reflect in other faculties' dashboard and to cancel the meeting respectively.
- d. Provide the option for stating the reason for the meeting.
- e. All these data need to be stored in the database in the 'meetings' table by writing suitable SQL scripts.
- f. Test and see to the alignment of the input variables.

User Story 6 (optional): As a Faculty, I want the timetable to be color coordinated and provide a legend, **so that** I would be able to easily view the classes rather searching each row.

- a. Take user inputs to bring about a color system that can highlight the timetable.
- b. Use Figma tool to design the UI for this page and get the confirmation from the Product Owner.
- c. Use HTML/CSS to attain the desired output
- d. Allot a space for the legend that displays different classes handled by the faculty.
- e. Use Flexbox to align the timetable and the legend in a viewable manner.
- f. Test whether zooming in or out creates error and unwanted output and notify developers' team for rectification.

2.6. Epic 5 – My Courses

User story 1: As a faculty, I want the classes corresponding to the courses I'm handling to be specified **So that** I find it easier to co-ordinate my classes.

- a. Obtain the data regarding the courses handled by the faculty by cross-referencing the database with the faculty ID.
- b. In the front-end, create a neatly ordered table listing with courses taught by the faculty and connect it with the backend.
- c. An option for filtering out courses based on search keyword and auto-refresh the page.
- d. For every course handled by the faculty, gather a list of classes that correspond to said course by matching the course codes (backend process)
- e. When a particular course is selected, a new page listing all classes being taught that for that course is displayed.
- f. Implement unit testing to check the work flow

User story 2: As a faculty, handling the entry of grades, I want a separate column for the entry of marks alongside their grades So that it provides a side-by-side comparison into the academic performance of students scoring similar grades.

- a. In the back-end, devise a function that assigns grades according to their marks.
- b. Use HTML tables tag to create table like structures in the front end.
- c. Input validation is performed for the mark's entry such that the entered marks lie between 0 to 100.
- d. Buttons are provided to submit finalized scores/ remove pre-submitted marks
- e. Establish a connection between front end and backend
- f. Implement unit testing to check the work flow

User story 3: As a faculty, I want to create assignments So that I find it easier to evaluate and document such assignments

- a. A new page is developed with the facility to create assignments.
- b. The due date is mentioned in the assignments page.
- c. buttons are provided to upload and remove assignment questions.
- d. In the front end, a text box is created with the purpose of describing the assignment
- e. A provision is given to include the closing date wherein students that fail to submit before the due time can include a late hand-in.
- f. Implement unit testing to check the work flow

User Story 4: As a faculty, I want the option to modify submission date for assignment. So that I can provide a deadline extension in case of unforeseeable circumstances.

- a. In the assignments tab, clicking on individual assignments will take us to a new page with details of the assignment.
- b. Pass the session variable and connect it to the back-end
- c. whenever the deadline is modified, the closing time is also automatically reset so as to be 5 minutes longer than the due time.
- d. in this tab, facility for modifying (increasing or decreasing) the submission deadline is provided.
- e. A notification is sent to all the students registered under the specific course and class regarding the update in timing
- f. Implement unit testing to check the work flow

User Story 5: As a faculty, I want to specify different file formats that are supported for assignments. So that there is a uniform file format that is followed.

- a. In the assignments tab, clicking on individual assignments will take us to a new page with details of the assignment.
- b. in this tab, facility for specifying the supported file formats is provided.
- c. In case of attempts to upload other file formats, an error message is shown and the user is prompted to upload the correct format.
- d. Provide a drop-down menu to select the file format the faculty want to provide for the assignment.
- e. A notification is sent to all the students registered under the specific course and class regarding the supported file formats.
- f. Implement unit testing to check the work flow

User Story 6: As a faculty, I want the option to upload resources, So that students can access said resources

- a. in the resources tab, a button is designed to create files, folders and sub-folders.
- b. Selecting the various files will lead us to their respective tabs where options are provided to upload resources.

- c. A maximum limit of 50 MB per folder is fixed so as to avoid cluttering of resources.
- d. The session variable is passed and the various pages are connected to the backend
- e. A notification is sent to all the students registered under the specific course and class regarding the update of resources.
- f. Implement unit testing to check the work flow

2.7. Epic 6 – Approval / rollback of gate passes for students as an advisor

User Story 1: As a faculty I want to approve the gate pass of students so that they can use that and go out of campus.

- a. Retrieve data from the database and show the list of pending applications
- b. Connect front end to backend
- c. A predefined accept/reject function can be made if it's pass on regular weekend
- d. Clicking on the pending application to review it where all the details about the application must be shown
- e. In both cases remove the pending request only when the transaction is successful. Implement this process as transaction
- f. Do unit testing to check if the flow is working.

User Story 2: As a faculty I want the ability to rollback leaves applied by the students so that the purpose of leave can be verified.

- a. Have a provision for rolling back all the gate passes granted for dates coinciding with events requiring mandatory presence.
- b. A list of all such dates are maintained in the database and this can be modified by the admin.
- c. On days coinciding with the list, all gate passes are denied approval.
- d. To all students whose applications are on rollback, send a notification conveying the same
- e. In case of a modification to the list (addition of a new date/dates), Update the status of all applications for those days as rollback in the database.
- f. Establish connectivity to connect front end to backend.

User Story 3: As a faculty I want to approve student leave applications on working days so that I can grant permission if the reason is acceptable.

- a. In the front-end, design a page such that we are given options to accept/reject applications.
- b. Show the date, Student name and roll no. and the reason using Flexbox
- c. Provide an Approve and Reject button for the faculty
- d. Write SQL scripts to update the status of the approval to processing.
- e. Test for various testcases and if error is encountered, notify the development team
- f. Do unit testing to check if the flow is working

User Story 4: As a faculty, I want to forward the leave application to head faculty for approval so that the student can get their leave approved.

- a. If and when an application has been approved by the advisor, he/she is provided an option to forward the leave to the head faculty
- b. A notification is sent to the head faculty regarding the forwarded application.
- c. A notification is sent to the applicant regarding the new status of his/her pass.
- d. A button is devised to forward the application along with all its details
- e. If he/she approves it, status is updated to approved and if rejected, status is updated to rejected.
- f. Establish connectivity.

User Story 5: As a faculty, I want to approve emergency passes provided fair justification so that students can leave campus in case of emergencies.

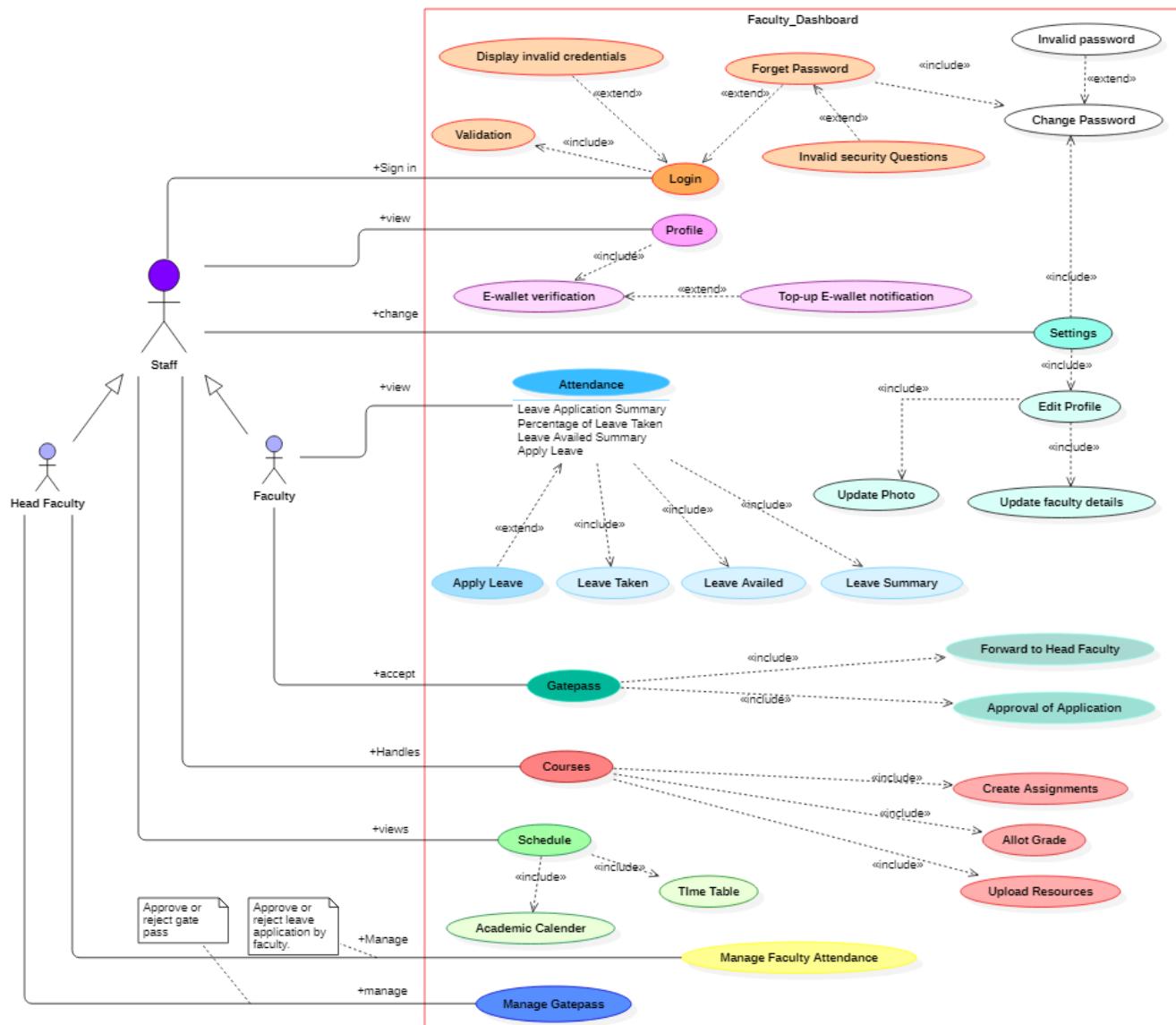
- A separate page is designed in the front end for a category of pass called emergency pass
- When an emergency pass is encountered, the advisor is provided with the justification
- the pass is automatically approved once the advisor views the justification
- A notification is sent to the applicant regarding the approval of his/her pass.
- Test for various testcases and if error is encountered, notify the development team
- Update the version code at GitHub repository at the end of each iteration.

3. Use Case and Dataflow Diagram

3.1. Use Case diagram:

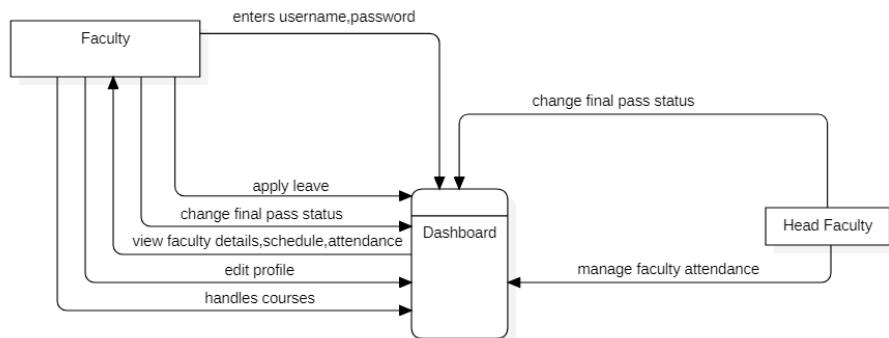
Primary Actors:

- Head faculty
- Faculty

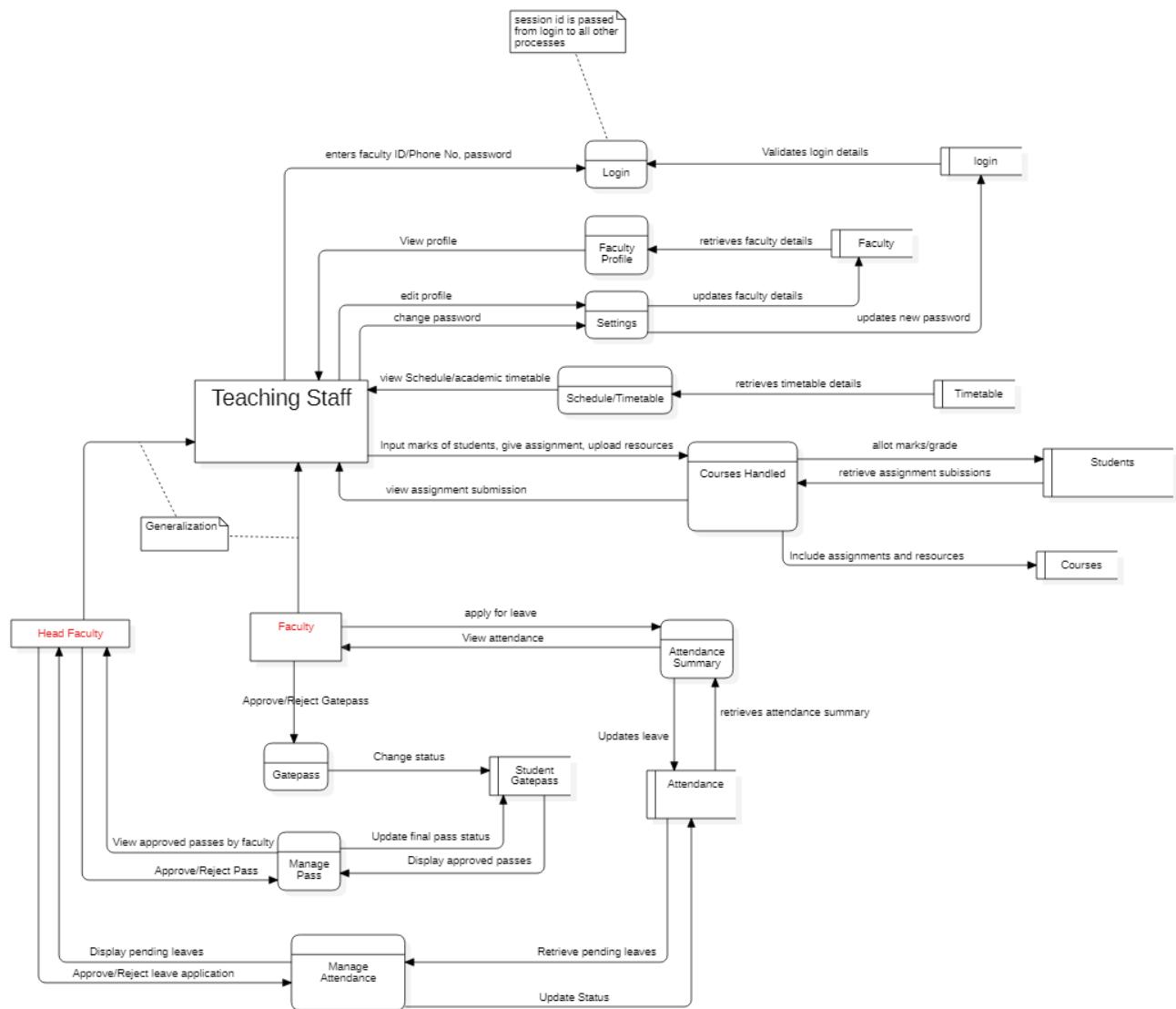


3.2. Dataflow Diagram

3.2.1. Level 0 – Context Diagram

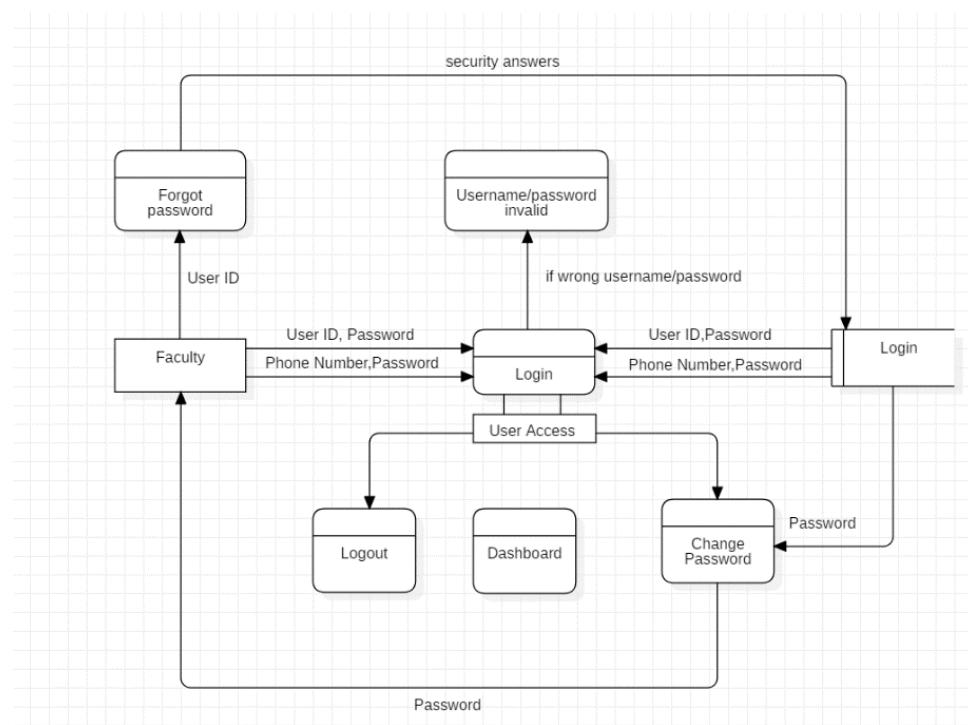


3.2.2. Level 1 – Overview Diagram

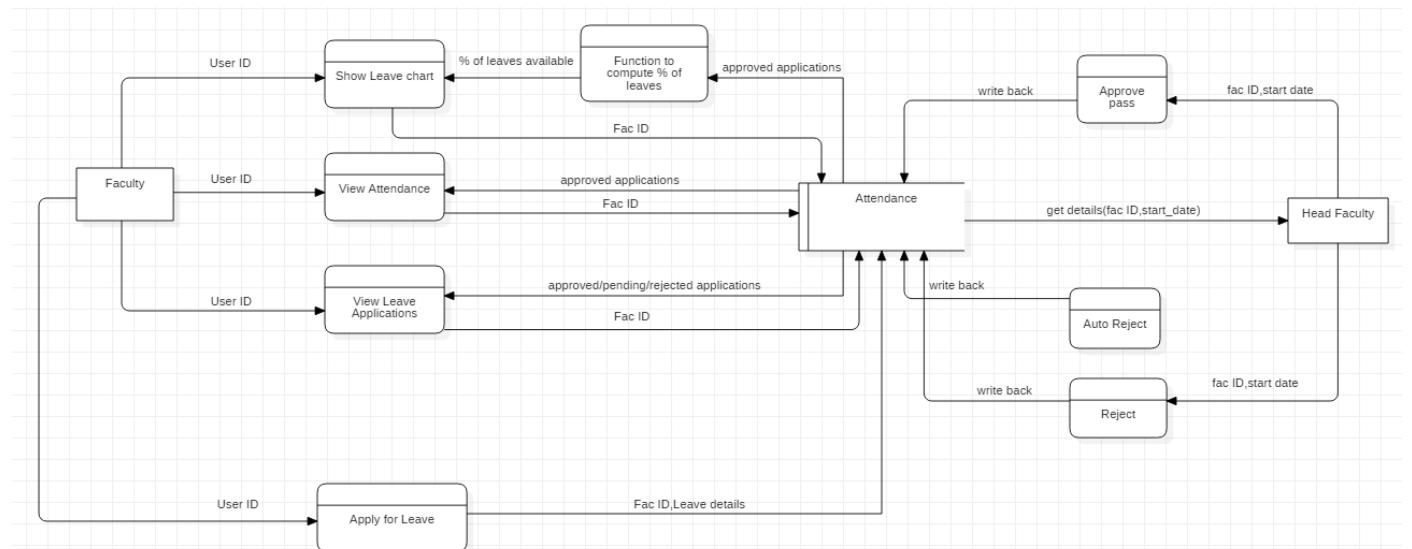


3.2.3. Level 2 - Level one is decomposed based on the processes that are expressed in detail.

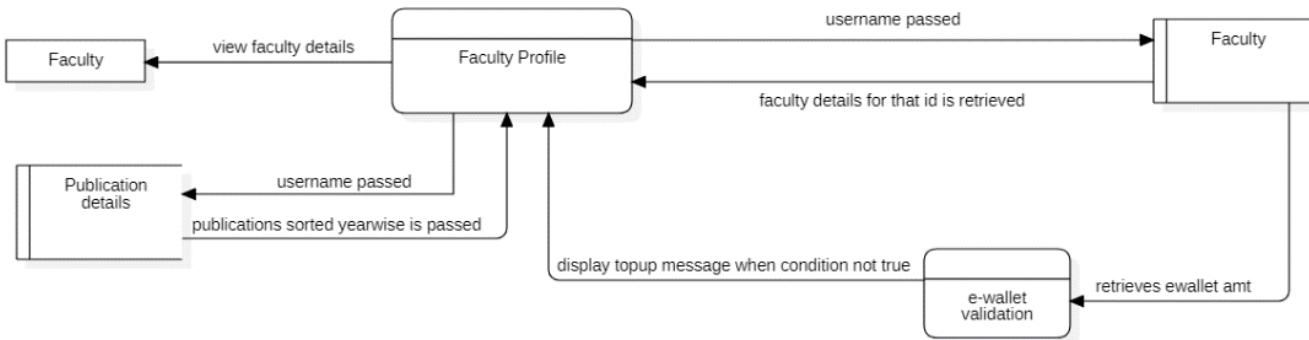
3.2.3.1. Level 2 - Login process is further decomposed into



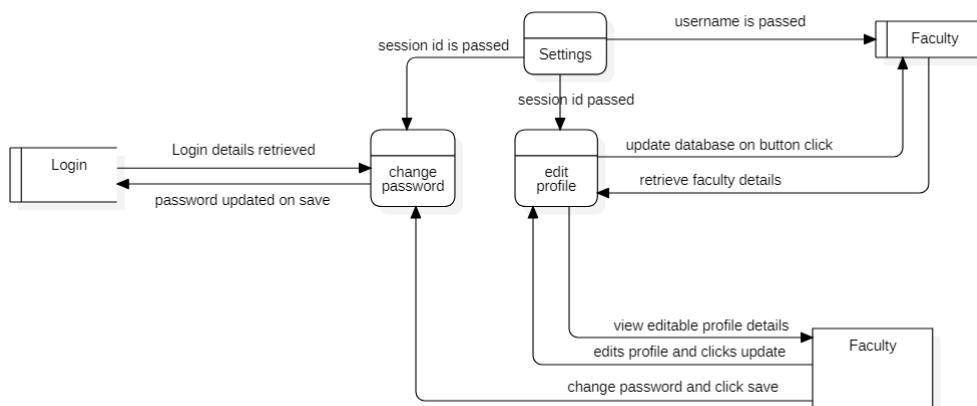
3.2.3.2. Level 2 - Attendance Summary and Manage Attendance are further decomposed into



3.2.3.3. Level 2 - Faculty Profile is further decomposed into

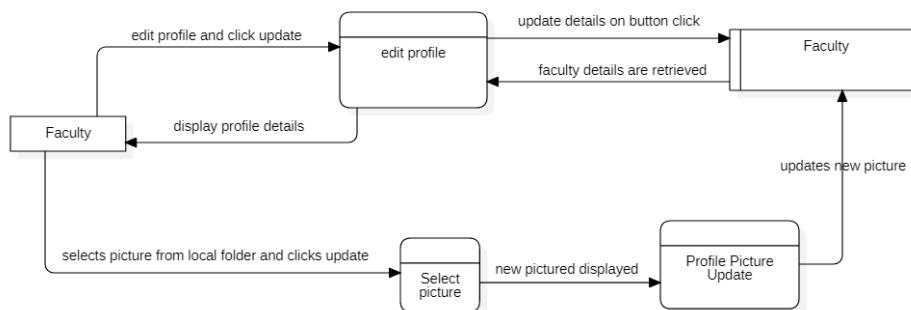


3.2.3.4. Level 2 - Settings is further decomposed into

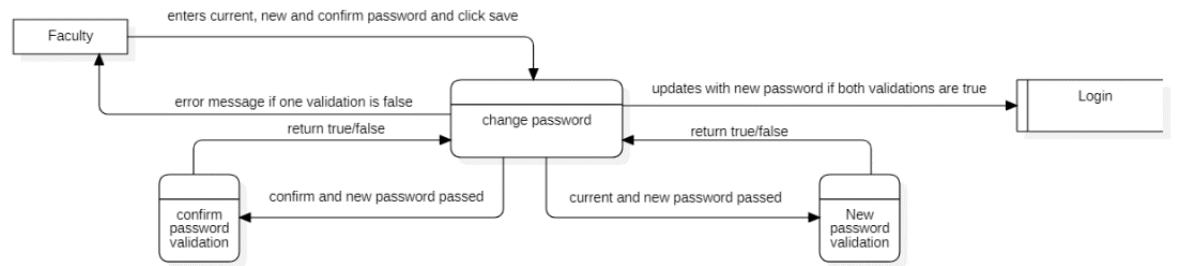


3.2.3.4.1. Level 3 - Settings is further decomposed to

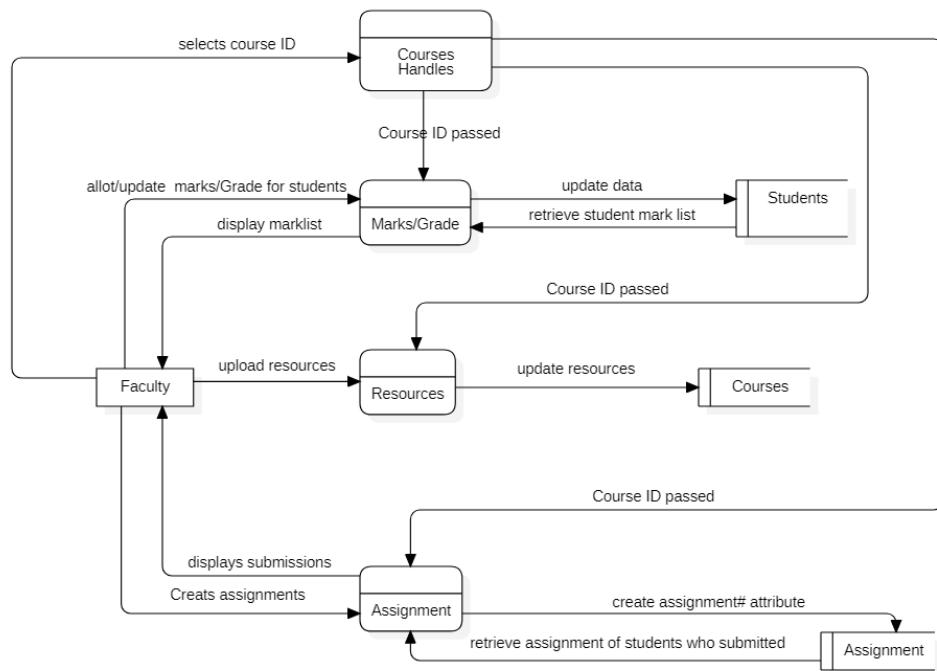
3.2.3.4.1.1. Edit profile



3.2.3.4.1.2. Change password

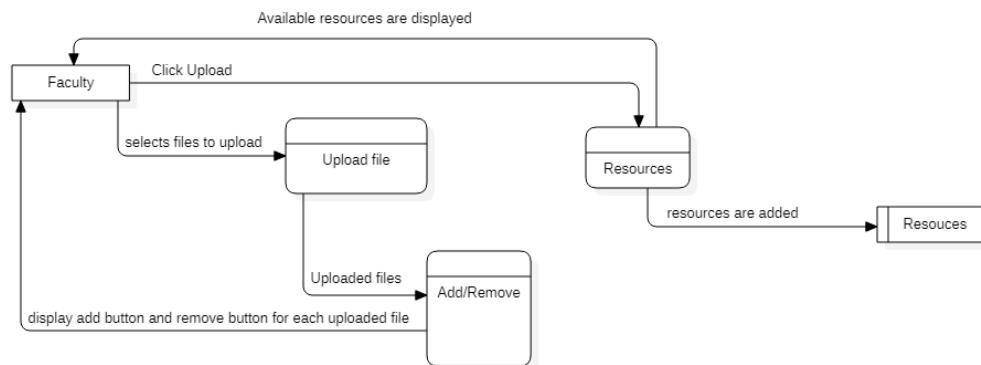


3.2.3.5. Level 2 - Courses Handled

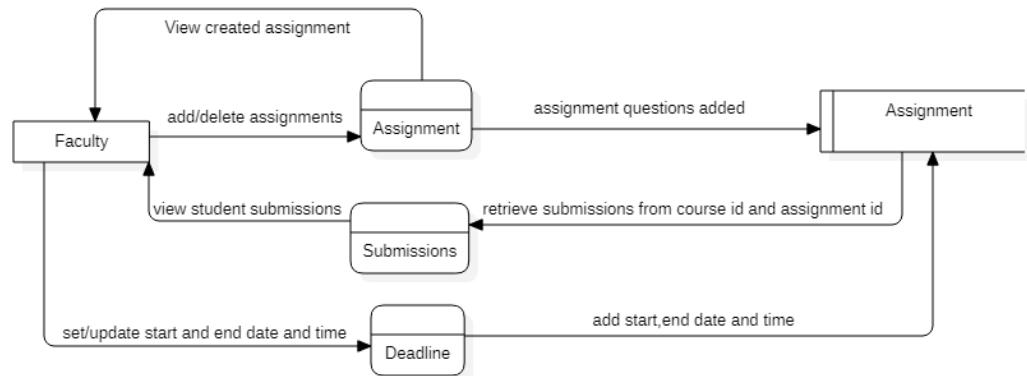


3.2.3.5.1. Level 3 – Courses Handled is further divided into

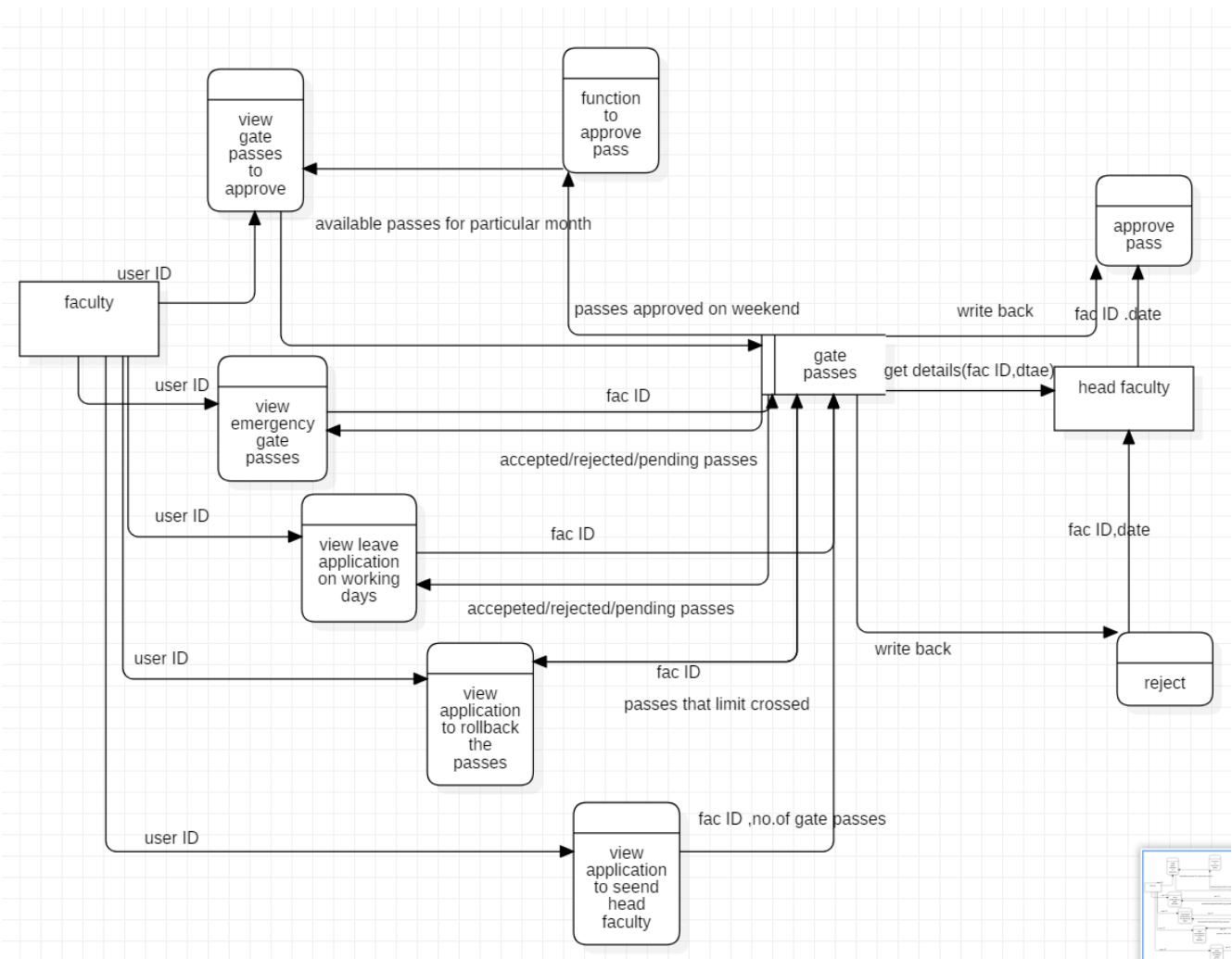
3.2.3.5.1.1. Resources



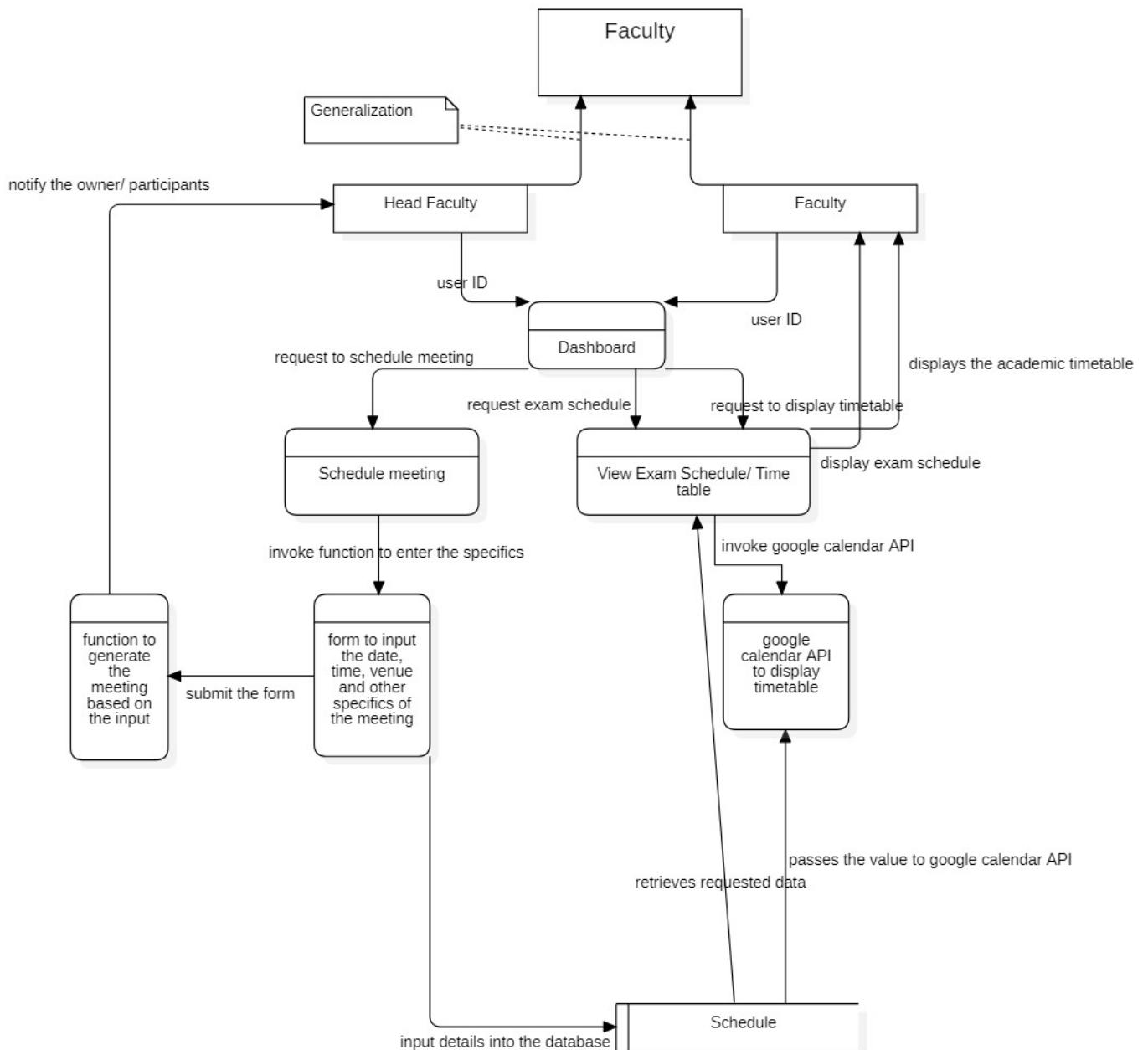
3.2.3.5.1.2. Assignment



3.2.3.6. Level 2 - Gate pass is further decomposed into



3.2.3.7. Level 2 - Schedule/Time process is decomposed into



4. Scrum Activities

4.1. Sprint 1 backlog

The following modules are completed in sprint 1:

1. User Authentication (both faculty and head faculty).
2. Faculty Profile
3. Attendance System

Epic 1 - User Authentication

User Story 1: As a faculty, I want to login into my profile using my credentials, so that only I can access my profile

- b. Retrieve from database where the credentials will be stored.
- c. Check whether the username and password match with credentials in the database if yes route to the dashboard else display error message.
- d. Load the screen as per the username and his role
- e. Establish connectivity to connect front end to backend
- f. Do validation checking for username and password
- g. Do unit testing to check if the flow is working.

User Story 2: As a faculty, I want to use both my official-id and my phone-no as login, so that I can use either of them

- b. Store both the phone no. and the official id in the database
- c. A toggle can be made to select login with either phone-no. or official-id
- d. Connect frontend with backend
- e. The password must be mapped with both these fields
- f. Reflect unsuccessful login attempts in UI
- g. Do unit testing to check if the work flow is appropriate.

User Story 3: As a faculty, I want to have a forgot password option, so that I can send the change my password

- b. Have a forgot password option in the front end
- c. The security Questions must be taken in from the database as per the username
- d. If the security answer is correctly given a field should be provided to enter new password
- e. Connect front end with back end
- f. The security question answer should be kept encrypted and should be checked with the value received from the front end
- g. Reflect the new password in the database and route to login page

User Story 4: As a faculty, I want to an option to keep me signed in, so that I don't have to login every time or after timeout

- b. Display a keep me signed in checkbox in the front end
- c. If the users uses the same browser again the cookies must be accessible
- d. If login is done thru' existing credential access the cookie and login
- e. If the checkbox is ticked during a successful login save the username and password as cookie
- f. Display a popup whether to use the existing credentials or login using new one
- g. Establish connectivity.

User Story 5: As a faculty, I want my password to be encrypted while I type, so that I can prevent leak of my password and thereby prevent any misuse of my account

- b. Use input tag and type as password.
- c. Test using use cases and if errors are encountered, notify the developers' team.
- d. Align the password and username box using flexbox.
- e. Provide the option for Show password.
- f. Using Figma tool, design the UI for the login page.
- g. Update the version code at GitHub repository

Epic 2 – Faculty Profile

User Story 1: As a faculty, I want to check and edit my profile, so that I can view and add my new accomplishments

- b. Get the data from database of faculty profile
- c. The application will have to provide a button to modify and update the accomplishments records
- d. There will be a save button to store the accomplishments into database
- e. The application will have a cancel button in case of a return
- f. Secure session connection
- g. Implement unit testing to check the flow

User Story 2: As a faculty, I want to use both my official-id and my phone-no as login, so that I can use either of them

- b. Get the data from database of e – wallet
- c. Establish connectivity
- d. Display the amount in the front end
- e. Develop a function to pop a message to the user incase the amount in the e-wallet is small.
- f. Unit testing to check the flow.
- g. Update the version code at GitHub repository at the end of each iteration

User Story 3: As a faculty, I want to check my timetable, so that i can check my classes

- b. get the data of the classes handled by the faculties with respective faculty names or ID
- c. in the front end create a table listed with the classes and time
- d. in the UI part, include class room number as well
- e. have a filter option based on course code or subject name
- f. Unit testing for verification of work flow.
- g. Reflect the new password in the database and route to login page

User Story 4: As a faculty, I want to change the password, so that I can have my own credentials

- b. Retrieve from database where the credentials will be stored
- c. A new page will be routed to change the password
- d. Confirm with the previous password to enter new password
- e. Establish connectivity to the front end and back end
- f. Have a confirm button to save the encrypted credentials into database
- g. Use testcases to test the work flow

User Story 5: As a faculty, I want to change my profile picture, so that my profile picture is up to date.

- b. Allot a space in UI design for the profile picture
- c. Retrieve the image from the database.
- d. Provide an edit button to facilitate the profile change.
- e. Provide the user, the option to browse through local directory for the image
- f. have a save button to store the image into database
- g. Test the code and update in GitHub.

Epic 3 – Attendance System

User Story 1: As a faculty, I want to know the percentage of leaves I can apply so that I can plan upon my leaves.

- b. Retrieve data from the database on the no. of days off the faculty took, total no. of working days in the semester
- c. Create a neat layout (indexed with type of leave) in the front end to organize the data returned from the function and connect it with backend
- d. Have a filter to filter the type of leave and auto refresh the page when the filter button is pressed
- e. Device a mathematical function in the backend which will compute the percentage of leaves a faculty can apply in future
- f. Clicking on a specific type of leave will show the leave history under that type of leave
- g. If they have taken more than 80% of the allowed leaves show the percentage in red color.

User Story 2: As a Head faculty, I have to approve/deny the leave applications of faculties so that I can keep track of who is available

- b. Retrieve data from the database and show the list of pending applications
- c. Establish connection from front end to back end
- d. Write back to the database if the application is approved updating the leaves taken by the particular faculty
- e. Clicking on the pending application to review it where all the details about the application must be shown
- f. In both cases remove the pending request only when the transaction is successful. Implement this process as transaction
- g. Implement unit testing to check the flow

User Story 3: As a faculty, I have to apply for leave to the head faculty and be informed about the status of my application so that I can inform i will not be available and arrange for substitutions

- b. Show a leave form which will accept input from the user
- c. Retrieve the status of the application from the database and display it to the user
- d. Pass the session variable and connect it to the backend
- e. When the user presses the Apply button the leave application must be written into the database

- f. Refresh button to check the database again and initiate popups if any change in status of application
- g. Show all the applications the user has made along with their status

User Story 4: As a Faculty, I have to select the purpose of leave and the no. of days in the leave form so that I can mention whether I am on OD or off for personal reasons

- b. A neat google form like layout must be made
- c. The leave percentage of the selected leave must be retrieved from the database or can be kept as internal state
- d. If the user fails to input correct data in forms or he misses out on any required detail the field must go to different color to notify the mistake
- e. Purpose of leave field will be maintained as a dropdown from where the user can select
- f. While the user selects the number of day it should be checked with the database whether it could be done

The session must be maintained locally after it passes all the conditions can be written to the database

User Story 5: As a faculty, I want a option for cancelling and updating my leave application so that I can cancel my application if I don't need leave or have to increase/decrease the days I want as leave

- b. The application log is displayed in faculty profile, a particular application can be opened
- c. The application opened will have a update button on which the details can be edited and then the updates records should be stored to the database
- d. If the leave application status is approved and the application is not cancelled a day before the (day asked for leave) the leave is taken so update in the database
- e. The opened application will have a cancel button if the status is approved to remove the application from the database
- f. A method should be implemented to check if the application is overdue and can be said rejected
- g. Implement unit testing to check the flow

User Story 6 (optional): As a Head faculty, I can roll back the approved leave application so that the respective faculty can come and meet me to get approved

- b. Update the status of the application as rollback in the database
- c. An alert message must be sent to the dialogue box maintained in every faculty profile
- d. Provide a mechanism to approve all the rolled back messages
- e. To roll back the applications on a certain day where leaves will not be permitted
- f. If it's not yet approved cancel the application
- g. Update the version code at GitHub repository at the end of each iteration.

4.2. Sprint 1 Standup Notes

Members	Name	Role	Roll No.
Member 1	Adapa Chirenjeevi	Tester	CB.EN.U4CSE18405
Member 2	Mandru Vinay	Tester	CB.EN.U4CSE18437
Member 3	Sanjith Ragul V	Developer	CB.EN.U4CSE18453
Member 4	Sivasini Netra S A	Developer	CB.EN.U4CSE18457
Member 5	Vijay Swaminathan	Tester	CB.EN.U4CSE18467

4.2.1. STANDUP NOTES 1 on 25.02.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Studying about testing
	What will you do today?	Try to understand different testing
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Studying about testing
	What will you do today?	Try to understand different testing
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	formulated the database schema
	What will you do today?	add entries and do mock queries
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	I made the basic UI for the website
	What will you do today?	Should do some more styling
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Studying about testing
	What will you do today?	Try to understand different testing
	Are there any impediments in your way?	No

4.2.2. STANDUP NOTES 2 on 28.02.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Studying about testing
	What will you do today?	Learn integration testing
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Studying about testing
	What will you do today?	Learn integration testing
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	add entries and do mock queries
	What will you do today?	Wireframe design for epic 3
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Designed login page
	What will you do today?	Should do some more styling
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Studying about testing
	What will you do today?	Try to understand different testing
	Are there any impediments in your way?	No

4.2.3. STANDUP NOTES 3 on 03.03.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Studying about testing
	What will you do today?	Learn integration testing
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Studying about testing
	What will you do today?	Learn integration testing
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Wireframe design for epic 3
	What will you do today?	Start user story 1 for faculty side
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Login page styling
	What will you do today?	Validating login page and hashing password algorithm
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Studying about testing
	What will you do today?	Try to understand different testing
	Are there any impediments in your way?	No

4.2.4. STANDUP NOTES 4 on 03.03.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Studying about testing
	What will you do today?	Update code in git
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Studying about testing
	What will you do today?	Learn integration testing
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Start user story 1 for faculty side
	What will you do today?	Finish user story 1 of attendance
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Validating login page
	What will you do today?	Adding forget password and change password
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Studying about testing
	What will you do today?	Explore Selenium
	Are there any impediments in your way?	No

4.2.5. STANDUP NOTES 5 on 07.03.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Git repository
	What will you do today?	Explore Postman
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Studying about testing
	What will you do today?	Learn integration testing
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Finished user story 1 of attendance
	What will you do today?	Start user story 2 of attendance epic
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Added forgot password and change password
	What will you do today?	Integrating login page with database
	Are there any impediments in your way?	Integration error
Member 5	What did you do yesterday?	Explore selenium
	What will you do today?	Explore Selenium
	Are there any impediments in your way?	No

4.2.6. STANDUP NOTES 6 on 10.03.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Explore postman
	What will you do today?	Explore Postman
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Integration testing in selenium
	What will you do today?	Learn integration testing
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Finished user story 2 of attendance epic
	What will you do today?	Start user story 3 of attendance epic
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Integrated login page with database
	What will you do today?	Finish the remaining user stories of authentication
	Are there any impediments in your way?	JavaScript integration
Member 5	What did you do yesterday?	Explore selenium
	What will you do today?	Explore Selenium
	Are there any impediments in your way?	No

4.2.7. STANDUP NOTES 7 on 14.03.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Explore postman
	What will you do today?	Explore Postman
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Integration testing in selenium
	What will you do today?	Explore Newman for API testing
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Finished user story 3 of attendance epic
	What will you do today?	Start user story 4 of attendance epic
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Finished login epic
	What will you do today?	Start wireframe design for faculty profile
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Explore selenium
	What will you do today?	Explore Selenium
	Are there any impediments in your way?	No

4.2.8. STANDUP NOTES 8 on 17.03.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Explore postman
	What will you do today?	Explore Postman
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Explore Newman for API testing
	What will you do today?	Explore Newman for API testing
	Are there any impediments in your way?	Not able to understand API testing
Member 3	What did you do yesterday?	Finished user story 4 of attendance epic
	What will you do today?	Start user story 5 of attendance epic
	Are there any impediments in your way?	Difficulty in implementing rollback on head faculty side
Member 4	What did you do yesterday?	Start wireframe design for faculty profile
	What will you do today?	Finish unit testing of login page
	Are there any impediments in your way?	PHPunit integration with XAMPP
Member 5	What did you do yesterday?	Explore selenium
	What will you do today?	Explore selenium automation IDE
	Are there any impediments in your way?	No

4.2.9. STANDUP NOTES 9 on 21.03.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Explore Postman
	What will you do today?	Explore Selenium
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Explore Newman for API testing
	What will you do today?	Explore Newman for API testing
	Are there any impediments in your way?	Not able to understand API testing
Member 3	What did you do yesterday?	Finished user story 5 of attendance epic
	What will you do today?	Start user story 6 of attendance epic
	Are there any impediments in your way?	Difficulty in implementing rollback on head faculty side
Member 4	What did you do yesterday?	Finished unit testing on epic 1
	What will you do today?	Finish unit testing of attendance
	Are there any impediments in your way?	PHPunit integration with XAMPP
Member 5	What did you do yesterday?	Explore selenium automation IDE
	What will you do today?	Integration testing on login page
	Are there any impediments in your way?	Coding trouble

4.2.10. STANDUP NOTES 10 on 25.03.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Explore Selenium
	What will you do today?	Help in integration testing on login epic
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Explore Newman for API testing
	What will you do today?	Integration testing on Attendance epic
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Finished user story 6 of attendance epic
	What will you do today?	Finish user story 1,2 of faculty
	Are there any impediments in your way?	Difficulty in implementing rollback on head faculty side
Member 4	What did you do yesterday?	Finish unit testing on attendance
	What will you do today?	3 more units to be tested in attendance
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Explore selenium automation IDE
	What will you do today?	Integration testing on login page
	Are there any impediments in your way?	No

4.2.11. STANDUP NOTES 11 on 28.03.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Help in integration testing on login epic
	What will you do today?	Help in integration testing on login epic
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Integration testing on Attendance epic
	What will you do today?	Integration testing on Attendance epic
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Finish user story 1,2 of faculty
	What will you do today?	Quality Assessment using SonarQube
	Are there any impediments in your way?	SonarQube not compatible with PHPAdmin
Member 4	What did you do yesterday?	Finished unit testing on attendance
	What will you do today?	Finish user story of 3,4,5 of faculty profile
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Integration testing on login page
	What will you do today?	Integration testing on Attendance page
	Are there any impediments in your way?	No

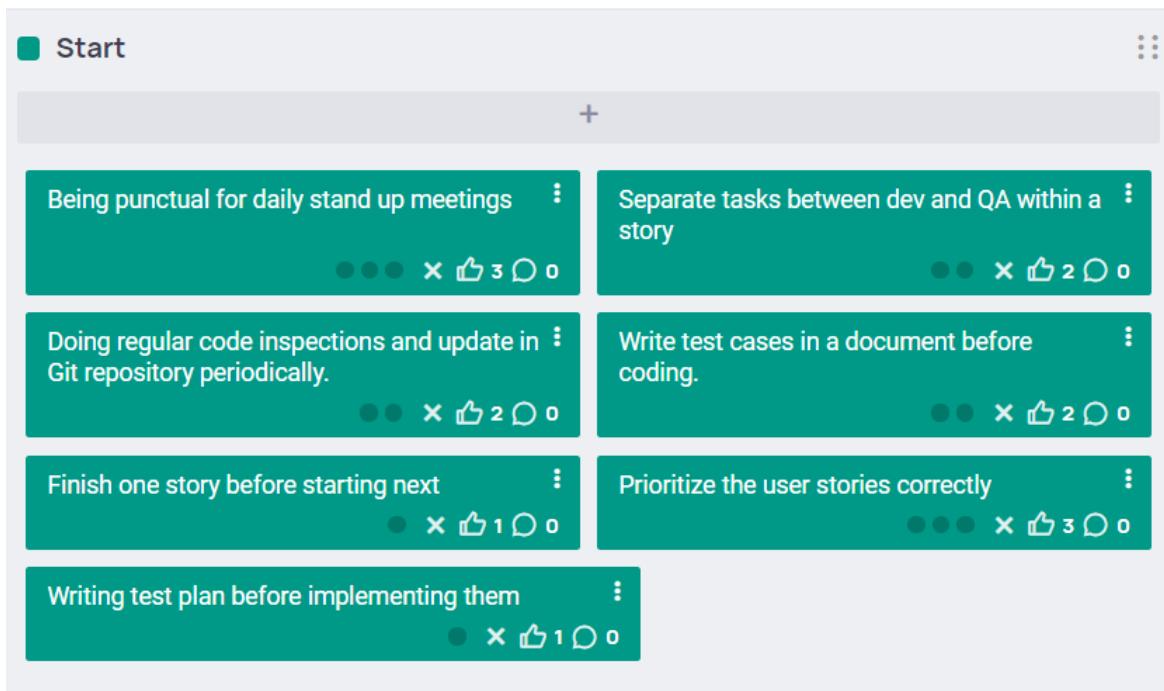
4.2.12. STANDUP NOTES 12 on 02.04.2021

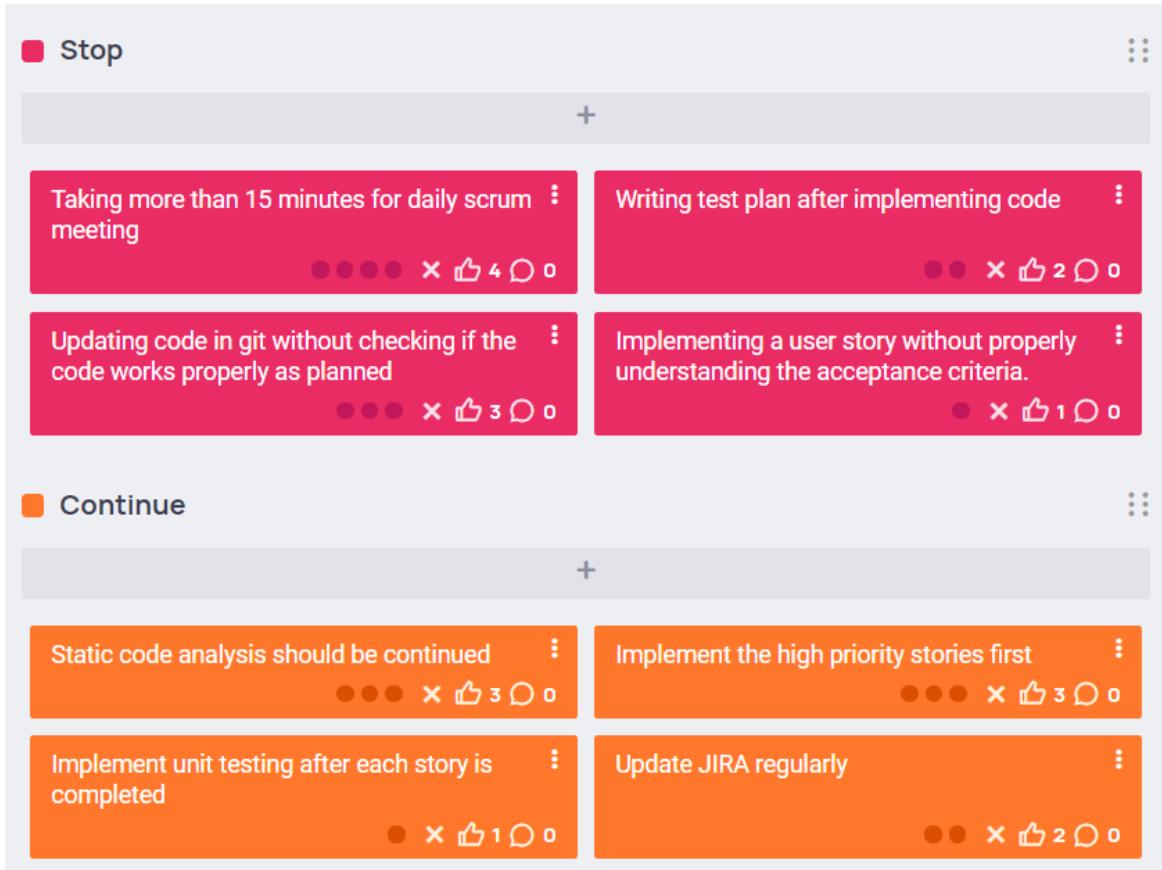
Name	Question	Answer
Member 1	What did you do yesterday?	Help in integration testing on login epic
	What will you do today?	Update in Git
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Integration testing on Attendance epic
	What will you do today?	Write all the testcases used in test plan
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Quality Assessment using SonarQube
	What will you do today?	Documentation
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Finish user story of 3,4,5 of faculty profile
	What will you do today?	Unit testing faculty profile
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Integration testing on login page
	What will you do today?	Integration testing on faculty profile
	Are there any impediments in your way?	No

4.2.13. STANDUP NOTES 12 on 04.04.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Update in Git
	What will you do today?	Help in test plan
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Write all the testcases used in test plan
	What will you do today?	Integration testing documentation
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Documentation
	What will you do today?	Documentation
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Unit testing faculty profile
	What will you do today?	Documentation
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Integration testing on faculty profile
	What will you do today?	Test plan
	Are there any impediments in your way?	No

4.3. Sprint 1 retrospective notes





4.4. Sprint 2 backlog

The following modules are completed in sprint 2:

1. Schedule and Timetable
2. My Courses
3. Gate pass management

The final product is tested and hosted.

Epic 4 - Improving schedule for faculty that display timetable and academic calendar

User Story 1: As a Faculty I want my timetable to be displayed with breaks in my account **so that** I wouldn't miss any classes.

- b. Collect and create database of faculties' timetable using SQL.
- c. Use flexbox element in CSS to create a customizable table.
- d. Decide on where the schedule should be visible in UI design using Figma tool.
- e. Use PHP to connect the database with the UI.
- f. Include buttons to navigate to see the 5 working day timetable
- g. Include JPEG images to create an attractive UI.

User Story 2: As a Faculty I want staff meetings to be added in my timetable along with class timings **so that** I wouldn't miss the meetings.

- b. Allot a space in the UI design for this notification.

- c. Provide a button for refreshing this section so that the meetings displayed are up to date.
- d. Test task 2 and check for implemented improvements
- e. Retrieve staff meeting data from the database
- f. Create a notification bar for nearing meetings to be displayed
- g. Update the code in GitHub repository.

User Story 3: As a Faculty I want to see the date and time I am invigilating the exams including the room numbers in the calendar so that I would be present before the students arrive

- b. Use google Calendar API to enable a calendar for academic purpose.
- c. By means of the database in MySQL, write scripts in SQL to retrieve the date and time.
- d. Using HTML/CSS, highlight the data, time and room number.
- e. Establish the session variable
- f. Test this function and remove bugs if any and create a bug report as well. In that case, send it to the developers' team for revision.
- g. Update the function in the GitHub repository after matching the UI design.

User Story 4: As a Faculty I want notifications to be displayed in my account 15 minutes prior any classes so that I can revise my notes for the class

- b. Use system time in order to display notification 15 minutes prior.
- c. The notification should pop up in the dashboard exactly 15 minutes before class.
- d. Along with it, update the class of the subject, the faculty is handling for a clearer output.
- e. Implement this using HTML/CSS/JS.
- f. Test for various testcases and if error is encountered, notify the developers' team.
- g. Update the code in GitHub project repository at the end of the day.

User Story 5: As a Head faculty, I want the option to schedule a meeting, so that the respected faculties could attend them on time.

- b. Use a drop-down box for the head faculty to input the timings for the meeting.
- c. Use a textbox for inputting the name of the meeting.
- d. Use Save and Cancel button to make the meetings reflect in other faculties' dashboard and to cancel the meeting respectively.
- e. Provide the option for stating the reason for the meeting.
- f. All these data need to be stored in the database in the 'meetings' table by writing suitable SQL scripts.
- g. Test and see to the alignment of the input variables.

User Story 6 (optional): As a Faculty, I want the timetable to be color coordinated and provide a legend, so that I would be able to easily view the classes rather searching each row.

- b. Take user inputs to bring about a color system that can highlight the timetable.
- c. Use Figma tool to design the UI for this page and get the confirmation from the Product Owner.
- d. Use HTML/CSS to attain the desired output

- e. Allot a space for the legend that displays different classes handled by the faculty.
- f. Use Flexbox to align the timetable and the legend in a viewable manner.
- g. Test whether zooming in or out creates error and unwanted output and notify developers' team for rectification.

Epic 5 – My Courses

User story 1: As a faculty, I want the classes corresponding to the courses I'm handling to be specified So that I find it easier to co-ordinate my classes.

- b. Obtain the data regarding the courses handled by the faculty by cross-referencing the database with the faculty ID.
- c. In the front-end, create a neatly ordered table listing with courses taught by the faculty and connect it with the backend.
- d. An option for filtering out courses based on search keyword and auto-refresh the page.
- e. For every course handled by the faculty, gather a list of classes that correspond to said course by matching the course codes (backend process)
- f. When a particular course is selected, a new page listing all classes being taught that for that course is displayed.
- g. Implement unit testing to check the work flow

User story 2: As a faculty, handling the entry of grades, I want a separate column for the entry of marks alongside their grades So that it provides a side-by-side comparison into the academic performance of students scoring similar grades.

- b. In the back-end, devise a function that assigns grades according to their marks.
- c. Use HTML tables tag to create table like structures in the front end.
- d. Input validation is performed for the mark's entry such that the entered marks lie between 0 to 100.
- e. Buttons are provided to submit finalized scores/ remove pre-submitted marks
- f. Establish a connection between front end and backend
- g. Implement unit testing to check the work flow

User story 3: As a faculty, I want to create assignments So that I find it easier to evaluate and document such assignments

- b. A new page is developed with the facility to create assignments.
- c. The due date is mentioned in the assignments page.
- d. buttons are provided to upload and remove assignment questions.
- e. In the front end, a text box is created with the purpose of describing the assignment
- f. A provision is given to include the closing date wherein students that fail to submit before the due time can include a late hand-in.
- g. Implement unit testing to check the work flow

User Story 4: As a faculty, I want the option to modify submission date for assignment. So that I can provide a deadline extension in case of unforeseeable circumstances.

- b. In the assignments tab, clicking on individual assignments will take us to a new page with details of the assignment.
- c. Pass the session variable and connect it to the back-end

- d. whenever the deadline is modified, the closing time is also automatically reset so as to be 5 minutes longer than the due time.
- e. in this tab, facility for modifying (increasing or decreasing) the submission deadline is provided.
- f. A notification is sent to all the students registered under the specific course and class regarding the update in timing
- g. Implement unit testing to check the work flow

User Story 5: As a faculty, I want to specify different file formats that are supported for assignments. So that there is a uniform file format that is followed.

- b. In the assignments tab, clicking on individual assignments will take us to a new page with details of the assignment.
- c. in this tab, facility for specifying the supported file formats is provided.
- d. In case of attempts to upload other file formats, an error message is shown and the user is prompted to upload the correct format.
- e. Provide a drop-down menu to select the file format the faculty want to provide for the assignment.
- f. A notification is sent to all the students registered under the specific course and class regarding the supported file formats.
- g. Implement unit testing to check the work flow

User Story 6: As a faculty, I want the option to upload resources, So that students can access said resources

- b. in the resources tab, a button is designed to create files, folders and sub-folders.
- c. Selecting the various files will lead us to their respective tabs where options are provided to upload resources.
- d. A maximum limit of 50 MB per folder is fixed so as to avoid cluttering of resources.
- e. The session variable is passed and the various pages are connected to the backend
- f. A notification is sent to all the students registered under the specific course and class regarding the update of resources.
- g. Implement unit testing to check the work flow

Epic 6 – Approval / rollback of gate passes for students as an advisor

User Story 1: As a faculty I want to approve the gate pass of students so that they can use that and go out of campus.

- b. Retrieve data from the database and show the list of pending applications
- c. Connect front end to backend
- d. A predefined accept/reject function can be made if it's pass on regular weekend
- e. Clicking on the pending application to review it where all the details about the application must be shown
- f. In both cases remove the pending request only when the transaction is successful. Implement this process as transaction
- g. Do unit testing to check if the flow is working.

User Story 2: As a faculty I want the ability to rollback leaves applied by the students so that the purpose of leave can be verified.

- b. Have a provision for rolling back all the gate passes granted for dates coinciding with events requiring mandatory presence.
- c. A list of all such dates are maintained in the database and this can be modified by the admin.
- d. On days coinciding with the list, all gate passes are denied approval.
- e. To all students who applications are on rollback, send a notification conveying the same
- f. In case of a modification to the list (addition of a new date/dates), Update the status of all applications for those days as rollback in the database.
- g. Establish connectivity to connect front end to backend.

User Story 3: As a faculty I want to approve student leave applications on working days so that I can grant permission if the reason is acceptable.

- b. In the front-end, design a page such that we are given options to accept/reject applications.
- c. Show the date, Student name and roll no. and the reason using Flexbox
- d. Provide an Approve and Reject button for the faculty
- e. Write SQL scripts to update the status of the approval to processing.
- f. Test for various testcases and if error is encountered, notify the development team
- g. Do unit testing to check if the flow is working

User Story 4: As a faculty, I want to forward the leave application to head faculty for approval so that the student can get their leave approved.

- b. If and when an application has been approved by the advisor, he/she is provided an option to forward the leave to the head faculty
- c. A notification is sent to the head faculty regarding the forwarded application.
- d. A notification is sent to the applicant regarding the new status of his/her pass.
- e. A button is devised to forward the application along with all its details
- f. If he/she approves it, status is updated to approved and if rejected, status is updated to rejected.
- g. Establish connectivity.

User Story 5: As a faculty, I want to approve emergency passes provided fair justification so that students can leave campus in case of emergencies.

- b. A separate page is designed in the front end for a category of pass called emergency pass
- c. When an emergency pass is encountered, the advisor is provided with the justification
- d. the pass is automatically approved once the advisor views the justification
- e. A notification is sent to the applicant regarding the approval of his/her pass.
- f. Test for various testcases and if error is encountered, notify the development team
- g. Update the version code at GitHub repository at the end of each iteration.

4.5. Sprint 2 Standup Notes

Members	Name	Role	Roll No.
Member 1	Adapa Chirenjeevi	Tester	CB.EN.U4CSE18405
Member 2	Mandru Vinay	SevOps Engineer	CB.EN.U4CSE18437
Member 3	Sanjith Ragul V	Developer	CB.EN.U4CSE18453
Member 4	Sivasini Netra S A	Developer	CB.EN.U4CSE18457
Member 5	Vijay Swaminathan	DevOps Enginner	CB.EN.U4CSE18467

4.5.1. STANDUP NOTES 1 on 21.04.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Exploring tools for system testing
	What will you do today?	Exploring tools for system testing
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Exploring tools for system testing
	What will you do today?	Exploring tools for system testing
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Started Gate pass epic
	What will you do today?	Finish three tasks in 1 st user story of gate pass epic
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Started 3 user story in Schedule
	What will you do today?	Finish 3 more tasks in 3 rd user story
	Are there any impediments in your way?	Had trouble with calendar API
Member 5	What did you do yesterday?	Explored postman for API testing
	What will you do today?	Explored postman for API testing
	Are there any impediments in your way?	No

4.5.2. STANDUP NOTES 2 on 23.04.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Explored integration testing
	What will you do today?	Explore functionality testing
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Explored tool for system testing
	What will you do today?	Explore Newman for API testing
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Finished User Story 1 in Gate pass epic
	What will you do today?	Start User Story 3 in Gate pass epic
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Finished the first three user stories in Schedule
	What will you do today?	Start 4 th user story in Schedule epic
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Explore System testing
	What will you do today?	Explore System testing
	Are there any impediments in your way?	No

4.5.3. STANDUP NOTES 3 on 25.04.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Explored functionality testing
	What will you do today?	Explore integration testing
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Explore API testing in Newman and post man tool
	What will you do today?	Testing user story 3 in gate pass epic
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Finished User Story 3 in Gate pass epic
	What will you do today?	Starting User Story 4
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Finished 3 tasks in 4 th user story in Calendar epic
	What will you do today?	Finish the remaining three tasks in 4 th user story
	Are there any impediments in your way?	Adding break in the table
Member 5	What did you do yesterday?	Explore functionality testing
	What will you do today?	Explore XAMPP in cloud computing
	Are there any impediments in your way?	Not able to integrate MySQL in AWS

4.5.4. STANDUP NOTES 4 on 27.04.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Explored integration testing
	What will you do today?	Explore Jenkins tool
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Tested user story 3 in gate pass epic
	What will you do today?	Test user story 1 in gate pass epic
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Finished 4 tasks in User Story 4 in Gate pass epic
	What will you do today?	Try to finish User Story 4 in Gate pass epic
	Are there any impediments in your way?	Integration problem
Member 4	What did you do yesterday?	Finished 4 th user story in Schedule epic
	What will you do today?	Do unit testing for the first 2 user stories in Schedule epic
	Are there any impediments in your way?	PHP code problem
Member 5	What did you do yesterday?	Tested 1 st user stories in schedule epic
	What will you do today?	Testing 2 nd user stories in schedule epic
	Are there any impediments in your way?	Have trouble with selenium ide

4.5.5. STANDUP NOTES 5 on 29.04.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Explore Jenkins tool
	What will you do today?	Explore Jenkins tool
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Tested user story 1 in gate pass epic
	What will you do today?	Test user story 2 in gate pass epic
	Are there any impediments in your way?	Selenium ide
Member 3	What did you do yesterday?	Completed user stories 1,3,4 except two tasks on notification
	What will you do today?	Work on Task 2 of Epic 4 and populate student leave database
	Are there any impediments in your way?	Notification not reflecting properly
Member 4	What did you do yesterday?	Finishing unit testing for three user stories in Schedule epic
	What will you do today?	Start 5 th user story in Schedule epic
	Are there any impediments in your way?	Integration problem for meeting user story
Member 5	What did you do yesterday?	Tested 2 nd user story in schedule
	What will you do today?	Testing in 3 rd user story in schedule
	Are there any impediments in your way?	No

4.5.6. STANDUP NOTES 6 on 01.05.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Explore Jenkins tool
	What will you do today?	Explore Jenkins tool
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Finished gate pass epic user story 2 testing
	What will you do today?	Explore Jenkins
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Finished 4 th user story in Gate pass epic
	What will you do today?	Start 5 th user story in gate pass epic
	Are there any impediments in your way?	Rollback trouble
Member 4	What did you do yesterday?	Finished main tasks of all the user stories in Schedule epic
	What will you do today?	Do remaining unit testing and remaining small UI tasks
	Are there any impediments in your way?	Alignment problem in UI
Member 5	What did you do yesterday?	Testing the updated code in Schedule
	What will you do today?	Testing the 4 th user story in schedule
	Are there any impediments in your way?	No

4.5.7. STANDUP NOTES 7 on 04.05.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Explore Jenkins tool
	What will you do today?	Integration testing on gate pass user story 3
	Are there any impediments in your way?	Problem with Selenium IDE
Member 2	What did you do yesterday?	Explored Jenkins
	What will you do today?	Integration testing on gatepass user story 4
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Finished 5 th user story in Gate pass epic
	What will you do today?	Do the remaining small tasks in gatepass epic
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Unit testing on user story 1 and 2 of schedule epic
	What will you do today?	Unit testing on user story 3 of schedule epic
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Tested fourth user story in schedule
	What will you do today?	Integration testing on schedule epic
	Are there any impediments in your way?	No

4.5.8. STANDUP NOTES 8 on 06.05.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Integration testing on gate pass user story 3
	What will you do today?	Integration testing on gate pass user story 3
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Integration testing on gatepass user story 4
	What will you do today?	Integration testing on gatepass user story 5
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Finished gatepass epic
	What will you do today?	Start Courses epic and sketch the UI flow
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Unit testing user story 3 and 4 of schedule epic
	What will you do today?	Unit testing on user story 5 of schedule epic
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Integration testing on schedule epic finished
	What will you do today?	Exploring Bitnami for uploading in cloud
	Are there any impediments in your way?	No

4.5.9. STANDUP NOTES 9 on 08.05.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Integration testing on gate pass user story 3 finished
	What will you do today?	Learning Postman for API testing
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Integration testing on gatepass user story 5
	What will you do today?	Finish remaining testing in gatepass epic
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Sketched the assignments UI flow in Course epic
	What will you do today?	Start user story 3 in Course's epic
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Finished Unit testing on Schedule epic
	What will you do today?	Unit testing on user story 5 of gatepass epic
	Are there any impediments in your way?	Had trouble handing Database error
Member 5	What did you do yesterday?	Explored Bitnami
	What will you do today?	Exploring EC2 instances of AWS
	Are there any impediments in your way?	No

4.5.10. STANDUP NOTES 10 on 09.05.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Learn Postman for API testing
	What will you do today?	Remaining Integration testing on Schedule and Gatepass to be completed
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Finished testing on main components
	What will you do today?	Explore Jenkins
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	2 tasks of user story 3 finished
	What will you do today?	Complete remaining tasks in user story 3 of Courses
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Finished remaining unit testing on schedule epic
	What will you do today?	Start unit testing on gatepass epic user story 1
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Explored AWS
	What will you do today?	Connecting phadmin with AWS
	Are there any impediments in your way?	Server error

4.5.11. STANDUP NOTES 11 on 10.05.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Completed integration testing
	What will you do today?	Explore Jenkins
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Explored Jenkins
	What will you do today?	To try testing in Jenkins
	Are there any impediments in your way?	Trouble understanding how Jenkins's work
Member 3	What did you do yesterday?	Completed user story 3 of course epic
	What will you do today?	Start user story 4 of courses epic
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Unit tested gate pass epic on user story 1, 2, 3
	What will you do today?	Finish unit testing on gatepass epic
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Connecting PHPadmin with AWS
	What will you do today?	Connecting phpadmin with AWS
	Are there any impediments in your way?	Trouble handing Host error

4.5.12. STANDUP NOTES 12 on 12.05.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Explored Jenkins
	What will you do today?	Functionality testing for Epic Gatepass
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Exploring testing using Jenkins tool
	What will you do today?	Practice testing Jenkins on sprint 1 product
	Are there any impediments in your way?	Trouble understanding how Jenkins work
Member 3	What did you do yesterday?	Started user story 4 of courses epic
	What will you do today?	Finish user story 4 of course epic
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Gatepass epic unit testing finished
	What will you do today?	Complete 5 tasks in user story 1 of Course epic
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Connected PHPadmin with AWS
	What will you do today?	Assigning server, password to the website
	Are there any impediments in your way?	No

4.5.13. STANDUP NOTES 13 on 13.05.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Functionality testing for Epic Gatepass
	What will you do today?	Functionality testing for Epic Gatepass to be completed
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Practice testing Jenkins on sprint 1 product
	What will you do today?	Practice testing Jenkins on sprint 1 product
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Completed user story 4 of course epic
	What will you do today?	Start UI part of assignment tab
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Completed 4 tasks in user story 1 of Course epic
	What will you do today?	Finish remaining tasks in user story 1 of Course epic
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Assigning server, password to the website
	What will you do today?	Integration testing for done user stories of Course epics
	Are there any impediments in your way?	No

4.5.14. STANDUP NOTES 14 on 15.05.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Functionality testing for Epic Gatepass completed
	What will you do today?	Functionality testing for Epic for attendance to be completed
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Practice testing Jenkins on sprint 1 product
	What will you do today?	Integration testing of user story 1 in course epic
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Designed UI part in assignment tab
	What will you do today?	Connect database with front end and start user story 2
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Course epic user story 1 completed
	What will you do today?	Finish the epic Schedule remaining small functions
	Are there any impediments in your way?	Google Calendar API not connecting
Member 5	What did you do yesterday?	Integration testing on Courses epic
	What will you do today?	Integration testing for done user stories of Course epics
	Are there any impediments in your way?	No

4.5.15. STANDUP NOTES 15 on 17.05.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Functionality testing for Epic for attendance
	What will you do today?	Functionality testing for Epic for attendance to be finished today
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Integration testing of user story 1 in course epic
	What will you do today?	Use Jenkins for integrating instead selenium
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Connected database with front end and start user story 2
	What will you do today?	Finish user story 2 of Course epic
	Are there any impediments in your way?	Uploaded file not saved in database
Member 4	What did you do yesterday?	Finished the epic Schedule remaining small functions
	What will you do today?	Start user story 5 of epic Courses
	Are there any impediments in your way?	JavaScript not integrated properly
Member 5	What did you do yesterday?	Integration testing on Courses epic
	What will you do today?	Writing test plan in the document
	Are there any impediments in your way?	No

4.5.16. STANDUP NOTES 16 on 20.05.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Testing for Attendance completed
	What will you do today?	Explore Security testing for SQL injection
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Use Jenkins for integrating
	What will you do today?	Connecting jenkins with PHP
	Are there any impediments in your way?	Difficulty with connecting Jenkins
Member 3	What did you do yesterday?	Finish user story 2 of Course epic
	What will you do today?	Finish user story 2 of Course epic
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Start user story 5 of epic Courses
	What will you do today?	Completing developer tasks of user story 5
	Are there any impediments in your way?	File format not integrating
Member 5	What did you do yesterday?	Writing test plan in the document
	What will you do today?	Writing test plan in the document
	Are there any impediments in your way?	No

4.5.17. STANDUP NOTES 17 on 23.05.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Explore Security testing for SQL injection
	What will you do today?	Explore Security testing for SQL injection
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Connecting jenkins with PHP
	What will you do today?	Connecting jenkins with PHP
	Are there any impediments in your way?	Difficulty with connecting Jenkins
Member 3	What did you do yesterday?	Finish user story 2 of Course epic
	What will you do today?	Start user story 2 of gatepass epic
	Are there any impediments in your way?	Difficulty in implementing roll back
Member 4	What did you do yesterday?	Completing developer tasks of user story 5
	What will you do today?	Finish user story 5 of courses
	Are there any impediments in your way?	File format not integrating
Member 5	What did you do yesterday?	Writing test plan in the document
	What will you do today?	Writing test plan in the document
	Are there any impediments in your way?	No

4.5.18. STANDUP NOTES 18 on 25.05.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Explore Security testing for SQL injection
	What will you do today?	Do security testing for login table
	Are there any impediments in your way?	Trouble in security testing
Member 2	What did you do yesterday?	Connecting jenkins with PHP
	What will you do today?	Jenkins integrating testing started
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Start user story 2 of gatepass epic
	What will you do today?	Finish user story 2 of gatepass epic
	Are there any impediments in your way?	Difficulty in implementing roll back
Member 4	What did you do yesterday?	Finish user story 5 of courses
	What will you do today?	Start user story 1 of Schedule epic
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Writing test plan in the document
	What will you do today?	Carrying out UI testing for epic 1
	Are there any impediments in your way?	No

4.5.19. STANDUP NOTES 19 on 28.05.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Do security testing for login table
	What will you do today?	Do security testing for login table
	Are there any impediments in your way?	Trouble in security testing
Member 2	What did you do yesterday?	Jenkins integrating testing started
	What will you do today?	Integration testing on epic 1
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Finish user story 2 of gatepass epic
	What will you do today?	Finish user story 2 remaining tasks
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Start user story 1 of Schedule epic
	What will you do today?	Finish user story 1 of Schedule epic
	Are there any impediments in your way?	Google calendar not integrating
Member 5	What did you do yesterday?	Carrying out UI testing for epic 1
	What will you do today?	Carrying out UI testing for epic 2
	Are there any impediments in your way?	No

4.5.20. STANDUP NOTES 20 on 31.05.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Do security testing for login table
	What will you do today?	Injection attack on login page implementation
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Integration testing on epic 1
	What will you do today?	Integration testing on epic 2
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Finish user story 2 remaining tasks
	What will you do today?	Finish remaining CSS tasks in Courses
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Finish user story 1 of Schedule epic
	What will you do today?	Finish user story 2 of Schedule epic
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Carrying out UI testing for epic 2
	What will you do today?	Carrying out UI testing for epic 3
	Are there any impediments in your way?	No

4.5.21. STANDUP NOTES 21 on 02.06.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Injection attack on login page implementation
	What will you do today?	Help in test plan documentation
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Integration testing on epic 2
	What will you do today?	Integration testing on epic 3
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Finish remaining CSS tasks in Courses
	What will you do today?	Check for remaining tasks in the product
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Finish user story 2 of Schedule epic
	What will you do today?	Check for remaining tasks in the product
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Carrying out UI testing for epic 3
	What will you do today?	Carrying out UI testing for epic 4
	Are there any impediments in your way?	No

4.5.22. STANDUP NOTES 22 on 03.06.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Help in test plan documentation
	What will you do today?	Help in test plan documentation
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Integration testing on epic 3
	What will you do today?	Integration testing on epic 4
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Check for remaining tasks in the product
	What will you do today?	Build docker Image for the product
	Are there any impediments in your way?	Taking too much ram space
Member 4	What did you do yesterday?	Check for remaining tasks in the product
	What will you do today?	Start unit testing on remaining units in gatepass
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Carrying out UI testing for epic 4
	What will you do today?	Carrying out UI testing for epic 5
	Are there any impediments in your way?	No

4.5.23. STANDUP NOTES 23 on 04.06.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Help in test plan documentation
	What will you do today?	Help in test plan documentation
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Integration testing on epic 4
	What will you do today?	Integration testing on epic 5,6
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Build docker Image for the product
	What will you do today?	Build docker Image for the product
	Are there any impediments in your way?	Taking too much ram space
Member 4	What did you do yesterday?	Finished unit testing on remaining units in gatepass
	What will you do today?	Start unit testing on course epic
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Carrying out UI testing for epic 6
	What will you do today?	UI testing documentation
	Are there any impediments in your way?	No

4.5.24. STANDUP NOTES 24 on 05.06.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Help in test plan documentation
	What will you do today?	Update in Git repository
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Integration testing on epic 5,6
	What will you do today?	Integrate the testing with the Docker Image built
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Build docker Image for the product
	What will you do today?	Start documentation
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Finished unit testing on course epic
	What will you do today?	Fix up the wireframe UX designs
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	UI testing documentation
	What will you do today?	Hosting in AWS
	Are there any impediments in your way?	No

4.5.25. STANDUP NOTES 24 on 06.06.2021

Name	Question	Answer
Member 1	What did you do yesterday?	Update in Git repository
	What will you do today?	Help in documentation
	Are there any impediments in your way?	No
Member 2	What did you do yesterday?	Integrate the testing with the Docker Image built
	What will you do today?	Documentation for integration testing
	Are there any impediments in your way?	No
Member 3	What did you do yesterday?	Start documentation
	What will you do today?	SonarQube assessment
	Are there any impediments in your way?	No
Member 4	What did you do yesterday?	Fix up the wireframe UX designs
	What will you do today?	Documentation
	Are there any impediments in your way?	No
Member 5	What did you do yesterday?	Hosted successfully
	What will you do today?	Documentation
	Are there any impediments in your way?	No

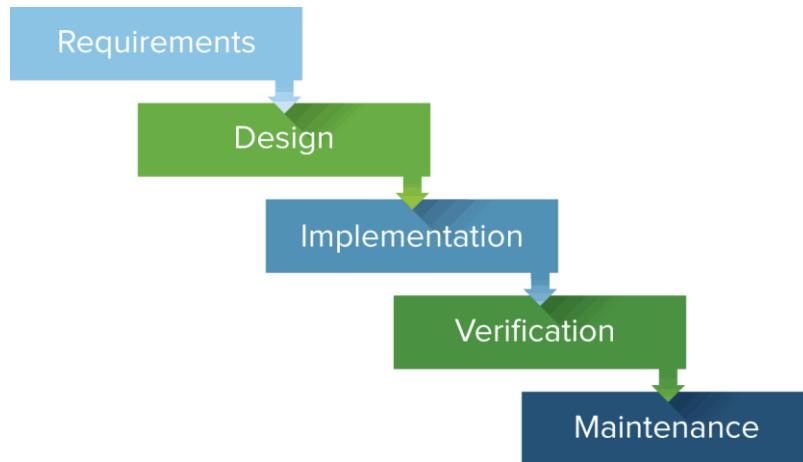
5. Implementation

5.1. Agile Methodology

The website was developed based on **Agile Methodology**. User Stories were written based on acceptance criteria. And subtasks involved to implement the user stories were categorized under developer's task and tester's task. The user stories were prioritized and were given story points.

Standup meetings were held regularly for five minutes to talk about what the next phase of implementation was. The epics were divided for sprint 1 and sprint 2. After sprint 1, retrospective notes were voted for to talk about how to continue the rest of the product.

Process Model: Waterfall model is chosen since requirements are clearly fixed and this is a small-scale project. In a waterfall model, each phase must be completed before the next phase can begin and there is no overlapping in the phases.

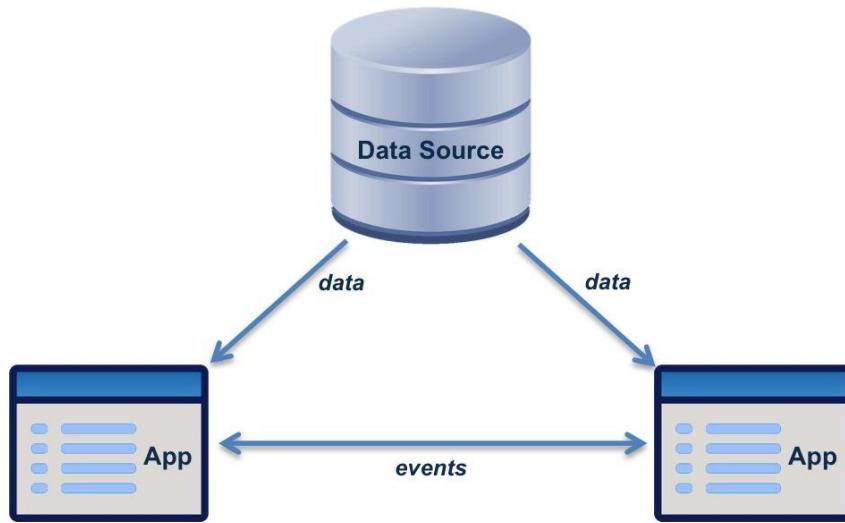


The sequential phases in Waterfall model are –

- **Requirement Gathering and analysis** – All possible requirements of the system to be developed are captured in this phase and documented in a requirement specification document.
- **System Design** – The requirement specifications from first phase are studied in this phase and the system design is prepared. This system design helps in specifying hardware and system requirements and helps in defining the overall system architecture.

Architecture style: Data-centred architecture

In data-centered architecture, the data is centralized and accessed frequently by other components, which modify data. The main purpose of this style is to achieve integrality of data. Data-centered architecture consists of different components that communicate through shared data repositories. The components access a shared data structure and are relatively independent, in that, they interact only through the data store.



- **Implementation** – With inputs from the system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality, which is referred to as Unit Testing.
- **Integration and Testing** – All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures.
- **Deployment of system** – Once the functional and non-functional testing is done; the product is deployed in the customer environment or released into the market. Here, the product is deployed using AWS.
- **Maintenance** – There are some issues which come up in the client environment. To fix those issues, patches are released. Also, to enhance the product some better versions are released. Maintenance is done to deliver these changes in the customer environment.

5.2. Implementation using tools

The modules were implemented using PHP. So, XAMPP was downloaded which already has Apache and MySQL modules integrated with the PHPadmin.

Steps involved in developing the website:

- Open XAMPP Control Panel and start the action for Apache and MySQL. The version of the control panel used is 3.2.4.
- The written code was saved in .php format.
- The database is scripted and stored in PHPadmin.
- XAMPP works in localhost. The written code is integrated with its respective script and styling components.
- All the codes are saved in the htdocs directory in XAMPP under project name.
- After the coding is finished, each unit in the module is tested using PHPUint testing.

Database store in PHPadmin:

Table	Action	Rows	Type	Collation	Size	Overhead
academic_year		2	InnoDB	utf8mb4_general_ci	16.0 KiB	-
assignments		0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
attendance		12	InnoDB	utf8mb4_general_ci	16.0 KiB	-
courses		2	InnoDB	utf8mb4_general_ci	16.0 KiB	-
cse311		40	InnoDB	utf8mb4_general_ci	16.0 KiB	-
cse385		6	InnoDB	utf8mb4_general_ci	16.0 KiB	-
faculty		11	InnoDB	utf8mb4_general_ci	16.0 KiB	-
files		0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
gatepass		4	InnoDB	utf8mb4_general_ci	16.0 KiB	-
login		11	InnoDB	utf8mb4_general_ci	16.0 KiB	-
publication		33	InnoDB	utf8mb4_general_ci	16.0 KiB	-
show_submission		0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
st_leave_percentage		2	InnoDB	utf8mb4_general_ci	16.0 KiB	-
timetable		10	InnoDB	utf8mb4_general_ci	16.0 KiB	-
14 tables	Sum	133	InnoDB	utf8mb4_general_ci	224.0 KiB	0 B

Sample table: Faculty

	Fac_ID	Name	email_id	qualification	position	interest	address	dept	mobile	image_path	wallet
<input type="checkbox"/>	FAC0035	Ram Kumar S	ramkumar@gmail.com	B.Tech, M.Tech	Assistant Professor	Digital Image Processing, Web Security	12, Dharen Apartments, Peelamedu, Coimbatore-99	Computer Science	9843249546	10.jpg	150
<input type="checkbox"/>	FAC0036	Sujatha R	sujatha_r@gmail.com	M.Sc (Chemistry)	Associate Professor	Physical Chemistry of Polymer solutions	86 Kamachi Amman layout, Gandhi Nagar, Madurai-23...	Chemistry	9655449546	https://randomuser.me/api/portraits/women/72.jpg	806
<input type="checkbox"/>	FAC0037	Supriya K	k_supriya88@gmail.com	B.E, M.E	Assistant Professor	Machine Learning, Neural Networks	86/56, Nehru Road, RK Nagar, Palakkad-23	Computer Science	9984324946	https://randomuser.me/api/portraits/women/27.jpg	1030
<input type="checkbox"/>	FAC0038	Senthil Kumar M	senthil_kumar_m@gmail.com	M.Tech, Ph.D	Assistant Professor	Cryptography, Web Security Development	86/56, Shrivalli Apartments RKN Nagar, Chennai-23	Web Security	9655549546	https://randomuser.me/api/portraits/men/24.jpg	434
<input type="checkbox"/>	FAC0039	Kavitha R V	r_v_kavitha@yahoo.in	M.Sc, Ph.D	Assistant Professor	Video Analytics, Big Data Analytics, Intrusion Det	86/56, Mayura Apartments VK Nagar, Kanyakumari-23...	Computer Science	9655649546	https://randomuser.me/api/portraits/women/71.jpg	2323
<input type="checkbox"/>	FAC0040	Magesh V	maghesh_vishnu@gmail.com	B.Tech, M.E, Ph.D	Research Supervisor	Distributed Computing, Medical Informatics, Mentor	86/56, Balan Road, R.K.Nagar, Hosur-33	Computer Science	7373049546	https://randomuser.me/api/portraits/men/49.jpg	4596
<input type="checkbox"/>	FAC0041	Shri Ram V	shri_v_ram1984@gmail.com	B.Tech, M.Tech	Assistant Professor	IoT, Artificial Intelligence	45, Bangalore Road, Vagur Nagar, Mettupalayam-33	Computer Science	9145674127	https://randomuser.me/api/portraits/men/50.jpg	345
<input type="checkbox"/>	FAC0042	Bharathi D	d_bharathi@gmail.com	B.Tech, M.Tech	Assistant Professor	Image Processing	45, Bannare Road, Vagur Nagar, Hosur-33	Computer Science	8689459655	https://randomuser.me/api/portraits/women/75.jpg	987
<input type="checkbox"/>	FAC0043	Raghesh K	krishnan_raghesh@gmail.com	M.Tech, Ph.D	Assistant Professor	Cementitious composites, High performance and Ligh...	45, Shri Vatsa Villa, Thudiyalur, Coimbatore-33	Civil Engineering	8207204356	https://randomuser.me/api/portraits/men/11.jpg	458
<input type="checkbox"/>	FAC0044	Archana R	rarchana@gmail.com	M.Phil, M.A	Associate Professor	English Language Teaching, Literature, Religion in...	45, Kishore Street, KK Pudur Post, Sababa Colony, ...	English and Humanities	8674955355	https://randomuser.me/api/portraits/women/79.jpg	789
<input type="checkbox"/>	HFAC001	Ramesh Nayar	rameshnair@gmail.com	M.Tech	Faculty Head	Software Development	105, Shrivatsa Apartment, Trichy-88	Computer Science	9876543210	https://randomuser.me/api/portraits/men/78.jpg	2345

6. Sample Code

6.1. Login

```
1 <?php
2 session_start();
3 ?>
4 <!DOCTYPE html>
5 <html>
6 <!--CSS -->
7 <link rel="stylesheet" href="login.css">
8 <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/5.13.0/css/all.min.css">
9
10 <body>
11 <h1 class="challenge-title">Faculty Dashboard</h1>
12 <div class="login-card">
13 <div class="login-glass">
14 
15
16 </div>
17 <div class="login-form-container">
18 <h3 class="login-title">
19   Sign in to your account
20 </h3>
21 <form action="validate.php" method="post" onsubmit="return login()">
22   <div class="form-control">
23     <label for="user"></label>
24     <input id="user" name="user" type="text" value=<?php if(isset($_COOKIE["c_username"])) { echo $_COOKIE["c_username"]; } ?>" autocomplete="on" class="input-field" placeholder="Username" required autofocus />
25   </div>
26   <div class="form-control">
27     <label for="password"></label>
28     <input id="pass" name="pass" type="password" value=<?php if(isset($_COOKIE["c_password"])) { echo $_COOKIE["c_password"]; } ?>" class="input-field" placeholder="Password" required />
29     <i class="far fa-eye" id="togglePassword" style="cursor:pointer; margin-left:-37px; margin-right:20px; color:#727070"></i>
30   </div>
31   <div class="form-control">
32     <div class="form-remember">
33       <input id="remember" name="remember" type='checkbox' /> <label for="remember">Remember me</label>
34     </div>
35   <div class="form-forgot">
36     <a href="forget.php">Forgot your password?</a>
37   </div>
38 </div>
39   <div class="form-control">
40     <button class="btn btn-full" id="btn" name='Login' type="submit">
41       Sign in
42     </button>
43   </div>
44 </form>
45 <!-- <?php
46 $fullUrl = "http://$_SERVER[HTTP_HOST]$_SERVER[REQUEST_URI]";
47
48 if(strpos($fullUrl,"") == true)
49 {
50   echo "<script> alert('Invalid Username or Password') </script>";
51   exit();
52 }
53 ?> -->
54 </div><script src="login.js"></script>
55 </body><html>
```

6.2. Database Connection establishment

```
1
2 <?php
3 $con = new mysqli("localhost","root","","faculty_dashboard");
4 // Check connection
5 if(mysqli_connect_errno($con)) echo "Failed to connect MySQL: " .mysqli_connect_error();
6 ?>
```

6.3. Schedule/Timetable

```
1  ?>php
2      session_start();
3      if(!isset($_SESSION['userid']))
4      {
5          header('location:login.php');
6      }
7      $SESSION['userid']=$SESSION['userid'];
8      $SESSION['passw']=$SESSION['passw'];
9      include('db.php');
10
11 ?&gt;
12 &lt;!DOCTYPE html&gt;
13 &lt;html&gt;
14 &lt;head&gt;
15     &lt;title&gt;Schedule&lt;/title&gt;
16
17     &lt;meta name="viewport" content="width=device-width, height=device-height, initial-scale=1.0, user-scalable=0, minimum-scale=1.0, maximum-scale=1.0"&gt;
18
19     &lt;link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/4.7.0/css/font-awesome.min.css"&gt;
20
21     &lt;link rel="stylesheet" type="text/css" href="https://cdnjs.cloudflare.com/ajax/libs/Chart.js/2.9.3/chart.min.css"&gt;
22     &lt;link href="https://fonts.googleapis.com/css2?family=Roboto&amp;display=swap" rel="stylesheet"&gt;
23
24     &lt;link rel="stylesheet" type="text/css" href="timetable.css"&gt;
25
26 &lt;/head&gt;
27
28
29 &lt;body class="overlay-scrollbar"&gt;
30
31     &lt;!-- navbar --&gt;
32     &lt;div class="navbar"&gt;
33         &lt;!-- nav left --&gt;
34         &lt;ul class="navbar-nav"&gt;
35             &lt;li class="nav-item"&gt;
36                 &lt;a class="nav-link"&gt;
37                     &lt;i class="fa fa-bars" onclick="collapseSidebar()"&gt;&lt;/i&gt;
38                 &lt;/a&gt;
39             &lt;/li&gt;
40             &lt;li class="nav-item faculty"&gt;
41                 &lt;b&gt;&lt;/b&gt;
42                 $username=$SESSION['userId'];
43
44                 $sql = "select * from faculty, login where (login.Fac_ID='$username' || login.mobile='$username') &amp;&amp; login.Fac_ID=faculty.Fac_ID ";
45                 $result=mysqli_query($con,$sql);
46                 $row=mysqli_fetch_assoc($result);
47
48                 echo $row['Name'];
49             &lt;/li&gt;
50         &lt;/ul&gt;
51         &lt;!-- end nav Left --&gt;
52         &lt;!-- form --&gt;
53         &lt;form class="navbar-search"&gt;
54             &lt;input type="text" name="Search" class="navbar-search-input" placeholder="Search.."&gt;
55             &lt;i class="fa fa-search"&gt;&lt;/i&gt;
56         &lt;/form&gt;
57         &lt;!-- end form --&gt;
58         &lt;!-- nav right --&gt;
59         &lt;ul class="navbar-nav nav-right"&gt;
60             &lt;li class="nav-item mode"&gt;
61                 &lt;a class="nav-link" href="#" onclick="switchTheme()"&gt;
62                     &lt;i class="fa fa-moon-o dark"&gt;&lt;/i&gt;
63                 &lt;/a&gt;
64             &lt;/li&gt;
65             &lt;li class="nav-item"&gt;
66                 &lt;a class="nav-link"&gt;
67                     &lt;i class="fa fa-bell" aria-hidden="true"&gt;&lt;/i&gt;
68                 &lt;/a&gt;
69             &lt;/li&gt;
70             &lt;li class="nav-item avt-wrapper"&gt;
71                 &lt;div class="avt dropdown"&gt;
72
73                     &lt;img src=&lt;?php echo $row['image_path'] ?&gt; alt="User image" class="dropdown-toggle" data-toggle="user-menu"&gt;
74                     &lt;ul id="user-menu" class="dropdown-menu"&gt;
75                         &lt;li class="dropdown-menu-item"&gt;
76                             &lt;a href="settings.php" class="dropdown-menu-link"&gt;
77                                 &lt;div&gt;
78                                     &lt;i class="fa fa-cog"&gt;&lt;/i&gt;
79                                 &lt;/div&gt;
80                                 &lt;span&gt;Settings&lt;/span&gt;
81                             &lt;/a&gt;
82                         &lt;/li&gt;
83                         &lt;li class="dropdown-menu-item"&gt;
84                             &lt;a href="logout.php" class="dropdown-menu-link"&gt;
85                                 &lt;div&gt;
86                                     &lt;i class="fa fa-sign-out"&gt;&lt;/i&gt;
87                                 &lt;/div&gt;
88                                 &lt;span&gt;Logout&lt;/span&gt;
89                             &lt;/a&gt;
90                         &lt;/li&gt;
91                     &lt;/ul&gt;
92                 &lt;/div&gt;
93             &lt;/li&gt;
94         &lt;/ul&gt;
95         &lt;!-- end nav right --&gt;
96     &lt;/div&gt;</pre
```

```

96    </div>
97    <!-- end navbar -->
98    <!-- sidebar -->
99    <div class="sidebar">
100      <ul class="sidebar-nav">
101        <li class="sidebar-nav-item">
102          <a href="timetable.php" class="sidebar-nav-link active">
103            <div>
104              <i class="fa fa-calendar"></i>
105            </div>
106            <span class='span'>
107              Schedule
108            </span>
109          </a>
110        </li>
111        <li class="sidebar-nav-item">
112          <a href="profile.php" class="sidebar-nav-link">
113            <div>
114              <i class="fa fa-user"></i>
115            </div>
116            <span class='span'>My profile</span>
117          </a>
118        </li>
119        <li class="sidebar-nav-item">
120          <a href="courses_main.php" class="sidebar-nav-link">
121            <div>
122              <i class="fa fa-cubes"></i>
123            </div>
124            <span class='span'>My Courses</span>
125          </a>
126        </li>
127        <li class="sidebar-nav-item">
128          <a href="index.php" class="sidebar-nav-link">
129            <div>
130              <i class="fa fa-th-list"></i>
131            </div>
132            <span class='span'>Attendance</span>
133          </a>
134        </li>
135        <li class="sidebar-nav-item">
136          <a href="gatepass_fac.php" class="sidebar-nav-link">
137            <div>
138              <i class="fa fa-home"></i>
139            </div>
140            <span class='span'>Gatepass</span>
141          </a>
142        </li>
143        <li class="sidebar-nav-item">
144          <a href="#" class="sidebar-nav-link">
145            <div>
146              <i class="fa fa-question-circle"></i>
147            </div>
148            <span class='span'>Help</span>
149          </a>
150        </li>
151      </ul>
152    </div>

```

```

158
159
160     <div class="wrapper">
161
162         <div class="row">
163
164             <div class="col-5 col-m-12 col-sm-12" >
165                 <div class="card">
166                     <div class="card-header">
167                         <h1>
168                             Academic Calendar
169                         </h1>
170                     </div>
171
172             <div style="margin-left:1vw;" width="700" height="500" frameborder="0" scrolling="no"><iframe src="https://calendar.google.com/calendar/embed?height=600&wkst=1&bgcolor=%23839000&ctz=Asia%2FKolkata&src=b3E0Y25qYXVvcldJnM2NlN3Q573QzX81MzhA73JvdXAuY2F5Zw5kYXluZ29vZ2x3lmlnbQ&src=70" style="margin-left:1vw;" width="700" height="500" frameborder="0" scrolling="no"></div>
173
174         </div>
175     </div>
176
177
178     <div class="col-7 col-m-12 col-sm-12" id='timetable'>
179         <div class="card">
180             <div class="card-header">
181                 <h1>
182                     Timetable
183                 </h1>
184             </div>
185             <i><a href="#" class="fancy-button bg-gradient1"><span>Edit Profile</span></a></i>-->
186         </div>
187
188     <?php
189         $sql="Select * from timetable,login where (login.Fac_ID='$username' || login.mobile='$username') && login.Fac_ID=timetable.Fac_ID ORDER BY day_no ASC ";
190         $res=mysqli_query($con,$sql);
191         $check=mysqli_num_rows($res);
192         //faculty.fac_ID,faculty.name,faculty.email_id,faculty.qualification,faculty.position,faculty.interest,faculty.address,faculty.dept,login.mobile
193         ?>
194
195         <div class="card-content">
196             <table>
197                 <?php
198                     date_default_timezone_set('Asia/Kolkata');
199                     $time=(int)date("H");
200                     $date = date("Y-m-d");
201                     $day = date("l", strtotime($date));
202
203                     if($time>17){
204                         $sql="update timetable set meet_name='',starttime='',endtime='',reason='',meet_link='' where day='".$day."'";
205                         if(mysqli_query($con, $sql)){
206                             echo '';
207                         }
208                     }
209                 ?>
210             <thead>
211                 <tr>
212                     <th width=1% style='font-weight:bold;'>Day</th>
213                     <th width=3%>9 - 10 AM</th>
214                     <th width=3%>10 - 11 AM</th>
215                     <th width=3%>11 AM - 12 PM</th>
216                     <th width=3%>12 - 1 PM</th>
217                     <th width=3%>1 - 2 PM</th>
218                     <th width=3%>2 - 3 PM</th>
219                     <th width=5%>Meeting</th>
220                 </tr>
221             </thead>
222             <tbody class='timetable'>
223                 <?php while($row=mysqli_fetch_assoc($res)):>
224
225                     <br>
226                     <td style="font-weight:bold;background-color:#689A85;color:#fff"><?php echo $row['day']; ?></td>
227
228                     <td><a href="<?php echo $row['p1_meet_link'];?>"><?php echo $row['p1room']; ?><br><?php echo $row['p1_cid']; ?><br><?php echo $row['p1_cname']; ?></a></td>
229                     <td><a href="<?php echo $row['p2_meet_link'];?>"><?php echo $row['p2room']; ?><br><?php echo $row['p2_cid']; ?><br><?php echo $row['p2_cname']; ?></a></td>
230                     <td><a href="<?php echo $row['p3_meet_link'];?>"><?php echo $row['p3room']; ?><br><?php echo $row['p3_cid']; ?><br><?php echo $row['p3_cname']; ?></a></td>
231                     <td style="font-weight:bold;">lunch</td>
232                     <td><a href="<?php echo $row['p4_meet_link'];?>"><?php echo $row['p4room']; ?><br><?php echo $row['p4_cid']; ?><br><?php echo $row['p4_cname']; ?></a></td>
233                     <td><a href="<?php echo $row['p5_meet_link'];?>"><?php echo $row['p5room']; ?><br><?php echo $row['p5_cid']; ?><br><?php echo $row['p5_cname']; ?></a></td>
234                     <td style="background-color:rgb(255,255,255,0.6);><a href="<?php echo $row['meet_link'];?>"><?php echo $row['meet_name']; ?><br><?php echo $row['starttime']; ?><?php echo $row['endtime']; ?><br><?ph
235                     <br>
236
237                     <?php endwhile;?>
238                 </tbody>
239             </table>
240
241
242         </div>
243
244     </div>
245
246     </div>
247
248
249     </div>
250
251     </div>
252
253
254     <script src='profile.js'></script>
255
256
257     </body>
258     </html>

```

6.4. Validate login

```
1  ?php
2
3
4  require_once 'dbConnect.php';
5  session_start();
6  class dbFunction {
7
8      function __construct() {
9
10         // connecting to database
11         $db = new dbConnect();
12
13     }
14     // destructor
15     function __destruct() {
16
17     }
18     public function Login($username, $password){
19
20         $username=stripclashes($username);
21         $password=stripclashes($password);
22         $username=mysqli_real_escape_string($con,$username);
23         $password=mysqli_real_escape_string($con,$password);
24
25         $hashed_pass=SHA1($password);
26
27         $s = "select * from login where Fac_ID='".$username' || mobile='".$username' && passwd='".$hashed_pass' ";
28
29         $result= mysqli_query($con, $s);
30         $row=mysqli_fetch_assoc($result);
31
32         if($row['Fac_ID']==$username || $row['mobile']==$username && $row['passwd']==$hashed_pass){
33         //query="select Name from faculty where Fac_ID='".$username';
34
35         return TRUE;
36     }
37     else
38     {
39         return FALSE;
40     }
41
42     }
43
44     public function set_cookies($username, $password){
45
46         $_SESSION['userid']=$username;
47         $_SESSION['passw']=$hashed_pass;
48         if(!empty($_POST["remember"])){
49             setcookie ("c_username",$username,time()+ 3600);
50             setcookie ("c_password",$password,time()+ 3600);
51         }
52         else {
53             if(isset($_COOKIE["c_username"]))
54             {
55                 setcookie ("c_username","");
56             }
57             if(isset($_COOKIE["c_password"]))
58             {
59                 setcookie ("c_password","");
60             }
61         }
62     }
63
64     public function isUserExist($user){
65         $qr = mysqli_query("SELECT * FROM login WHERE Fac_ID = '".$username."'");
66         echo $row = mysqli_num_rows($qr);
67         if($row > 0){
68             return true;
69         } else {
70             return false;
71         }
72     }
73 }
74
75
76 ?>
```

6.5. Gatepass

```
1  |<?php
2  |    session_start();
3  |    if(!isset($_SESSION['userid']))
4  |    {
5  |        header('location:login.php');
6  |    }
7  |    $SESSION['userid']=$SESSION['userid'];
8  |    $SESSION['passw']=$SESSION['passw'];
9  |    include('db.php');
10 |
11 ?>
12
13 <!DOCTYPE html>
14 <html>
15 <head>
16 <title>Gatepass</title>
17
18 <meta name="viewport" content="width=device-width, height=device-height, initial-scale=1.0, user-scalable=0, minimum-scale=1.0, maximum-scale=1.0">
19
20 <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/4.7.0/css/font-awesome.min.css">
21 <link rel="stylesheet" type="text/css" href="https://cdnjs.cloudflare.com/ajax/libs/Chart.js/2.9.3/Chart.min.css">
22 <link href="https://fonts.googleapis.com/css?family=Roboto&display=sans" rel="stylesheet">
23 <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/font-awesome/4.5.0/css/font-awesome.min.css">
24 <link rel="stylesheet" type="text/css" href="head_faculty.css">
25 <style type="text/css">
26     .butn {
27         background-color: DodgerBlue; /* Blue background */
28         border: none; /* Remove borders */
29         color: white; /* White text */
30         padding: 12px 16px; /* Some padding */
31         font-size: 16px; /* Set a font size */
32         cursor: pointer; /* Mouse pointer on hover */
33     }
34 </style>
35 </head>
36 <body class="overlay-scrollbar">
37     <!-- navabar -->
38     <div class="navbar">
39         <!-- nav left -->
40         <ul class="navbar-nav">
41             <li class="nav-item">
42                 <a class="nav-link">
43                     <i class="fa fa-bars" onclick="collapseSidebar()"></i>
44                 </a>
45             </li>
46             <li class="nav-item faculty">
47                 <b><?php
48                     $username=$_SESSION['userid'];
49
50                     $sql = "select * from faculty, login where (login.Fac_ID='$username' || login.mobile='$username') && login.Fac_ID=faculty.Fac_ID ";
51                     $result=mysqli_query($con,$sql);
52                     $row=mysqli_fetch_assoc($result);
53
54                     echo $row['Name'];
55                 ?></b>
56             </li>
57         </ul>
58         <!-- end nav left -->
59         <!-- form -->
60         <form class="navbar-search">
61             <input type="text" name="Search" class="navbar-search-input" placeholder="Search..">
62             <i class="fa fa-search"></i>
63         </form>
64         <!-- end form -->
65         <!-- nav right -->
66         <ul class="navbar-nav nav-right">
67             <li class="nav-item mode">
68                 <a class="nav-link" href="#" onclick="switchTheme()">
69                     <i class="fa fa-moon-o dark"></i>
70                 </a>
71             </li>
72             <li class="nav-item">
73                 <a class="nav-link">
74                     <i class="fa fa-bell" aria-hidden="true"></i>
75                 </a>
76             </li>
77             <li class="nav-item avt-wrapper">
78                 <div class="avt dropdown">
79                     <img src=<?php echo $row['image_path'] ?> alt="User image" class="dropdown-toggle" data-toggle="user-menu">
80                     <ul id="user-menu" class="dropdown-menu">
81                         <li class="dropdown-menu-item">
82                             <a href="settings.php" class="dropdown-menu-link">
83                                 <div>
84                                     <i class="fa fa-cog"></i>
85                                 </div>
86                                 <span>Settings</span>
87                             </a>
88                         </li>
89                         <li class="dropdown-menu-item">
90                             <a href="logout.php" class="dropdown-menu-link">
91                                 <div>
92                                     <i class="fa fa-sign-out"></i>
93                                 </div>
94                                 <span>Logout</span>
95                             </a>
96                         </li>
97                     </ul>
98                 </div>
99             </div>
100         </ul>
101     <!-- end nav right -->
102 
```

```

104    <!-- end navbar -->
105    <!-- sidebar -->
106    <div class="sidebar">
107        <ul class="sidebar-nav">
108            <li class="sidebar-nav-item">
109                <a href="timetable.php" class="sidebar-nav-link">
110                    <div>
111                        <i class="fa fa-calendar"></i>
112                    </div>
113                    <span class='span'>
114                        Schedule
115                    </span>
116                </a>
117            </li>
118            <li class="sidebar-nav-item">
119                <a href="profile.php" class="sidebar-nav-link">
120                    <div>
121                        <i class="fa fa-user"></i>
122                    </div>
123                    <span class='span'>My profile</span>
124                </a>
125            </li>
126            <li class="sidebar-nav-item">
127                <a href="courses_main.php" class="sidebar-nav-link">
128                    <div>
129                        <i class="fa fa-cubes"></i>
130                    </div>
131                    <span class='span'>My Courses</span>
132                </a>
133            </li>
134            <li class="sidebar-nav-item">
135                <a href="index.php" class="sidebar-nav-link">
136                    <div>
137                        <i class="fa fa-th-list"></i>
138                    </div>
139                    <span class='span'>Attendance</span>
140                </a>
141            </li>
142            <li class="sidebar-nav-item">
143                <a href="gatepass_fac.php" class="sidebar-nav-link active">
144                    <div>
145                        <i class="fa fa-home"></i>
146                    </div>
147                    <span class='span'>Gatepass</span>
148                </a>
149            </li>
150            <li class="sidebar-nav-item">
151                <a href="#" class="sidebar-nav-link">
152                    <div>
153                        <i class="fa fa-question-circle"></i>
154                    </div>
155                    <span class='span'>Help</span>
156                </a>
157            </li>
158        </ul>
159    </div>
160    <!-- main content -->
161
162    <div class="wrapper">
163        <div class="row">
164            <div class="col-12 col-m-12 col-sm-12">
165                <div class="card">
166                    <div class="card-header">
167                        <h3>
168                            Student Leave Application
169                        </h3>
170                    </div>
171                <?php
172                    $query = "SELECT * FROM gatepass where Fac_ID='$username' and status<>'emergency'";
173                    $query_run = mysqli_query($con,$query);
174                ?>
175                <section class="component-section" id="employee">
176                    <table class="pmd-table table-hover pmd-table-card">
177                        <thead class="thead-light">
178                            <tr>
179                                <th>Student ID</th>
180                                <th>Leave Type</th>
181                                <th>Start Date</th>
182                                <th>End Date</th>
183                                <th>Reason</th>
184                                <th>Status</th>
185                                <th></th>
186                                <th></th>
187                            </tr>
188                        </thead>
189                    <?php

```

6.6. Update Marks

```
1 <?php
2 session_start();
3 if(!isset($_SESSION['userid']))
4 {
5     header('location:login.php');
6 }
7 $username=$_SESSION['userid'];
8 $Course_ID = $_GET['Course_ID'];
9 include('db.php');
10
11 ?>
12 <!DOCTYPE html>
13 <html>
14 <head>
15 <title>Update Marks</title>
16 <meta name="viewport" content="width=device-width, height=device-height, initial-scale=1.0, user-scalable=0, minimum-scale=1.0, maximum-scale=1.0">
17
18 <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/4.7.0/css/font-awesome.min.css">
19 <link rel="stylesheet" type="text/css" href="https://cdnjs.cloudflare.com/ajax/libs/Chart.js/2.9.3/chart.min.css">
20 <link href="https://fonts.googleapis.com/css?family=Roboto&display=swap" rel="stylesheet">
21
22 <link rel="stylesheet" type="text/css" href="leave.css">
23
24 <link rel="stylesheet" href="https://ajax.googleapis.com/ajax/libs/jqueryui/1.11.4/themes/smoothness/jquery-ui.css">
25
26 </head>
27 <body>
28 <!-- navabar -->
29 <div class="page-content">
30     <!-- Apply Leave Form -->
31     <div class=" container card pmd-card single-col-form" style="margin-left:250px;">
32         <form id="apply-leave" method="post" action="update_marks2.php?Course_ID=<?php echo $Course_ID ?>">
33             <div class="card-body">
34                 <div class="row">
35                     <div class="col-6">
36                         <div class="form-group">
37                             <label for="leave-type" for="type">Student ID</label>
38                             <select name="studentid" id="studentid" class="form-control" title="Select Student ID" style="width:90%;max-height:70px;" onfocus='this.size=10;' onblur='this.size=1;' onchange='this.size=1; this.blur();' required>
39                                 <option></option>
40                                 <option>Select * from $Course_ID</option>
41                                 $res=mysqli_query($con,$s);
42                                 $check=mysqli_num_rows($res);
43
44                                 while($row=mysqli_fetch_assoc($res))::>
45                                     <option><?php echo $row['Stud_ID']?></option>
46                                     <?php endwhile;?>
47                             </select>
48                         </div>
49                     </div>
50
51                     <div class="col-6">
52                         <div class="form-group">
53                             <label for="leave-type" for="type">Assessment Type</label>
54                             <select name="type" id="type" class="form-control" title="Assessment Type" style="width:90%;max-height:70px;" onfocus='this.size=10;' onblur='this.size=1;' onchange='this.size=1; this.blur();' required>
55                                 <option></option>
56                                 <option>Assignment#1</option>
57                                 <option>Assignment#2</option>
58                                 <option>Assignment#3</option>
59                                 <option>Quiz#1</option>
60                                 <option>Quiz#2</option>
61                                 <option>Quiz#3</option>
62                                 <option>Periodicals#1</option>
63                                 <option>Periodicals#2</option>
64
65                         </select>
66                         </div>
67                     </div>
68
69                     <div class="col-md-6">
70                         <div class="form-group ">
71                             <label class="control-label" for="start_date">Mark</label>
72                             <input type="number" min="0" max="50" class="form-control" id="mark" name="mark" autocomplete="Off" >
73                         </div>
74                     </div>
75
76                 </div>
77             </div>
78         </div>
79
80         <div class="card-footer">
81             <button type="submit" class="btn btn-primary pmd-ripple-effect pmd-btn-raised" name="applyleave" value="Apply Leave">Update</button>
82             <input type="button" value='CANCEL' onclick="window.location.href='course_marklist.php?Course_ID=<?php echo $Course_ID ?>'" class="btn btn-outline-secondary">
83         </div>
84     </form>
85
86     </div>
87 </div>
88
89 <script src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.1/jquery.min.js"></script>
90 <script src="https://ajax.googleapis.com/ajax/libs/jqueryui/1.11.4/jquery-ui.min.js"></script>
91
92
93
94
95 <script></script>
96
97
98 </body>
99
100 </html>
```

6.7. Attendance calculation

```
1  ?php
2      $start = new DateTime('2020-06-04');
3      $end = new DateTime('now');
4          // otherwise the end date is excluded
5      $end->modify('+1 day');
6      $interval = $end->diff($start);
7          // total days
8      $days = $interval->days;
9          // create an iterable period of date (P1D equates to 1 day)
10     $period = new DatePeriod($start, new DateInterval('P1D'), $end);
11         // best stored as array, so you can add more than one
12     $holidays = array('2012-09-07');
13     foreach($period as $dt) {
14         $curr = $dt->format('D');
15         // subtract if Saturday or Sunday
16         if ($curr == 'Sat' || $curr == 'Sun') {
17             $days--;
18         }
19         // (optional) for the updated question
20         elseif (in_array($dt->format('Y-m-d'), $holidays)) {
21             $days--;
22         }
23     }
24     if($query_run1){
25         $presentdays = $days;
26         $ODleave = $ODleaveref = 20;
27         $sickleave = $sickleaveref = 15;
28         $casualleave = $casualleaveref = 20;
29         $paidleave = $paidleaveref = 10;
30         foreach($query_run1 as $row2){
31             $presentdays = $presentdays - $row2['dy'];
32             if($row2['type'] == 'On Duty'){
33                 $ODleave = $ODleave - $row2['dy'];
34             }
35             if($row2['type'] == 'Sick Leave'){
36                 $sickleave = $sickleave - $row2['dy'];
37             }
38             if($row2['type'] == 'Casual Leave'){
39                 $casualleave = $casualleave - $row2['dy'];
40             }
41             if($row2['type'] == 'Paid Leave'){
42                 $paidleave = $paidleave - $row2['dy'];
43             }
44         }
45     }
46     $ODp =((($ODleaveref-$ODleave)/$ODleaveref)*100;
47     $sickp = ((($sickleaveref-$sickleave)/$sickleaveref)*100;
48     $casualp= ((($casualleaveref-$casualleave)/$casualleaveref)*100;
49     $paidp = ((($paidleaveref-$paidleave)/$paidleaveref)*100;
50 ?>
```

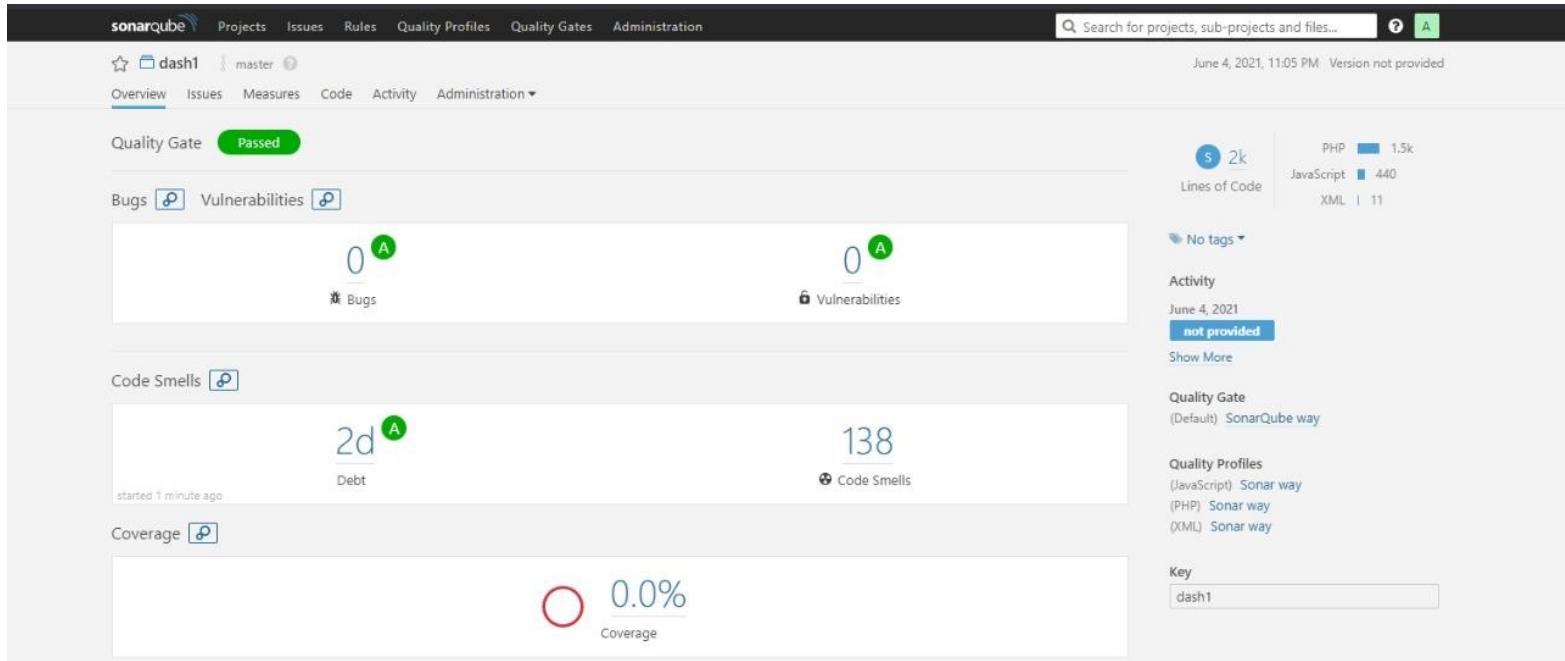
7. Tools Used

7.1. Static Code Analysis

7.1.1. SonarQube

SonarQube® is an automatic code review tool to detect bugs, vulnerabilities, and code smells in your code. It can integrate with your existing workflow to enable continuous code inspection across your project branches and pull requests

7.1.1.1. Screenshot/Report



7.1.1.2. Action Taken

Installation of SonarQube:

- ✓ go to sonar community edition page and download.
- ✓ unzip the downloaded file
- ✓ go to <install_directory>/bin folder. you would find different folders related with os platforms. as i have 64-bit win system, further went inside "windows-x86-64" folder.
- ✓ you will find different shell scripts files. for my win platform, you will find different *.bat file such as installntservice.bat, startntservice.bat, startsonar.bat etc.
- ✓ copy the path of this folder which may look like <install_directory>/bin/windows-x86-64 and append it to "path" environment variable.
- ✓ open a command prompt, type "startsonar" command and execute. this would start a web server at default port of 9000.

Commands used are:

- ✓ sonar-scanner.bat
- ✓ -Dsonar.projectKey=fac_dash -Dsonar.sources=.
- ✓ -Dsonar.host.url=http://localhost:9000
- ✓ -Dsonar.login=c37564237714ee1b0c7b2f0d06928c03b3560bf5

The first report generated resulted in

- a. Bugs – 43
- b. Vulnerabilities – 0
- c. Debt – 5d
- d. Code Smells – 230 which were due to whitespaces, comments etc.,
The bugs were resolved automatically using -X command.

7.1.1.3. Additional Details

- **Version used – 6.7**
- **Bug** – A coding error that will break your code and needs to be fixed immediately.
- **Vulnerability** – A point in your code that's open to attack.
- **Code Smell** – A maintainability issue that makes your code confusing and difficult to maintain.

7.1.2. Psalm

A static analysis made for PHP. Psalm is a static analysis tool that attempts to dig into your program and find as many type-related bugs as possible.

7.1.2.1.Screenshot/Report

```
C:\xampp\htdocs\dash\dash>.\vendor\bin\psalm
Scanning files...
Analyzing files...

-----
No errors found!
-----

Checks took 1.70 seconds and used 72.145MB of memory
Psalm was able to infer types for 73.1123% of the codebase
```

7.1.2.2.Action Taken

The latest version of Psalm requires PHP >= 7.1 and Composer.
[composer require --dev vimeo/psalm](#)
Generate a config file:
[./vendor/bin/psalm --init](#)

Psalm is good at finding potential issues in large codebases, but once found, it can be something of a gargantuan task to fix all the issues. It comes with a tool, called Psalter, that helps you fix code. To run the analysis using binary, run the code `./vendor/bin/psalm -alter[args]`.

At first, there were 76 errors pertaining to missing return type and defined global values.

```
-----  
76 errors found  
-----  
271 other issues found.  
You can display them with --show-info=true  
-----  
Psalm can automatically fix 3 of these issues.  
Run Psalm again with  
--alter --issues=MissingReturnType --dry-run  
to see what it can fix.  
-----  
Checks took 2.02 seconds and used 72.749MB of memory  
Psalm was able to infer types for 69.6765% of the codebase
```

Running the command, `./vendor/bin/psalm -dry-run` will resolve those errors automatically.

The final report is

```
C:\xampp\htdocs\dash\dash>.\vendor\bin\psalm  
Scanning files...  
Analyzing files...  
  
-----  
No errors found!  
-----  
  
Checks took 1.70 seconds and used 72.145MB of memory  
Psalm was able to infer types for 73.1123% of the codebase
```

7.1.2.3.Additional Details

It has a few features that go further than other similar tools:

- **Mixed type warnings**

If Psalm cannot infer a type for an expression, then it uses a mixed placeholder type. mixed types can sometimes mask bugs, so keeping track of them helps you avoid a number of common pitfalls.

- **Intelligent logic checks**

Psalm keeps track of logical assertions made about your code, so if `($a && $a) {}` and if `($a && ! $a) {}` are both treated as issues. Psalm also keeps track of logical assertions made in prior code paths, preventing issues like if `($a) {} elseif ($a) {}`.

- **Property initialisation checks**

Psalm checks that all properties of a given object have values after the constructor is called.

- **Taint analysis**
Psalm can detect security vulnerabilities in your code.
- **Language Server**
Psalm has a Language Server that's compatible with a range of different IDEs.
- **Automatic fixes**
Psalm can fix many of the issues it finds automatically.
- **Automatic refactoring**
Psalm can also perform simple refactors from the command line.

7.2. Unit Testing

7.2.1. Tools used and setup details

Tool used is PHPUnit.

Unit Tests are primarily written as a good practice to help developers identify and fix bugs, to refactor code and to serve as documentation for a unit of software under test. To achieve these benefits, unit tests ideally should cover all the possible paths in a program. One unit test usually covers one specific path in one function or method. However, a test method is not necessarily an encapsulated, independent entity. Often there are implicit dependencies between test methods, hidden in the implementation scenario of a test.

Setup Steps:

- Download Composer to use PHP dependencies.
- Add a (development-time) dependency on phpunit/phpunit to the project's composer.json file if you use Composer to manage the dependencies using the command
`composer require --dev phpunit/phpunit ^7`

7.2.2. Test case statistics

```
C:\xampp\htdocs\swe>.\vendor\bin\phpunit
PHPUnit 8.0.0 by Sebastian Bergmann and contributors.

Runtime:      PHP 7.2.34
Configuration: C:\xampp\htdocs\swe\phpunit.xml

.....                                         40 / 40 (100%)

Time: 94 ms, Memory: 4.00 MB

OK (40 tests, 40 assertions)
```

Tests	No. of Testcases	Status
Login	2	Pass
Cookies	1	Pass
Forgot Password	2	Pass
Attendance Management by Head Faculty	3	Pass
Calendar	4	Pass
Profile-Settings	8	Pass
Gatepass	4	Pass
Courses – Mark List	10	Pass
Update Marks	6	Pass
Total Testcases: 40		

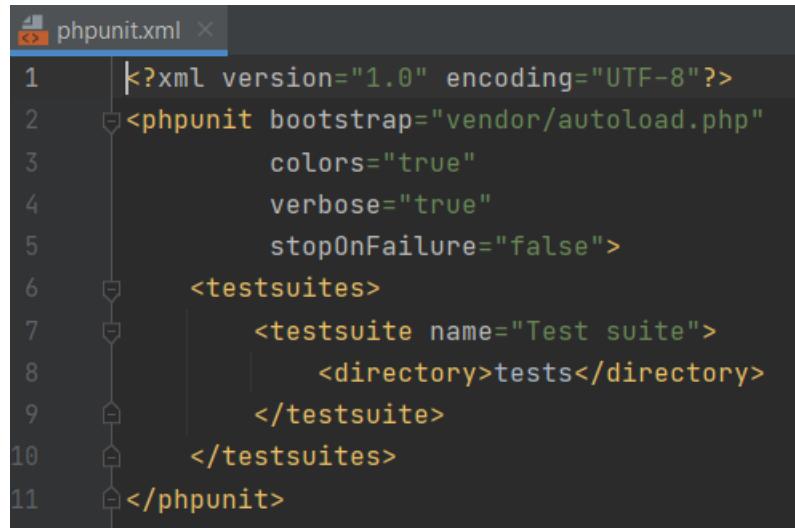
Boundary analysis and negative and positive assertions are implemented.

The units are tested using the following commands:

- assertsTrue
- assertsFalse
- assertsEquals

All the tests will be present in the test directory. The XML file is written to automatically run the testcases using the command

[.\vendor\bin\phpunit](#)



```

1  <?xml version="1.0" encoding="UTF-8"?>
2  <phpunit bootstrap="vendor/autoload.php"
3      colors="true"
4      verbose="true"
5      stopOnFailure="false">
6      <testsuites>
7          <testsuite name="Test suite">
8              <directory>tests</directory>
9          </testsuite>
10     </testsuites>
11 </phpunit>

```

7.2.3. Testcase code

7.2.3.1.Login and Cookies

```
1 <?php
2
3
4 class LoginTest extends \PHPUnit\Framework\TestCase
5 {
6     public function testUserName()
7     {
8         $user=new \dash\models\Login;
9         $user->setUser('FAC0035');
10        $this->assertEquals($user->getUser(),'FAC0035');
11    }
12
13    public function testPassword()
14    {
15        $user=new \dash\models\Login;
16        $pass=SHA1('Saladfox@456');
17        $user->setPassword('Saladfox@456');
18        $this->assertEquals($user->getPassword(),$pass);
19    }
20
21    public function testCookies()
22    {
23        $user=new \dash\models\Login;
24        $pass=SHA1('Saladfox@456');
25        $user->setCookies('FAC0040','Letterman@345');
26        $this->assertTrue($user->getCookies());
27    }
28 }
29 }
30
31 ?>
```

7.2.3.2.Forgot Password

```
1 <?php
2
3
4 class ForgetTest extends \PHPUnit\Framework\TestCase
5 {
6     public function testForgetsq1()
7     {
8         $user=new \dash\models\Forget;
9         $sq1='Geetha';
10        $user->setSql($sq1);
11        $this->assertEquals($user->getSql(),$sq1);
12    }
13
14    public function testForgetsq2()
15    {
16        $user=new \dash\models\Forget;
17        $sq2='Trichy';
18        $user->setSql($sq2);
19        $this->assertEquals($user->getSql(),$sq2);
20    }
21 }
```

7.2.3.3.Attendance (left) and gatepass (right)

```
1  ?php
2  class AttendanceTest extends \PHPUnit\Framework\TestCase
3  {
4
5      public function testSickLeave()
6      {
7          $user=new \dash\models\Attendance;
8          $sick=3;
9          $res='Green';
10         $user->setSick('FAC0035',$sick);
11         $this->assertEquals($user->getSick(),$res);
12     }
13
14     public function testODLeave()
15     {
16         $user=new \dash\models\Attendance;
17         $od=1;
18         $res='Green';
19         $user->setOD('FAC0035',$od);
20         $this->assertEquals($user->getOD(),$res);
21     }
22
23     public function testCasualLeave()
24     {
25         $user=new \dash\models\Attendance;
26         $casual=5;
27         $res='Green';
28         $user->setCasual('FAC0035',$casual);
29         $this->assertEquals($user->getCasual(),$res);
30     }
31
32     public function testPaidLeave()
33     {
34         $user=new \dash\models\Attendance;
35         $paid=7;
36         $res='Green';
37         $user->setPaid('FAC0035',$paid);
38         $this->assertEquals($user->getPaid(),$res);
39     }
40 }
41
42 ?>
```

```
1  ?php
2
3
4  class GatepassTest extends \PHPUnit\Framework\TestCase
5  {
6      public function testStatusForward()
7      {
8          $user=new \dash\models\Gatepass;
9          $start='2021-04-30';
10         $end='2021-05-02';
11         $user->setStatusForward('FAC0035',$start,$end);
12         $this->assertEquals($user->getStatus(),'Forward');
13     }
14
15     public function testStatusAccept()
16     {
17         $user=new \dash\models\Gatepass;
18         $start='2021-05-31';
19         $end='2021-06-04';
20         $user->setStatusAccept('FAC0035',$start,$end);
21         $this->assertEquals($user->getStatus(),'Accept');
22     }
23
24     public function testStatusReject()
25     {
26         $user=new \dash\models\Gatepass;
27         $start='2021-03-03';
28         $end='2021-03-09';
29         $user->setStatusReject('FAC0035',$start,$end);
30         $this->assertEquals($user->getStatus(),'Reject');
31     }
32     public function testStatusPending()
33     {
34         $user=new \dash\models\Gatepass;
35         $start='2021-04-11';
36         $end='2021-04-17';
37         $user->setStatusPending('FAC0035',$start,$end);
38         $this->assertEquals($user->getStatus(),'Pending');
39     }
40 }
41
42 ?>
```

7.2.3.4.Attendance – Head Faculty (left) and Profile (Right)

```
?php

class HeadFacultyTest extends \PHPUnit\Framework\TestCase
{
    public function testDatediff()
    {
        $user=new \dash\models\HeadFaculty;
        $today=date_create(date("Y-m-d"));
        $start=date_create("2020-06-04");

        $user->setDate($today,$start);
        $this->assertTrue($user->getDiff());
    }

    public function testAccept()
    {
        $user=new \dash\models\HeadFaculty;
        $end=date_create("2020-08-1");
        $start=date_create("2020-08-11");
        $res='Accept';
        $user->setDate($end,$start);
        $this->assertEquals($user->getApproval(),$res);
    }

    public function testReject()
    {
        $user=new \dash\models\HeadFaculty;
        $end=date_create("2020-10-10");
        $start=date_create("2020-12-12");
        $res='Reject';
        $user->setDate($end,$start);
        $this->assertEquals($user->getApproval(),$res);
    }
}
```

```
?php

class ProfileTest extends \PHPUnit\Framework\TestCase
{
    public function testQualificaton()
    {
        $user=new \dash\models\Profile;
        $qual='M. Tech';
        $user->setQual('FAC0035',$qual);
        $this->assertTrue($user->getQual());
    }

    public function testEmailid()
    {
        $user=new \dash\models\Profile;
        $email='ramkumar@gmail.com';
        $user->setEmail('FAC0035',$email);
        $this->assertTrue($user->getEmail());
    }

    public function testPhone()
    {
        $user=new \dash\models\Profile;
        $phone='9843249546';
        $user->setPhone('FAC0035',$phone);
        $this->assertTrue($user->getPhone());
    }

    public function testPosition()
    {
        $user=new \dash\models\Profile;
        $pos='Assistant Professor';
        $user->setPosition('FAC0035',$pos);
        $this->assertTrue($user->getPosition());
    }

    public function testDept()
    {
        $user=new \dash\models\Profile;
        $dept='Computer Science';
        $user->setDept('FAC0035',$dept);
        $this->assertTrue($user->getDept());
    }

    public function testWallet()
    {
        $user=new \dash\models\Profile;
        $wal='150';
        $user->setWallet('FAC0035',$wal);
        $this->assertTrue($user->getWallet());
    }

    public function testNotify()
    {
        $user=new \dash\models\Profile;
        $wal='150';
        $user->setWallet('FAC0035',$wal);
        $this->assertEquals($user->getnotify(),'reimburse');
    }
}

?>
```

7.2.3.5. Mark list (left) and update marks (right)

<pre> 1 //php 2 3 4 class UpdateMarksTest extends \PHPUnit\Framework\TestCase 5 { 6 public function test1() 7 { 8 \$user=new \dash\models\UpdateMarks; 9 \$assignment1=6; 10 \$assignment2=3; 11 \$assignment3=5; 12 \$quiz1=4; 13 \$quiz2=3; 14 \$quiz3=6; 15 \$p1=24; 16 \$p2=35; 17 \$user->setMarks(\$assignment1,\$assignment2,\$assignment3,\$quiz1,\$quiz2,\$quiz3,\$p1,\$p2); 18 \$this->assertEquals(\$user->getSuccess(),'Success'); 19 } 20 21 public function test2() 22 { 23 \$user=new \dash\models\UpdateMarks; 24 \$assignment1=6; 25 \$assignment2=3; 26 \$assignment3=11; 27 \$quiz1=25; 28 \$quiz2=3; 29 \$quiz3=6; 30 \$p1=24; 31 \$p2=55; 32 \$user->setMarks(\$assignment1,\$assignment2,\$assignment3,\$quiz1,\$quiz2,\$quiz3,\$p1,\$p2); 33 \$this->assertEquals(\$user->getSuccess(),'Insert Error'); 34 } 35 36 public function test3() 37 { 38 \$user=new \dash\models\UpdateMarks; 39 \$assignment1=6; 40 \$assignment2=3; 41 \$assignment3=5; 42 \$quiz1=4; 43 \$quiz2=3; 44 \$quiz3=6; 45 \$p1=24; 46 \$p2=35; 47 \$user->setMarks(\$assignment1,\$assignment2,\$assignment3,\$quiz1,\$quiz2,\$quiz3,\$p1,\$p2); 48 \$this->assertEquals(\$user->getSuccess(),'Success'); 49 } 50 51 public function test4() 52 { 53 \$user=new \dash\models\UpdateMarks; 54 \$assignment1=6; 55 \$assignment2=3; 56 \$assignment3=3; 57 \$quiz1=4; 58 \$quiz2=99; 59 \$quiz3=6; 60 \$p1=24; 61 \$p2=55; 62 \$user->setMarks(\$assignment1,\$assignment2,\$assignment3,\$quiz1,\$quiz2,\$quiz3,\$p1,\$p2); 63 \$this->assertEquals(\$user->getSuccess(),'Insert Error'); 64 } 65 66 public function test5() 67 { 68 \$user=new \dash\models\UpdateMarks; 69 \$assignment1=6; 70 \$assignment2=3; 71 \$assignment3=5; 72 \$quiz1=4; 73 \$quiz2=3; 74 \$quiz3=6; 75 \$p1=24; 76 \$p2=55; 77 \$user->setMarks(\$assignment1,\$assignment2,\$assignment3,\$quiz1,\$quiz2,\$quiz3,\$p1,\$p2); 78 \$this->assertEquals(\$user->getSuccess(),'Insert Error'); 79 } 80 81 public function test6() 82 { 83 \$user=new \dash\models\UpdateMarks; 84 \$assignment1=6; 85 \$assignment2=3; 86 \$assignment3=11; 87 \$quiz1=4; 88 \$quiz2=3; 89 \$quiz3=6; 90 \$p1=64; 91 \$p2=10; 92 \$user->setMarks(\$assignment1,\$assignment2,\$assignment3,\$quiz1,\$quiz2,\$quiz3,\$p1,\$p2); 93 \$this->assertEquals(\$user->getSuccess(),'Insert Error'); 94 } 95 } 96 97 ></pre>	<pre> 1 //php 2 3 4 class MarkListTest extends \PHPUnit\Framework\TestCase 5 { 6 public function test1() 7 { 8 \$user=new \dash\models\MarkList; 9 \$assignment1=6; 10 \$assignment2=3; 11 \$assignment3=4; 12 \$quiz1=4; 13 \$quiz2=3; 14 \$quiz3=6; 15 \$p1=24; 16 \$p2=12; 17 \$user->setMarks(\$assignment1,\$assignment2,\$assignment3,\$quiz1,\$quiz2,\$quiz3,\$p1,\$p2); 18 \$this->assertEquals(\$user->getMarks(),27.125); 19 } 20 21 public function test2() 22 { 23 \$user=new \dash\models\MarkList; 24 \$assignment1=9; 25 \$assignment2=3; 26 \$assignment3=4; 27 \$quiz1=4; 28 \$quiz2=5; 29 \$quiz3=4; 30 \$p1=33; 31 \$p2=44; 32 \$user->setMarks(\$assignment1,\$assignment2,\$assignment3,\$quiz1,\$quiz2,\$quiz3,\$p1,\$p2); 33 \$this->assertEquals(\$user->getMarks(),46.375); 34 } 35 36 public function test3() 37 { 38 \$user=new \dash\models\MarkList; 39 \$assignment1=8; 40 \$assignment2=3; 41 \$assignment3=5; 42 \$quiz1=4; 43 \$quiz2=5; 44 \$quiz3=3; 45 \$p1=45; 46 \$p2=23; 47 \$user->setMarks(\$assignment1,\$assignment2,\$assignment3,\$quiz1,\$quiz2,\$quiz3,\$p1,\$p2); 48 \$this->assertEquals(\$user->getMarks(),42); 49 } 50 51 public function test4() 52 { 53 \$user=new \dash\models\MarkList; 54 \$assignment1=9; 55 \$assignment2=9; 56 \$assignment3=7; 57 \$quiz1=8; 58 \$quiz2=7; 59 \$quiz3=8; 60 \$p1=45; 61 \$p2=46; 62 \$user->setMarks(\$assignment1,\$assignment2,\$assignment3,\$quiz1,\$quiz2,\$quiz3,\$p1,\$p2); 63 \$this->assertEquals(\$user->getMarks(),60.8125); 64 } 65 66 public function test5() 67 { 68 \$user=new \dash\models\MarkList; 69 \$assignment1=6; 70 \$assignment2=3; 71 \$assignment3=4; 72 \$quiz1=4; 73 \$quiz2=3; 74 \$quiz3=6; 75 \$p1=24; 76 \$p2=12; 77 \$user->setMarks(\$assignment1,\$assignment2,\$assignment3,\$quiz1,\$quiz2,\$quiz3,\$p1,\$p2); 78 \$this->assertEquals(\$user->getColor(),'Red'); 79 } 80 81 public function test6() 82 { 83 \$user=new \dash\models\MarkList; 84 \$assignment1=9; 85 \$assignment2=3; 86 \$assignment3=4; 87 \$quiz1=4; 88 \$quiz2=5; 89 \$quiz3=4; 90 \$p1=33; 91 \$p2=44; 92 \$user->setMarks(\$assignment1,\$assignment2,\$assignment3,\$quiz1,\$quiz2,\$quiz3,\$p1,\$p2); 93 \$this->assertEquals(\$user->getColor(),'Yellow'); 94 } 95 96 public function test7() 97 { 98 \$user=new \dash\models\MarkList; 99 \$assignment1=8; 100 \$assignment2=3; 101 \$assignment3=5; 102 \$quiz1=4; 103 \$quiz2=5; 104 \$quiz3=3; 105 \$p1=45; 106 \$p2=23; 107 \$user->setMarks(\$assignment1,\$assignment2,\$assignment3,\$quiz1,\$quiz2,\$quiz3,\$p1,\$p2); 108 \$this->assertEquals(\$user->getColor(),'Yellow'); 109 } 110 </pre>
---	---

7.3. UI Testing

7.3.1. Tools used and setup details

7.3.1.1. Plan Test Environment

A testing environment is a setup of software and hardware on which the testing team is going to execute test cases

Utilizing the tools available to us, i.e., the Selenium Web driver, Eclipse Java IDE, a Chrome driver and hosting servers and database through XAMPP, we have designed our plan test environment so as to create test cases through a union of these tools.

7.3.1.2. Test Environment:

Software requirements:

- Virtual Environment set up
- Xampp should be installed
- Apache and mysql should run in it
- Eclipse for selenium testing
- Java JDK of maximum version 11
- Chromedriver of chrome version should be installed

Hardware Requirements:

- A windows/mac machine with at least 8 GB ram

7.3.1.3. Testing Tools:

Selenium: Selenium has different procedures for its installation in mac and windows. Selenium can be used to perform automated functional testing.

Procedure:

- The jar files downloaded from the main website of selenium are to be preserved.
- Eclipse is to be installed.
- A new java project is to be created.
- The jar files are to be added as the external archives for the created java project.
- A new java class can be created to write the test cases.

7.3.2. Testcase statistics

7.3.2.1. Test Criteria:

Suspension Criteria: Specify the critical suspension criteria for a test. If the suspension criteria are met during testing, the active test cycle will be suspended until the criteria are resolved.

Suspension criteria=45%

7.3.2.2. Exit Criteria:

It specifies the criteria that denote a successful completion of a test phase. The exit criteria are the targeted results of the test and are necessary before proceeding to the next phase of development.

Exit criteria=90%

7.3.3. Testcase code

7.3.3.1. Test#1 - Login Input validation (positive & negative cases)

```
import org.junit.Test;  
import org.junit.Before;  
import org.junit.After;  
import static org.junit.Assert.*;  
import static org.hamcrest.CoreMatchers.is;  
import static org.hamcrest.core.IsNot.not;  
import org.openqa.selenium.By;  
import org.openqa.selenium.WebDriver;  
import org.openqa.selenium.firefox.FirefoxDriver;  
import org.openqa.selenium.chrome.ChromeDriver;  
import org.openqa.selenium.remote.RemoteWebDriver;  
import org.openqa.selenium.remote.DesiredCapabilities;  
import org.openqa.selenium.Dimension;  
import org.openqa.selenium.WebElement;  
import org.openqa.selenium.interactions.Actions;  
import org.openqa.selenium.support.ui.ExpectedConditions;  
import org.openqa.selenium.support.ui.WebDriverWait;  
import org.openqa.selenium.JavascriptExecutor;  
import org.openqa.selenium.Alert;  
import org.openqa.selenium.Keys;  
import java.util.*;  
import java.net.MalformedURLException;  
import java.net.URL;  
public class LogininputTest {
```

```

private WebDriver driver;
private Map<String, Object> vars;
JavascriptExecutor js;
@Before
public void setUp() {
    driver = new ChromeDriver();
    js = (JavascriptExecutor) driver;
    vars = new HashMap<String, Object>();
}
@After
public void tearDown() {
    driver.quit();
}
@Test
public void logininput() {
    driver.get("http://13.235.95.187/dash/login.php");
    driver.manage().window().setSize(new Dimension(1296, 696));
    driver.findElement(By.id("user")).sendKeys("12345");
    driver.findElement(By.id("pass")).sendKeys("12345");
    driver.findElement(By.id("pass")).sendKeys(Keys.ENTER);
    driver.findElement(By.id("user")).click();
    driver.findElement(By.id("user")).sendKeys("FAC0035");
    driver.findElement(By.id("btn")).click();
    driver.findElement(By.id("togglePassword")).click();
    driver.findElement(By.id("togglePassword")).click();
    driver.findElement(By.id("pass")).click();
    driver.findElement(By.id("pass")).sendKeys("selenium");
    driver.findElement(By.id("togglePassword")).click();
    driver.findElement(By.id("btn")).click();
    driver.findElement(By.id("user")).click();
    driver.findElement(By.id("user")).sendKeys("HFAC001");
    driver.findElement(By.id("pass")).click();
}

```

```

        driver.findElement(By.id("pass")).sendKeys("Saladfox@456");
        driver.findElement(By.id("togglePassword")).click();
        driver.findElement(By.id("btn")).click();
        driver.findElement(By.id("user")).click();
        driver.findElement(By.id("user")).sendKeys("FAC0035");
        driver.findElement(By.id("pass")).click();
        driver.findElement(By.id("pass")).sendKeys("Saladfox@456");
        driver.findElement(By.id("pass")).sendKeys(Keys.ENTER);
        driver.findElement(By.cssSelector(".dropdown-toggle")).click();
        driver.findElement(By.linkText("Logout")).click();
        driver.findElement(By.id("user")).click();
        driver.findElement(By.id("user")).sendKeys("9843249546");
        driver.findElement(By.id("pass")).click();
        driver.findElement(By.id("pass")).sendKeys("Saladfox@456");
        driver.findElement(By.id("pass")).sendKeys(Keys.ENTER);
    }
}

```

7.3.3.2.Test#2 - Password_change_validation (positive & negative cases):

```

import org.junit.Test;
import org.junit.Before;
import org.junit.After;
import static org.junit.Assert.*;
import static org.hamcrest.CoreMatchers.is;
import static org.hamcrest.core.IsNot.not;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.remote.RemoteWebDriver;
import org.openqa.selenium.remote.DesiredCapabilities;
import org.openqa.selenium.Dimension;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.interactions.Actions;
import org.openqa.selenium.support.ui.ExpectedConditions;
import org.openqa.selenium.support.ui.WebDriverWait;
import org.openqa.selenium.JavascriptExecutor;

```

```

import org.openqa.selenium.Alert;
import org.openqa.selenium.Keys;
import java.util.*;
import java.net.MalformedURLException;
import java.net.URL;
public class ChangepasswordvalidateTest {
    private WebDriver driver;
    private Map<String, Object> vars;
    JavascriptExecutor js;
    @Before
    public void setUp() {
        driver = new ChromeDriver();
        js = (JavascriptExecutor) driver;
        vars = new HashMap<String, Object>();
    }
    @After
    public void tearDown() {
        driver.quit();
    }
    @Test
    public void changepasswordvalidate() {
        driver.get("http://13.235.95.187/dash/login.php");
        driver.manage().window().setSize(new Dimension(1296, 696));
        driver.findElement(By.id("user")).click();
        driver.findElement(By.id("user")).sendKeys("FAC0035");
        driver.findElement(By.id("pass")).click();
        driver.findElement(By.id("pass")).sendKeys("Saladfox@456");
        driver.findElement(By.id("pass")).sendKeys(Keys.ENTER);
        driver.findElement(By.cssSelector(".dropdown-toggle")).click();
        driver.findElement(By.cssSelector(".dropdown-menu-item:nth-child(1) span")).click();
        driver.findElement(By.cssSelector(".fa-key")).click();
        driver.findElement(By.id("pass")).click();
        driver.findElement(By.id("pass")).sendKeys("Saladfox@456");
        driver.findElement(By.id("psw")).sendKeys("monke");
        driver.findElement(By.id("cpsw")).sendKeys("monke");
        driver.findElement(By.cssSelector(".fancy-button:nth-child(7) > span")).click();
        driver.findElement(By.id("psw")).sendKeys("Monkey");
        driver.findElement(By.id("cpsw")).click();
        driver.findElement(By.id("cpsw")).click();
    {
        WebElement element = driver.findElement(By.id("cpsw"));
        Actions builder = new Actions(driver);
        builder.doubleClick(element).perform();
    }
        driver.findElement(By.id("cpsw")).click();
        driver.findElement(By.id("cpsw")).sendKeys("Monkey");
    }

```

```

        driver.findElement(By.cssSelector(".fancy-button:nth-child(7) >
span")).click();
        driver.findElement(By.id("psw")).click();
        driver.findElement(By.id("psw")).sendKeys("Monkey123");
        driver.findElement(By.id("csw")).click();
        driver.findElement(By.id("csw")).sendKeys("Monkey12");
        driver.findElement(By.cssSelector(".fancy-button:nth-child(7) >
span")).click();
        driver.findElement(By.id("csw")).sendKeys("Monkey123");
        driver.findElement(By.cssSelector(".fancy-button:nth-child(7) >
span")).click();
        driver.findElement(By.cssSelector(".fa-arrow-left")).click();
        driver.findElement(By.cssSelector(".dropdown-toggle")).click();
        driver.findElement(By.cssSelector(".dropdown-menu-item:nth-child(2)
div")).click();
    }
}

```

7.3.3.3.Test#3 - Marklist_Negative_Validation:

```

import org.junit.Test;
import org.junit.Before;
import org.junit.After;
import static org.junit.Assert.*;
import static org.hamcrest.CoreMatchers.is;
import static org.hamcrest.core.IsNot.not;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.remote.RemoteWebDriver;
import org.openqa.selenium.remote.DesiredCapabilities;
import org.openqa.selenium.Dimension;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.interactions.Actions;
import org.openqa.selenium.support.ui.ExpectedConditions;
import org.openqa.selenium.support.ui.WebDriverWait;
import org.openqa.selenium.JavascriptExecutor;
import org.openqa.selenium.Alert;
import org.openqa.selenium.Keys;
import java.util.*;
import java.net.MalformedURLException;
import java.net.URL;
public class MarklistvalidateTest {
    private WebDriver driver;
    private Map<String, Object> vars;
    JavascriptExecutor js;
    @Before

```

```

public void setUp() {
    driver = new ChromeDriver();
    js = (JavascriptExecutor) driver;
    vars = new HashMap<String, Object>();
}
@After
public void tearDown() {
    driver.quit();
}
@Test
public void marklistvalidate() {
    driver.get("http://13.235.95.187/dash/login.php");
    driver.manage().window().setSize(new Dimension(1296, 696));
    driver.findElement(By.id("user")).sendKeys("FAC0035");
    driver.findElement(By.id("pass")).click();
    driver.findElement(By.id("pass")).sendKeys("Saladfox@456");
    driver.findElement(By.id("pass")).sendKeys(Keys.ENTER);
    driver.findElement(By.cssSelector(".fa-cubes")).click();
    driver.findElement(By.xpath("//input[@type='checkbox']")).click();
    driver.findElement(By.linkText("MarkList")).click();
    driver.findElement(By.cssSelector(".float")).click();
    driver.findElement(By.id("studentid")).click();
    {
        WebElement dropdown = driver.findElement(By.id("studentid"));
        dropdown.findElement(By.xpath("//option[.= 'STU001']")).click();
    }
    driver.findElement(By.cssSelector("#studentid > option:nth-child(2)").click();
    {
        WebElement element = driver.findElement(By.id("type"));
        Actions builder = new Actions(driver);
        builder.moveToElement(element).clickAndHold().perform();
    }
    {
        WebElement element = driver.findElement(By.cssSelector("#type > option:nth-child(1)");
        Actions builder = new Actions(driver);
        builder.moveToElement(element).release().perform();
    }
    {
        WebElement dropdown = driver.findElement(By.id("type"));
        dropdown.findElement(By.xpath("//option[.= 'Assignment#1']")).click();
    }
    driver.findElement(By.cssSelector("#type > option:nth-child(2)").click();
    driver.findElement(By.id("mark")).click();
    driver.findElement(By.id("mark")).sendKeys("12");
}

```

```

        driver.findElement(By.name("applyleave")).click();
        driver.findElement(By.xpath("//input[@type='checkbox\']")).click();
    }
}

```

7.3.3.4. Test#4 - Marklist_Positive_Validation:

```

import org.junit.Test;
import org.junit.Before;
import org.junit.After;
import static org.junit.Assert.*;
import static org.hamcrest.CoreMatchers.is;
import static org.hamcrest.core.IsNot.not;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.remote.RemoteWebDriver;
import org.openqa.selenium.remote.DesiredCapabilities;
import org.openqa.selenium.Dimension;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.interactions.Actions;
import org.openqa.selenium.support.ui.ExpectedConditions;
import org.openqa.selenium.support.ui.WebDriverWait;
import org.openqa.selenium.JavascriptExecutor;
import org.openqa.selenium.Alert;
import org.openqa.selenium.Keys;
import java.util.*;
import java.net.MalformedURLException;
import java.net.URL;
public class MarklisttrueTest {
    private WebDriver driver;
    private Map<String, Object> vars;
    JavascriptExecutor js;
    @Before
    public void setUp() {
        driver = new ChromeDriver();
        js = (JavascriptExecutor) driver;
        vars = new HashMap<String, Object>();
    }
    @After
    public void tearDown() {
        driver.quit();
    }
    @Test
    public void marklisttrue() {
        driver.get("http://13.235.95.187/dash/login.php");
        driver.manage().window().setSize(new Dimension(1296, 696));
    }
}

```

```

driver.findElement(By.id("user")).click();
driver.findElement(By.id("user")).sendKeys("FAC0035");
driver.findElement(By.id("pass")).sendKeys("Saladfox@456");
driver.findElement(By.id("pass")).sendKeys(Keys.ENTER);
driver.findElement(By.cssSelector(".sidebar-nav-item:nth-child(3) div")).click();
driver.findElement(By.xpath("//input[@type='checkbox']")).click();
driver.findElement(By.linkText("MarkList")).click();
driver.findElement(By.cssSelector(".float")).click();
{
    WebElement element = driver.findElement(By.id("studentid"));
    Actions builder = new Actions(driver);
    builder.moveToElement(element).clickAndHold().perform();
}
{
    WebElement element = driver.findElement(By.cssSelector("#studentid > option:nth-child(1)"));
    Actions builder = new Actions(driver);
    builder.moveToElement(element).release().perform();
}
{
    WebElement dropdown = driver.findElement(By.id("studentid"));
    dropdown.findElement(By.xpath("//option[. = 'STU002']")).click();
}
driver.findElement(By.cssSelector("#studentid > option:nth-child(3)").click();
{
    WebElement element = driver.findElement(By.id("type"));
    Actions builder = new Actions(driver);
    builder.moveToElement(element).clickAndHold().perform();
}
{
    WebElement element = driver.findElement(By.cssSelector("#type > option:nth-child(1)"));
    Actions builder = new Actions(driver);
    builder.moveToElement(element).release().perform();
}
{
    WebElement dropdown = driver.findElement(By.id("type"));
    dropdown.findElement(By.xpath("//option[. = 'Assignment#1']")).click();
}
driver.findElement(By.cssSelector("#type > option:nth-child(2)").click();
driver.findElement(By.id("mark")).click();
driver.findElement(By.id("mark")).sendKeys("5");
driver.findElement(By.name("applyleave")).click();
driver.findElement(By.cssSelector(".btn-outline-secondary")).click();
driver.findElement(By.cssSelector(".dropdown-toggle")).click();

```

```
        driver.findElement(By.cssSelector(".dropdown-menu-item:nth-child(2) span")).click();
    }
}
```

7.3.3.5. Test #5 - Behavior of interactive elements:

Automated testing of all basic buttons, clicks, hovers, drag-and-drops, etc.

```
import org.junit.Test;
import org.junit.Before;
import org.junit.After;
import static org.junit.Assert.*;
import static org.hamcrest.CoreMatchers.is;
import static org.hamcrest.core.IsNot.not;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.remote.RemoteWebDriver;
import org.openqa.selenium.remote.DesiredCapabilities;
import org.openqa.selenium.Dimension;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.interactions.Actions;
import org.openqa.selenium.support.ui.ExpectedConditions;
import org.openqa.selenium.support.ui.WebDriverWait;
import org.openqa.selenium.JavascriptExecutor;
import org.openqa.selenium.Alert;
import org.openqa.selenium.Keys;
import java.util.*;
import java.net.MalformedURLException;
import java.net.URL;
public class UIinteractivebehaviourTest {
    private WebDriver driver;
```

```

private Map<String, Object> vars;
JavascriptExecutor js;
@Before
public void setUp() {
    driver = new ChromeDriver();
    js = (JavascriptExecutor) driver;
    vars = new HashMap<String, Object>();
}
@After
public void tearDown() {
    driver.quit();
}
@Test
public void uInteractivebehaviour() {
    driver.get("http://13.235.95.187/dash/login.php");
    driver.manage().window().setSize(new Dimension(1296, 696));
    driver.findElement(By.id("user")).click();
    driver.findElement(By.id("user")).sendKeys("FAC0035");
    driver.findElement(By.id("pass")).click();

    driver.findElement(By.id("pass")).sendKeys("Saladfox@456");
    driver.findElement(By.id("pass")).sendKeys(Keys.ENTER);
    driver.findElement(By.cssSelector(".sidebar-nav-item:nth-child(2) div")).click();
    driver.findElement(By.cssSelector(".fa-cubes")).click();

driver.findElement(By.xpath("//input[@type='checkbox']")).click();
    driver.findElement(By.linkText("Resources")).click();
    driver.findElement(By.linkText("Attendance")).click();
    driver.findElement(By.cssSelector(".col-12:nth-child(2) .fa")).click();
}

```

```

        driver.findElement(By.cssSelector(".fa-backward")).click();

        driver.findElement(By.cssSelector(".float")).click();

        driver.findElement(By.cssSelector(".btn-outline-
secondary")).click();

        driver.findElement(By.cssSelector(".sidebar-nav-item:nth-
child(5) div")).click();

        driver.findElement(By.cssSelector(".fa-moon-o")).click();

        driver.findElement(By.cssSelector(".dropdown-
toggle")).click();

        driver.findElement(By.linkText("Settings")).click();

        driver.findElement(By.cssSelector(".fancy-button:nth-
child(29) > span")).click();

        driver.findElement(By.cssSelector(".fa-arrow-left")).click();

        driver.findElement(By.cssSelector(".mode > .nav-
link")).click();

        driver.findElement(By.cssSelector(".avt")).click();

        driver.findElement(By.cssSelector(".dropdown-
toggle")).click();

        driver.findElement(By.linkText("Logout")).click();

    }

}

```

7.4. Continuous Integration

7.4.1. Tools used

Selenium: Selenium has different procedures for its installation in mac and windows. Selenium can be used to perform automated functional testing.

Procedure:

- The jar files downloaded from the main website of selenium are to be preserved.
- Eclipse is to be installed.
- A new java project is to be created.
- The jar files are to be added as the external archives for the created java project.
- A new java class can be created to write the test cases.

Jenkins: Jenkins is an open-source Continuous Integration server written in Java for orchestrating a chain of actions to achieve the Continuous Integration process in an automated fashion. It is a server-based application and requires a web server like Apache Tomcat.

7.4.2. Implementation of Continuous Integration

7.4.2.1. Implementation (with screenshots)

7.4.2.1.1. Jenkins – configured the code from GitHub

The screenshot shows the Jenkins configuration interface for a project named 'faculty'. In the 'General' tab, the 'Project url' is set to 'https://github.com/vinay780/faculty/'. Under 'Source Code Management', 'Git' is selected as the provider, and the 'Repository URL' is 'https://github.com/vinay780/faculty-.git'. The 'Save' and 'Apply' buttons are at the bottom.

7.4.2.1.2. Build the code in workspace

The screenshot shows the Jenkins workspace for the 'faculty' project. It displays a list of files and their details. The files include:

- 10.jpg
- accept_st.php
- approve.php
- attendance_summary.php
- attendance_(3).sql
- AttendanceTest.php
- bootstrap.css
- bootstrap-theme.css
- change_update.php
- change.css
- change.js
- change.php
- config.php
- connect.php
- course_marklist.php
- courses_exp.php
- courses_main.php
- courses_resources.php
- courses_view_submission.php
- courses.css
- db.php
- delete_application.php
- delete_assignment.php
- delete_resource.php

The last file listed is 'delete_resource.php', modified on 4 Jun, 2021 at 9:41:43 PM, with a size of 632 B.

7.4.2.1.3. Code built successfully

The screenshot shows the Jenkins interface for a project named 'faculty'. The 'Console Output' tab is selected, displaying the command-line logs of the build process. The logs show the build was started by user 'MANDRU VINAY' and running as 'SYSTEM'. It details the cloning of the repository from GitHub, fetching upstream changes, and performing a clean build. The final message indicates the build was successful.

```
Started by user MANDRU VINAY
Running as SYSTEM
Building in workspace C:\WINDOWS\system32\config\systemprofile\AppData\Local\Jenkins\workspace\faculty
The recommended git tool is: NONE
No credentials specified
> C:\Program Files\Git\bin\git.exe rev-parse --resolve-git-dir C:\WINDOWS\system32\config\systemprofile\AppData\Local\Jenkins\workspace\faculty\.git # timeout=10
Fetching changes from the remote Git repository
> C:\Program Files\Git\bin\git.exe config remote.origin.url https://github.com/vinay780/faculty-.git # timeout=10
Fetching upstream changes from https://github.com/vinay780/faculty-.git
> C:\Program Files\Git\bin\git.exe --version # timeout=10
> git --version # 'git' version 2.31.1.windows.1'
> C:\Program Files\Git\bin\git.exe fetch --tags --force --progress -- https://github.com/vinay780/faculty-.git +refs/heads/*:refs/remotes/origin/* # timeout=10
Seen branch in repository origin/main
Seen 1 remote branch
> C:\Program Files\Git\bin\git.exe show-ref --tags -d # timeout=10
Checking out Revision 4a41c9af368341fd4288f0d362ddbf6dd237b43 (origin/main)
> C:\Program Files\Git\bin\git.exe config core.sparsecheckout # timeout=10
> C:\Program Files\Git\bin\git.exe checkout -f 4a41c9af368341fd4288f0d362ddbf6dd237b43 # timeout=10
Commit message: "Add files via upload"
> C:\Program Files\Git\bin\git.exe rev-list --no-walk 9cc3c5b5f4c6f5d4dd4f4162a081c9e905ddb6cc # timeout=10
Finished: SUCCESS
```

7.4.2.2. Testcases: (All testcases [\(click here\)](#))

All the testcases are available in the provided link above.

7.4.3. Analysis

Selenium: By giving test cases to each and every user story, I have checked the automation test of UI frame

We can check all functionalities like: navigation,xpath,connectivity

Jenkins: Through Jenkins we build the code, whenever we made changes in code provided in git

It will change in Jenkins too, so that whenever developers made a change in the code, we need to wait till the end we can make changes time to time itself, so that no of errors will also decrease.

7.5.Additional Software engineering practices followed

7.5.1. Dockers

7.5.1.1. Setup details

- 1)Download Docker desktop and make Dockerfile and docker-compose.yaml as per requirements. Apache, Php and MySql are the requirements so docker-compose.yaml file is written as shown in the picture.
- 2)Mount the folder in local system to the Apache server and setup the project files and use docker-compose up command to run the server and check in local-host the configurations.
- 3)Create docker image and store it in Docker Hub
- 4)As we used AWS as our environment, we also stored in Amazon ECR which we used to establish environment while hosting

7.5.1.2. Screenshots/Report

```
👉 Dockerfile > ...
1  FROM php:7.4-apache
2  COPY site/ /var/www/html/
3  RUN echo "ServerName localhost" >> /etc/apache2/apache2.conf
4  RUN docker-php-ext-install pdo pdo_mysql
5  RUN docker-php-ext-install mysqli && docker-php-ext-enable mysqli
6  EXPOSE 80
7  |
```

```
👉 docker-compose.yaml
1  version: "3.7"
2  services:
3    web:
4      build: .
5      volumes:
6        - ./site:/var/www/html
7      ports:
8        - 80:80
9
10   mysql-server:
11     image: mysql
12     environment:
13       MYSQL_ROOT_PASSWORD: 12345
14       MYSQL_DATABASE: docker_database
15     volumes:
16       - ./db_data :/var/lib/mysql
17     ports:
18       - 3306:3306
```

```

F:\Docker>docker-compose up
Docker Compose is now in the Docker CLI, try `docker compose up`

Starting docker_mysql-server_1 ... done
Starting docker_web_1 ... done
Attaching to docker_mysql-server_1, docker_web_1
mysql-server_1  | [Fri Jun 04 16:03:17+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 8.0.25-1debian10 started.
mysql-server_1  | [Fri Jun 04 16:03:18.299269 2021] [mpm_prefork:notice] [pid 1] AH00163: Apache/2.4.38 (Debian) PHP/7.4.19 configured -- resuming normal operations
mysql-server_1  | [Fri Jun 04 16:03:18.299351 2021] [core:notice] [pid 1] AH00094: Command line: 'apache2 -D FOREGROUND'
mysql-server_1  | [Fri Jun 04 16:03:19+00:00 [Note] [Entrypoint]: Switching to dedicated user 'mysql'
mysql-server_1  | [Fri Jun 04 16:03:19.7766927 0 [system] [MY-010116] [Server] /usr/sbin/mysqld (mysqld 8.0.25) starting as process 1
mysql-server_1  | [Fri Jun 04 16:03:19.7886402 0 [Warning] [MY-010159] [Server] Setting lower_case_table_names=2 because file system for /var/lib/mysql/ is case insensitive
mysql-server_1  | [Fri Jun 04 16:03:19.8557502 1 [system] [MY-013576] [InnoDB] InnoDB initialization has started.
mysql-server_1  | [Fri Jun 04 16:03:19.8557772 1 [system] [MY-013577] [InnoDB] InnoDB initialization has ended.
mysql-server_1  | [Fri Jun 04 16:03:19.8557802 1 [system] [MY-013578] [InnoDB] X Plugin ready for connections. Bind-address: '::' port: 33060, socket: /var/run/mysqld/mysqld.sock
mysql-server_1  | [Fri Jun 04 16:03:19.8557812 1 [system] [MY-011323] [Server] Starting XA crash recovery...
mysql-server_1  | [Fri Jun 04 16:03:19.8557822 1 [system] [MY-010232] [Server] X Plugin ready for connections. Bind-address: '::' port: 33060, socket: /var/run/mysqld/mysqld.sock
mysql-server_1  | [Fri Jun 04 16:03:19.8557832 1 [system] [MY-010232] [Server] XA crash recovery finished.
mysql-server_1  | [Fri Jun 04 16:03:19.8557842 1 [system] [MY-010068] [Server] CA certificate ca.pem is self signed.
mysql-server_1  | [Fri Jun 04 16:03:19.8557852 1 [system] [MY-013602] [Server] Channel mysql_main configured to support TLS. Encrypted connections are now supported for this channel.
mysql-server_1  | [Fri Jun 04 16:03:19.8557862 1 [system] [MY-011810] [Server] Insecure configuration for --pid-file: location '/var/run/mysqld' in the path is accessible to all OS users. Consider choosing a different directory.
mysql-server_1  | [Fri Jun 04 16:03:19.8557872 1 [system] [MY-010931] [Server] /usr/sbin/mysqld: ready for connections. Version: '8.0.25' socket: '/var/run/mysqld/mysqld.sock' port: 3306 MySQL Community Server
- GPL.


```

ECR > Repositories > faculty_dashboard

faculty_dashboard

[View public listing](#)
[View push commands](#)
[Edit](#)

Images (1)					
<input type="checkbox"/>	Image tag	Pushed at	Size (MB)	Image URI	Digest
<input type="checkbox"/>	latest	Jun 04, 2021 11:48:32 AM	147.18	Copy URI	sha256:b611fbab90f01d...

[docker hub](#)

Explore Repositories Organizations Get Help sanjithragulv [Fingerprint](#)

Repositories / [sanjithragulv / faculty_dashboard](#) Using 0 of 1 private repositories. [Get more](#)

[General](#) [Tags](#) [Builds](#) [Collaborators](#) [Webhooks](#) [Settings](#)

Advanced Image Management [View preview](#)

View all your images and tags in this repository, clean up unused content, recover untagged images. Available for Pro and Team accounts.

sanjithragulv / faculty_dashboard

This repository does not have a description [Edit](#)

Last pushed: 11 hours ago

Docker commands [Public View](#)

To push a new tag to this repository,

```
docker push sanjithragulv/faculty_dashboard:tagname
```

Tags and Scans [VULNERABILITY SCANNING - DISABLED](#) [Enable](#)

This repository contains 1 tag(s).

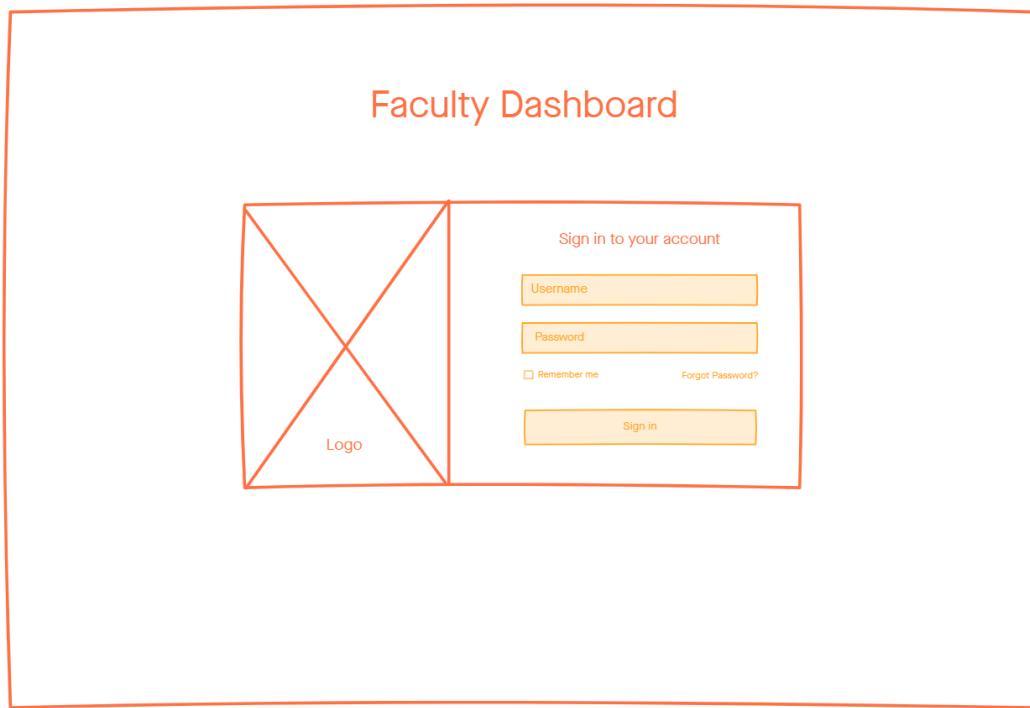
TAG	OS	PULLED	PUSHED
1.0		an hour ago	11 hours ago

Recent builds [Link a source provider and run a build to see build results here.](#)

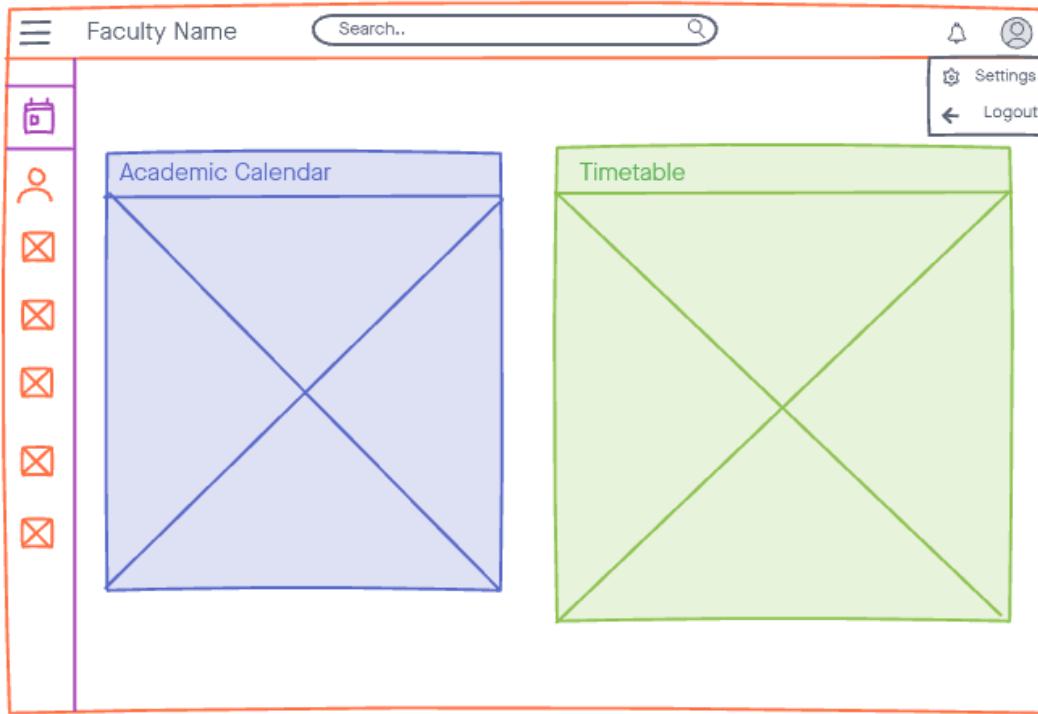
7.5.2. Wireframe designs

Wireframe design is designed using the tool InVision Freehand.

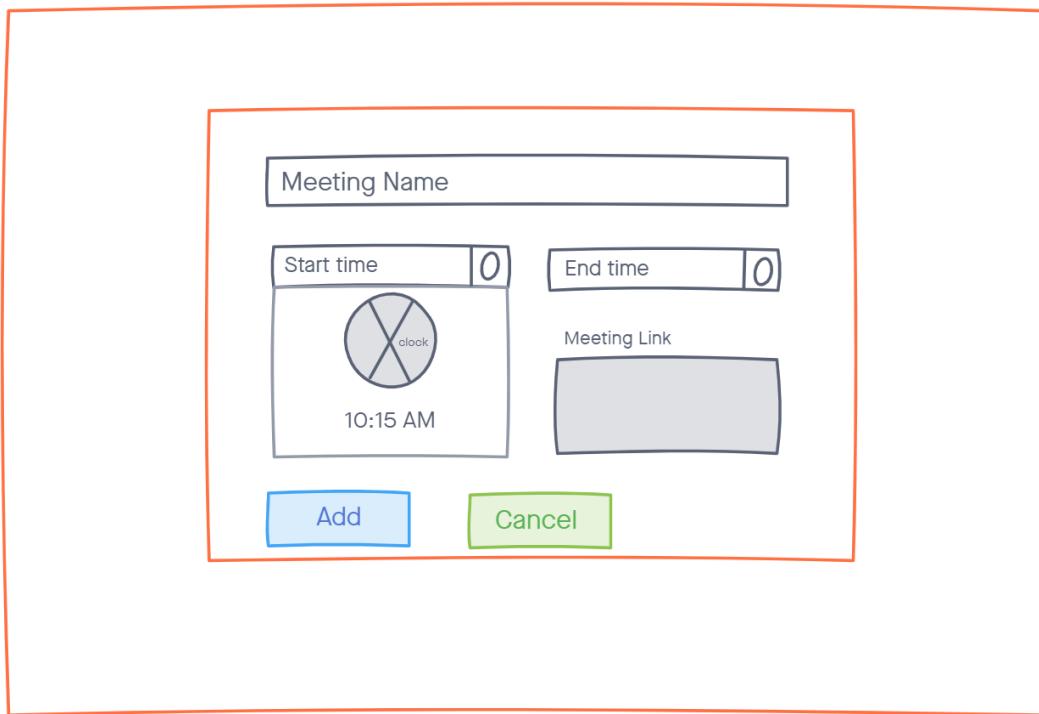
7.5.2.1. Login



7.5.2.2. Timetable/Schedule



7.5.2.3. Add meeting



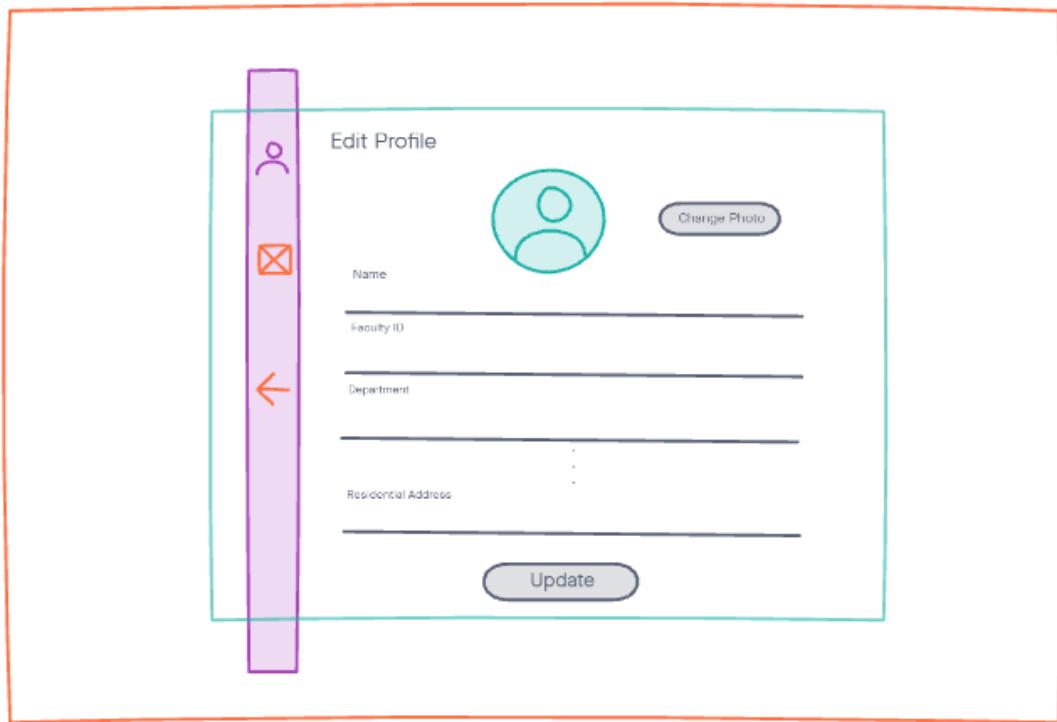
A modal dialog box for adding a meeting. It contains fields for 'Meeting Name' (text input), 'Start time' (time picker showing 10:15 AM), 'End time' (time picker showing 0), and 'Meeting Link' (text input). Below the fields are two buttons: 'Add' (blue) and 'Cancel' (green).

7.5.2.4. Profile



The interface shows a sidebar with navigation options: Schedule, My Profile (selected), My courses, Attendance, Gatepass, and Help. The main area displays a 'Profile' section with a placeholder user icon, Name (text input), Position (text input), and E-Wallet (text input with a note: 'Kindly top up your L-wallet!'). Below this is a 'Publication Details' section with a table for Year and Title.

7.5.2.5.Settings



7.5.2.6.Assignments

The screenshot shows the 'Faculty Name' dashboard. The left sidebar includes links for Schedule, My Profile, My courses (selected), Attendance, Gatepass, and Help. The main area features a search bar and a notifications icon. Below these are two boxes: one for 'CSE311' and another for 'CSE344', both containing 'Resources', 'Assignments' (selected), and 'Mark list'. A large orange box displays 'Assignments' with two entries: 'Assignment#1' (due 20-09-2021) and 'Assignment#2' (due 27-09-2021). Both assignments have '.pdf, .doc' formats and documentation instructions. At the bottom is a 'Create Assignment' form with fields for file creation, date selection, file format, and description, with a 'Create' button at the bottom right.

7.5.2.7. Mark list

The screenshot shows a faculty dashboard interface. On the left, a sidebar menu includes: Faculty Name, Schedule, My Profile, My courses (selected), Attendance, Gatepass, and Help. The main area displays two course sections: CSE311 and CSE344. A sub-menu for CSE311 shows Resources, Assignments, and Mark list (selected). A button labeled "Update Marks" with a pencil icon is visible. Below this, a table lists student marks for Assignment#1, Quiz#1, Periodicals#1, and Internals. The Internals column contains colored bars indicating grades: green for 64/70, orange for 50/70, pink for 25/70, and yellow for 50/70.

StudentID	Assignment#1	Quiz#1	Periodicals#1	Internals
STU001	10/10	9/10	45/50	64/70
STU002	7/10	7/10	36/50	50/70
STU003	7/10	7/10	36/50	50/70
STU004	5/10	5/10	15/50	25/70
STU005	7/10	7/10	36/50	50/70
STU006	10/10	10/10	45/50	65/70
STU007	5/10	5/10	15/50	25/70
STU008	7/10	7/10	36/50	50/70
STU009	7/10	7/10	36/50	50/70

7.5.2.8. Leave Chart

The screenshot shows a faculty dashboard interface. On the left, a sidebar menu includes: Faculty Name, Schedule, My Profile, My courses (selected), Attendance, Gatepass, and Help. The main area displays three charts: 1) Percentage of leave taken (On Duty: 90%, Sick Leave: 20%, Casual Leave: 10%) shown as horizontal bars. 2) Leaves Availed (Pie chart showing proportions of On Duty, Casual leave, and Sick Leave). 3) Percentage of different leaves available (Pie chart showing proportions of On Duty, Casual leave, and Sick Leave).

Percentage of leave taken

Leave Type	Percentage
On Duty	90%
Sick Leave	20%
Casual Leave	10%

Leaves Availed

Percentage of different leaves available

7.5.3. Security testing – SQL injection Testing

SQL injection, also known as SQLI, is a common attack vector that uses malicious SQL code for backend database manipulation to access information that was not intended to be displayed.

7.5.3.1.Tools used – Burp Suite

Setup Details:

- First download Burp Suite and launch chromium proxy browser and start listening to request/responses.
- Open your website in the proxy browser. SQL injection happens commonly in GET requests so find requests for pages doing them i.e., login page.
- Copy the request to .req file and the use sqlmap and then run the command `python sqlmap.py -r login.req --batch --dbms=mysql`

7.5.3.2.Screenshot/Report

Analysis: SQL injection attack is not possible in our website since the credentials are encrypted in server side. This is because PHP provides `mysql_real_escape_string()` to escape special characters in a string before sending a query to MySQL. This function was adopted by many to escape single quotes in strings and by the same occasion **prevent SQL injection** attacks.

```
C:\Users\HP\Desktop\sqlmapproject-sqlmap-63073a1>python sqlmap.py -r apply_leave.req --batch --dbms=mysql
[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is illegal. It is the end user's responsibility to obey all applicable local, state and federal laws. Developers assume no liability and are not responsible for any misuse or damage caused by this program
[*] starting @ 11:19:33 /2021-06-10

[11:19:33] [INFO] parsing HTTP request from 'apply_leave.req'
[11:19:34] [INFO] testing connection to the target URL
[11:19:34] [INFO] checking if the target is protected by some kind of WAF/IPS
[11:19:34] [INFO] testing if the target URL content is stable
[11:19:34] [INFO] target URL content is stable
[11:19:34] [INFO] testing if POST parameter 'leave-type' is dynamic
[11:19:34] [INFO] POST parameter 'leave-type' appears to be dynamic
[11:19:34] [WARNING] heuristic (basic) test shows that POST parameter 'leave-type' might not be injectable
[11:19:34] [INFO] testing for SQL injection on POST parameter 'leave-type'
[11:19:35] [INFO] testing 'AND boolean-based blind - WHERE or HAVING clause'
[11:19:35] [INFO] testing 'Boolean-based blind - Parameter replace (original value)'
[11:19:35] [INFO] testing 'Generic inline queries'
[11:19:35] [INFO] testing 'MySQL >= 5.1 AND error-based - WHERE, HAVING, ORDER BY or GROUP BY clause (EXTRACTVALUE)'
[11:19:35] [INFO] testing 'MySQL >= 5.0.12 AND time-based blind (query SLEEP)'
[11:19:35] [WARNING] time-based comparison requires larger statistical model, please wait..... (done)
[11:19:46] [INFO] POST parameter 'leave-type' appears to be 'MySQL >= 5.0.12 AND time-based blind (query SLEEP)' injectable
for the remaining tests, do you want to include all tests for 'MySQL' extending provided level (1) and risk (1) values? [Y/n] Y
[11:19:46] [INFO] testing 'Generic UNION query (NULL) - 1 to 20 columns'
[11:19:46] [INFO] automatically extending ranges for UNION query injection technique tests as there is at least one other (potential) technique found
[11:19:46] [INFO] checking if the injection point on POST parameter 'leave-type' is a false positive
POST parameter 'leave-type' is vulnerable. Do you want to keep testing the others (if any)? [y/N] N
sqlmap identified the following injection point(s) with a total of 62 HTTP(s) requests:
-- Parameter: leave-type (POST)
  Type: time-based blind
  Title: MySQL >= 5.0.12 AND time-based blind (query SLEEP)
  Payload: leave-type='Paid leave' AND (SELECT 2661 FROM (SELECT(SLEEP(5)))TzWl) AND 'Jvoj='='Jvoj&start_date=2021-06-23&end_date=2021-06-25&reason=Vaccine&applyleave=Apply Leave
--
[11:20:01] [INFO] the back-end DBMS is MySQL
[11:20:01] [WARNING] it is very important to not stress the network connection during usage of time-based payloads to prevent potential disruptions
do you want sqlmap to try to optimize value(s) for DBMS delay responses (option '--time-sec')? [Y/n] Y
web application technology: Apache 2.4.46, PHP 7.2.34
back-end DBMS: MySQL >= 5.0.12 (MariaDB fork)
[11:20:06] [INFO] fetched data logged to text files under 'C:\Users\HP\AppData\Local\sqlmap\output\localhost'
[*] ending @ 11:20:06 /2021-06-10/
```

```
C:\Users\HP\Desktop\sqlmapproject-sqlmap-63073a1>python sqlmap.py -r update_profile.req --batch --dbms=mysql
[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is illegal. It is the end user's responsibility to obey all applicable local, state and federal laws. Developers assume no liability and are not responsible for any misuse or damage caused by this program
[*] starting @ 11:27:11 /2021-06-10/
[11:27:11] [INFO] parsing HTTP request from 'update_profile.req'
[11:27:11] [WARNING] provided value for parameter 'updatepro' is empty. Please, always use only valid parameter values so sqlmap could be able to run properly
[11:27:11] [INFO] testing connection to the target URL
[11:27:11] [INFO] checking if the target is protected by some kind of WAF/IPS
[11:27:11] [INFO] testing if the target URL content is stable
[11:27:12] [INFO] target URL content is stable
[11:27:12] [INFO] testing if POST parameter 'email' is dynamic
[11:27:12] [WARNING] POST parameter 'email' does not appear to be dynamic
[11:27:12] [INFO] heuristic (basic) test shows that POST parameter 'email' might not be injectable
[11:27:12] [INFO] testing for SQL injection on POST parameter 'email'
[11:27:12] [INFO] testing 'AND boolean-based blind - WHERE or HAVING clause'
[11:27:12] [INFO] testing 'Boolean-based blind - Parameter replace (original value)'
[11:27:12] [INFO] testing 'Generic inline queries'
[11:27:12] [INFO] testing 'MySQL >= 5.1 AND error-based - WHERE, HAVING, ORDER BY or GROUP BY clause (EXTRACTVALUE)'
[11:27:12] [INFO] testing 'MySQL >= 5.0.12 AND time-based blind (query SLEEP)'
[11:27:13] [WARNING] time-based comparison requires larger statistical model, please wait..... (done)
[11:27:23] [INFO] POST parameter 'email' appears to be 'MySQL >= 5.0.12 AND time-based blind (query SLEEP)' injectable
for the remaining tests, do you want to include all tests for 'MySQL' extending provided level (1) and -risk (1) values? [Y/n] Y
[11:27:23] [INFO] testing 'Generic UNION query (NULL) - 1 to 20 columns'
[11:27:23] [INFO] automatically extending ranges for UNION query injection technique tests as there is at least one other (potential) technique found
[11:27:24] [INFO] checking if the injection point on POST parameter 'email' is a false positive
POST parameter 'email' is vulnerable. Do you want to keep testing the others (if any)? [y/N] N
sqlmap identified the following injection point(s) with a total of 61 HTTP(s) requests:
---
Parameter: email (POST)
Type: time-based blind
Title: MySQL >= 5.0.12 AND time-based blind (query SLEEP)
Payload: email=ramkumar@gmail.com' AND (SELECT 7151 FROM (SELECT(SLEEP(5)))jiRa) AND 'kzOm='=kzOm&interest=Digital Image Processing&address=12, Dharen Apartments, Peelamedu, Coimbatore-99&updatepro=...
[11:27:39] [INFO] the back-end DBMS is MySQL
[11:27:39] [WARNING] it is very important to not stress the network connection during usage of time-based payloads to prevent potential disruptions
do you want sqlmap to try to optimize value(s) for DBMS delay responses (option '--time-sec')? [Y/n] Y
web application technology: Apache 2.4.46, PHP 7.2.34
back-end DBMS: MySQL >= 5.0.12 (MariaDB fork)
[11:27:44] [INFO] fetched data logged to text files under 'C:\Users\HP\AppData\Local\sqlmap\output\localhost'

```

```
C:\Windows\System32\cmd.exe

C:\Users\HP\Desktop\sqlmapproject-sqlmap-63073a1>python sqlmap.py -r pwd_upd.req --batch --dbms=mysql
[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is illegal. It is the end user's responsibility to obey all applicable local, state and federal laws. Developers assume no liability and are not responsible for any misuse or damage caused by this program
[*] starting @ 11:30:26 /2021-06-10/
[11:30:26] [INFO] parsing HTTP request from 'pwd_upd.req'
[11:30:26] [WARNING] provided value for parameter 'updatepass' is empty. Please, always use only valid parameter values so sqlmap could be able to run properly
[11:30:26] [INFO] testing connection to the target URL
[11:30:26] [INFO] checking if the target is protected by some kind of WAF/IPS
[11:30:26] [INFO] testing if the target URL content is stable
[11:30:27] [INFO] target URL content is stable
[11:30:27] [INFO] testing if POST parameter 'pass' is dynamic
[11:30:27] [INFO] POST parameter 'pass' appears to be dynamic
[11:30:27] [WARNING] heuristic (basic) test shows that POST parameter 'pass' might not be injectable
[11:30:27] [INFO] testing for SQL injection on POST parameter 'pass'
[11:30:27] [INFO] testing 'AND boolean-based blind - WHERE or HAVING clause'
[11:30:27] [INFO] testing 'Boolean-based blind - Parameter replace (original value)'
[11:30:27] [INFO] testing 'Generic inline queries'
[11:30:27] [INFO] testing 'MySQL >= 5.1 AND error-based - WHERE, HAVING, ORDER BY or GROUP BY clause (EXTRACTVALUE)'
[11:30:27] [INFO] testing 'MySQL >= 5.0.12 AND time-based blind (query SLEEP)'
[11:30:27] [WARNING] time-based comparison requires larger statistical model, please wait..... (done)
it is recommended to perform only basic UNION tests if there is not at least one other (potential) technique found. Do you want to reduce the number of requests? [Y/n] Y
[11:30:28] [INFO] testing 'Generic UNION query (NULL) - 1 to 10 columns'
[11:30:28] [WARNING] POST parameter 'pass' does not seem to be injectable
[11:30:28] [INFO] testing if POST parameter 'psw' is dynamic
[11:30:28] [WARNING] POST parameter 'psw' does not appear to be dynamic
[11:30:28] [WARNING] heuristic (basic) test shows that POST parameter 'psw' might not be injectable
[11:30:28] [INFO] testing for SQL injection on POST parameter 'psw'
[11:30:28] [INFO] testing 'AND boolean-based blind - WHERE or HAVING clause'
[11:30:28] [INFO] testing 'Boolean-based blind - Parameter replace (original value)'
[11:30:28] [INFO] testing 'Generic inline queries'
[11:30:28] [INFO] testing 'MySQL >= 5.1 AND error-based - WHERE, HAVING, ORDER BY or GROUP BY clause (EXTRACTVALUE)'
[11:30:28] [INFO] testing 'MySQL >= 5.0.12 AND time-based blind (query SLEEP)'
[11:30:29] [INFO] testing 'Generic UNION query (NULL) - 1 to 10 columns'
[11:30:29] [WARNING] POST parameter 'psw' does not seem to be injectable
[11:30:29] [INFO] testing if POST parameter 'cpassword' is dynamic
[11:30:29] [WARNING] POST parameter 'cpassword' does not appear to be dynamic
[11:30:29] [WARNING] heuristic (basic) test shows that POST parameter 'cpassword' might not be injectable
[11:30:29] [INFO] testing for SQL injection on POST parameter 'cpassword'
[11:30:29] [INFO] testing 'AND boolean-based blind - WHERE or HAVING clause'
```

```

C:\Users\HP\Desktop\sqlmapproject-sqlmap-63073a1>python sqlmap.py -r login.req --batch --dbms=mysql
[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is illegal. It is the end user's responsibility to obey all applicable local, state and federal laws. Developers assume no liability and are not responsible for any misuse or damage caused by this program

[*] starting @ 11:04:08 /2021-06-10

[11:04:08] [INFO] parsing HTTP request from 'login.req'
[11:04:10] [INFO] testing connection to the target URL
[11:04:10] [INFO] checking if the target is protected by some kind of WAF/IPS
[11:04:10] [INFO] testing if the target URL content is stable
[11:04:10] [INFO] target URL content is stable
[11:04:10] [CRITICAL] no parameter(s) found for testing in the provided data (e.g. GET parameter 'id' in 'www.site.com/index.php?id=1'). You are advised to rerun with '--forms --crawl=2'

[*] ending @ 11:04:10 /2021-06-10

```

7.5.4. System testing

7.5.4.1. Tools Used and setup details

7.5.4.1.1. Plan Test Environment

A testing environment is a setup of software and hardware on which the testing team is going to execute test cases

Utilizing the tools available to us, i.e., the Selenium Web driver, Eclipse Java IDE, a Chrome driver and hosting servers and database through XAMPP, we have designed our plan test environment so as to create test cases through a union of these tools.

7.5.4.1.2. Test Environment:

Software requirements:

- Virtual Environment set up
- Xampp should be installed
- Apache and mysql should run in it
- Eclipse for selenium testing
- Java JDK of maximum version 11
- Chromedriver of chrome version should be installed

Hardware Requirements:

- A windows/mac machine with at least 8 GB ram

7.5.4.1.3. Testing Tools:

Selenium: Selenium has different procedures for its installation in mac and windows. Selenium can be used to perform automated functional testing.

Procedure:

- The jar files downloaded from the main website of selenium are to be preserved.
- Eclipse is to be installed.
- A new java project is to be created.
- The jar files are to be added as the external archives for the created java project.
- A new java class can be created to write the test cases.

7.5.4.2. Testcases

7.5.4.2.1. Login-collective:

```
import org.junit.Test;  
import org.junit.Before;  
import org.junit.After;  
import static org.junit.Assert.*;  
import static org.hamcrest.CoreMatchers.is;  
import static org.hamcrest.core.IsNot.not;  
import org.openqa.selenium.By;  
import org.openqa.selenium.WebDriver;  
import org.openqa.selenium.firefox.FirefoxDriver;  
import org.openqa.selenium.chrome.ChromeDriver;  
import org.openqa.selenium.remote.RemoteWebDriver;  
import org.openqa.selenium.remote.DesiredCapabilities;  
import org.openqa.selenium.Dimension;  
import org.openqa.selenium.WebElement;  
import org.openqa.selenium.interactions.Actions;  
import org.openqa.selenium.support.ui.ExpectedConditions;  
import org.openqa.selenium.support.ui.WebDriverWait;  
import org.openqa.selenium.JavascriptExecutor;  
import org.openqa.selenium.Alert;  
import org.openqa.selenium.Keys;  
import java.util.*;
```

```

import java.net.MalformedURLException;
import java.net.URL;
public class LogincollectiveTest {
    private WebDriver driver;
    private Map<String, Object> vars;
    JavascriptExecutor js;
    @Before
    public void setUp() {
        driver = new ChromeDriver();
        js = (JavascriptExecutor) driver;
        vars = new HashMap<String, Object>();
    }
    @After
    public void tearDown() {
        driver.quit();
    }
    @Test
    public void logincollective() {
        driver.get("http://13.235.95.187/dash/login.php");
        driver.manage().window().setSize(new Dimension(1280, 680));
        driver.findElement(By.id("user")).click();
        driver.findElement(By.id("user")).sendKeys("FAC0035");
        driver.findElement(By.id("pass")).sendKeys("Saladfox@456");
        driver.findElement(By.id("btn")).click();
        driver.findElement(By.cssSelector(".dropdown-toggle")).click();
        driver.findElement(By.linkText("Settings")).click();
        driver.findElement(By.cssSelector(".fa-key")).click();
        driver.findElement(By.id("pass")).click();
        driver.findElement(By.id("pass")).sendKeys("Saladfox@456");
        driver.findElement(By.id("psw")).click();
    }
}

```

```

        driver.findElement(By.id("psw")).sendKeys("Saladfox@123");
        driver.findElement(By.id("cpsw")).sendKeys("Saladfox@123");
        driver.findElement(By.cssSelector(".fancy-button:nth-child(7) > span")).click();

        driver.findElement(By.cssSelector(".fa-user")).click();
        driver.findElement(By.id("goback")).click();
        driver.findElement(By.id("goback")).click();
        driver.findElement(By.id("goback")).click();
        driver.findElement(By.cssSelector(".fa-user")).click();
        driver.findElement(By.cssSelector(".fancy-button:nth-child(29) > span")).click();

        driver.findElement(By.cssSelector(".fa-user")).click();
        driver.findElement(By.cssSelector(".fa-key")).click();
        driver.findElement(By.cssSelector(".fa-arrow-left")).click();
        driver.findElement(By.cssSelector(".dropdown-toggle")).click();
        driver.findElement(By.cssSelector(".dropdown-menu-item:nth-child(2) span")).click();

        driver.findElement(By.id("user")).click();
        driver.findElement(By.id("user")).sendKeys("FAC0035");
        driver.findElement(By.id("pass")).sendKeys("Saladfox@456");
        driver.findElement(By.id("pass")).click();
        driver.findElement(By.id("pass")).click();

        {

            WebElement element = driver.findElement(By.id("pass"));
            Actions builder = new Actions(driver);
            builder.doubleClick(element).perform();
        }

        driver.findElement(By.id("pass")).click();
        driver.findElement(By.id("togglePassword")).click();
        driver.findElement(By.id("btn")).click();
        driver.findElement(By.id("user")).click();
    
```

```
driver.findElement(By.id("user")).sendKeys("FAC0035");  
driver.findElement(By.id("pass")).sendKeys("Saladfox@456");  
driver.findElement(By.id("pass")).click();  
driver.findElement(By.id("pass")).sendKeys("Saladfox@123");  
driver.findElement(By.id("togglePassword")).click();  
driver.findElement(By.id("btn")).click();  
driver.findElement(By.cssSelector(".dropdown-toggle")).click();  
driver.findElement(By.cssSelector(".dropdown-menu-item:nth-child(1) span")).click();  
driver.findElement(By.cssSelector(".fa-key")).click();  
driver.findElement(By.id("pass")).click();  
driver.findElement(By.id("pass")).sendKeys("Saladfox@123");  
driver.findElement(By.id("psw")).sendKeys("Saladfox@456");  
driver.findElement(By.id("cpsz")).sendKeys("Saladfox@456");  
driver.findElement(By.cssSelector(".fancy-button:nth-child(7) > span")).click();  
driver.findElement(By.cssSelector(".fa-arrow-left")).click();  
driver.findElement(By.cssSelector(".dropdown-toggle")).click();  
driver.findElement(By.cssSelector(".dropdown-menu-item:nth-child(2) span")).click();  
driver.findElement(By.id("user")).click();  
driver.findElement(By.id("user")).sendKeys("FAC0035");  
driver.findElement(By.id("pass")).click();  
driver.findElement(By.id("pass")).click();  
driver.findElement(By.id("pass")).sendKeys("Saladfox@123");  
driver.findElement(By.id("togglePassword")).click();  
driver.findElement(By.id("btn")).click();  
driver.findElement(By.id("user")).click();  
driver.findElement(By.id("user")).sendKeys("FAC0035");  
driver.findElement(By.id("pass")).sendKeys("Saladfox@456");  
driver.findElement(By.id("togglePassword")).click();
```

```

        driver.findElement(By.id("btn")).click();

        driver.findElement(By.cssSelector(".dropdown-toggle")).click();

        driver.findElement(By.cssSelector(".dropdown-menu-item:nth-child(2) div")).click();

        driver.findElement(By.id("user")).click();

        driver.findElement(By.id("user")).click();

        driver.findElement(By.id("user")).sendKeys("9843249546");

        driver.findElement(By.id("pass")).click();

        driver.findElement(By.id("pass")).sendKeys("Saladfox@456");

        driver.findElement(By.id("btn")).click();

        driver.findElement(By.cssSelector(".dropdown-toggle")).click();

        driver.findElement(By.linkText("Logout")).click();

    }

}

```

7.5.4.2.2. Profile-collective:

```

import org.junit.Test;

import org.junit.Before;

import org.junit.After;

import static org.junit.Assert.*;

import static org.hamcrest.CoreMatchers.is;

import static org.hamcrest.core.IsNot.not;

import org.openqa.selenium.By;

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.firefox.FirefoxDriver;

import org.openqa.selenium.chrome.ChromeDriver;

import org.openqa.selenium.remote.RemoteWebDriver;

import org.openqa.selenium.remote.DesiredCapabilities;

import org.openqa.selenium.Dimension;

import org.openqa.selenium.WebElement;

```

```

import org.openqa.selenium.interactions.Actions;
import org.openqa.selenium.support.ui.ExpectedConditions;
import org.openqa.selenium.support.ui.WebDriverWait;
import org.openqa.selenium.JavascriptExecutor;
import org.openqa.selenium.Alert;
import org.openqa.selenium.Keys;
import java.util.*;
import java.net.MalformedURLException;
import java.net.URL;
public class ProfilecollectiveTest {
    private WebDriver driver;
    private Map<String, Object> vars;
    JavascriptExecutor js;
    @Before
    public void setUp() {
        driver = new ChromeDriver();
        js = (JavascriptExecutor) driver;
        vars = new HashMap<String, Object>();
    }
    @After
    public void tearDown() {
        driver.quit();
    }
    @Test
    public void profilecollective() {
        driver.get("http://13.235.95.187/dash/login.php");
        driver.manage().window().setSize(new Dimension(1280, 680));
        driver.findElement(By.id("user")).click();
        driver.findElement(By.id("user")).sendKeys("FAC0035");
        driver.findElement(By.id("pass")).sendKeys("Saladfox@456");
    }
}

```

```

        driver.findElement(By.id("pass")).sendKeys(Keys.ENTER);

        driver.findElement(By.cssSelector(".dropdown-toggle")).click();

        driver.findElement(By.cssSelector(".dropdown-menu-item:nth-child(1) span")).click();

        driver.findElement(By.name("interest")).click();

        driver.findElement(By.name("interest")).sendKeys("Digital
Image Processing, Web Security, Web analytics");

        driver.findElement(By.name("address")).click();

        driver.findElement(By.name("address")).click();

        driver.findElement(By.name("address")).click();

        driver.findElement(By.name("address")).sendKeys("12, Dhareni
Apartments, Peelamedu, Coimbatore-099");

        driver.findElement(By.cssSelector(".fancy-button:nth-child(29)
> span")).click();

        driver.findElement(By.name("interest")).click();

        driver.findElement(By.name("interest")).click();

        driver.findElement(By.name("interest")).sendKeys("Digital
Image Processing, Web Security");

        driver.findElement(By.name("address")).click();

        driver.findElement(By.name("address")).click();

        driver.findElement(By.name("address")).sendKeys("12, Dhareni
Apartments, Peelamedu, Coimbatore-99");

        driver.findElement(By.cssSelector(".fancy-button:nth-child(29)
> span")).click();

        driver.findElement(By.cssSelector(".fa-arrow-left")).click();

        driver.findElement(By.cssSelector(".dropdown-toggle")).click();

        driver.findElement(By.cssSelector(".dropdown-menu-item:nth-
child(2) div")).click();

        driver.close();

    }

}

```

7.5.4.2.3. Leave-collective:

```
import org.junit.Test;  
import org.junit.Before;  
import org.junit.After;  
import static org.junit.Assert.*;  
import static org.hamcrest.CoreMatchers.is;  
import static org.hamcrest.core.IsNot.not;  
import org.openqa.selenium.By;  
import org.openqa.selenium.WebDriver;  
import org.openqa.selenium.firefox.FirefoxDriver;  
import org.openqa.selenium.chrome.ChromeDriver;  
import org.openqa.selenium.remote.RemoteWebDriver;  
import org.openqa.selenium.remote.DesiredCapabilities;  
import org.openqa.selenium.Dimension;  
import org.openqa.selenium.WebElement;  
import org.openqa.selenium.interactions.Actions;  
import org.openqa.selenium.support.ui.ExpectedConditions;  
import org.openqa.selenium.support.ui.WebDriverWait;  
import org.openqa.selenium.JavascriptExecutor;  
import org.openqa.selenium.Alert;  
import org.openqa.selenium.Keys;  
import java.util.*;  
import java.net.MalformedURLException;  
import java.net.URL;  
public class LeavecollectiveTest {  
    private WebDriver driver;  
    private Map<String, Object> vars;  
    JavascriptExecutor js;  
    @Before  
    public void setUp() {
```

```

        driver = new ChromeDriver();
        js = (JavascriptExecutor) driver;
        vars = new HashMap<String, Object>();
    }

    @After
    public void tearDown() {
        driver.quit();
    }

    @Test
    public void leavecollective() {
        driver.get("http://13.235.95.187/dash/login.php");
        driver.manage().window().setSize(new Dimension(1280, 680));
        driver.findElement(By.id("user")).click();
        driver.findElement(By.id("user")).sendKeys("FAC0035");
        driver.findElement(By.id("pass")).click();
        driver.findElement(By.id("pass")).sendKeys("Saladfox@456");
        driver.findElement(By.id("pass")).sendKeys(Keys.ENTER);
        driver.findElement(By.cssSelector(".sidebar-nav-item:nth-child(4) div")).click();
        driver.findElement(By.cssSelector(".float")).click();
        driver.findElement(By.id("leave-type")).click();
        {

            WebElement dropdown = driver.findElement(By.id("leave-type"));
            dropdown.findElement(By.xpath("//option[. = 'Casual leave']")).click();
        }
        driver.findElement(By.id("leave-type")).click();
        driver.findElement(By.id("start")).click();
        driver.findElement(By.linkText("Next")).click();
        driver.findElement(By.linkText("28")).click();
    }
}

```

```

        driver.findElement(By.id("end")).click();

        driver.findElement(By.linkText("29")).click();

        driver.findElement(By.id("reason")).click();

        driver.findElement(By.id("reason")).sendKeys("vacation
overdue");

        driver.findElement(By.name("applyleave")).click();

        driver.findElement(By.cssSelector(".dropdown-toggle")).click();

        driver.findElement(By.cssSelector(".dropdown-menu-item:nth-
child(2) span")).click();

        driver.findElement(By.id("user")).click();

        driver.findElement(By.id("user")).sendKeys("HFAC001");

        driver.findElement(By.id("pass")).click();

        driver.findElement(By.id("pass")).sendKeys("Vector@3456");

        driver.findElement(By.id("pass")).sendKeys(Keys.ENTER);

        driver.findElement(By.cssSelector(".sidebar-nav-item:nth-
child(4) div")).click();

        driver.findElement(By.linkText("Reject")).click();

        driver.findElement(By.cssSelector(".dropdown-toggle")).click();

        driver.findElement(By.cssSelector(".dropdown-menu-item:nth-
child(2) span")).click();

    }

}

```

7.5.4.2.4. Assignment-collective:

```

// Generated by Selenium IDE

import org.junit.Test;

import org.junit.Before;

import org.junit.After;

import static org.junit.Assert.*;

import static org.hamcrest.CoreMatchers.is;

import static org.hamcrest.core.IsNot.not;

```

```

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.remote.RemoteWebDriver;
import org.openqa.selenium.remote.DesiredCapabilities;
import org.openqa.selenium.Dimension;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.interactions.Actions;
import org.openqa.selenium.support.ui.ExpectedConditions;
import org.openqa.selenium.support.ui.WebDriverWait;
import org.openqa.selenium.JavascriptExecutor;
import org.openqa.selenium.Alert;
import org.openqa.selenium.Keys;
import java.util.*;
import java.net.MalformedURLException;
import java.net.URL;

public class AssignmentscollectiveTest {
    private WebDriver driver;
    private Map<String, Object> vars;
    JavascriptExecutor js;
    @Before
    public void setUp() {
        driver = new ChromeDriver();
        js = (JavascriptExecutor) driver;
        vars = new HashMap<String, Object>();
    }
    @After
    public void tearDown() {
        driver.quit();
    }
}

```

```

        }

    @Test

    public void assignmentscollective() {

        driver.get("http://13.235.95.187/dash/login.php");
        driver.manage().window().setSize(new Dimension(1280, 680));
        driver.findElement(By.id("user")).click();
        driver.findElement(By.id("user")).sendKeys("FAC0035");
        driver.findElement(By.id("pass")).click();
        driver.findElement(By.id("pass")).sendKeys("Saladfox@456");
        driver.findElement(By.id("pass")).sendKeys(Keys.ENTER);
        driver.findElement(By.cssSelector(".sidebar-nav-item:nth-child(3) div")).click();

        driver.findElement(By.xpath("//input[@type='checkbox']")).click();

        driver.findElement(By.linkText("Assignments")).click();
        driver.findElement(By.name("myfile")).click();
        driver.findElement(By.name("myfile")).sendKeys("E:\\Vijay\\s
Data\\AWS\\AWS Certified Cloud Practitioner.pdf");

        driver.findElement(By.name("mydate")).click();
        driver.findElement(By.name("mydate")).sendKeys("2021-07-
31");

        driver.findElement(By.name("myformat")).click();
        driver.findElement(By.name("myformat")).sendKeys("pdf");
        driver.findElement(By.name("myreason")).click();
        driver.findElement(By.name("myreason")).sendKeys("for
internal assessment");

        driver.findElement(By.name("save")).click();
        driver.findElement(By.cssSelector(".dropdown-toggle")).click();
        driver.findElement(By.linkText("Logout")).click();
        driver.close();
    }
}

```

7.5.4.2.5. Resources-collective:

```
import org.junit.Test;  
import org.junit.Before;  
import org.junit.After;  
import static org.junit.Assert.*;  
import static org.hamcrest.CoreMatchers.is;  
import static org.hamcrest.core.IsNot.not;  
import org.openqa.selenium.By;  
import org.openqa.selenium.WebDriver;  
import org.openqa.selenium.firefox.FirefoxDriver;  
import org.openqa.selenium.chrome.ChromeDriver;  
import org.openqa.selenium.remote.RemoteWebDriver;  
import org.openqa.selenium.remote.DesiredCapabilities;  
import org.openqa.selenium.Dimension;  
import org.openqa.selenium.WebElement;  
import org.openqa.selenium.interactions.Actions;  
import org.openqa.selenium.support.ui.ExpectedConditions;  
import org.openqa.selenium.support.ui.WebDriverWait;  
import org.openqa.selenium.JavascriptExecutor;  
import org.openqa.selenium.Alert;  
import org.openqa.selenium.Keys;  
import java.util.*;  
import java.net.MalformedURLException;  
import java.net.URL;  
public class ResourcescollectiveTest {  
    private WebDriver driver;  
    private Map<String, Object> vars;  
    JavascriptExecutor js;  
    @Before  
    public void setUp() {
```

```

        driver = new ChromeDriver();
        js = (JavascriptExecutor) driver;
        vars = new HashMap<String, Object>();}
    @After
    public void tearDown() {
        driver.quit();}
    @Test
    public void resourcescollective() {
        driver.get("http://13.235.95.187/dash/login.php");
        driver.manage().window().setSize(new Dimension(1280, 680));
        driver.findElement(By.id("user")).click();
        driver.findElement(By.id("user")).sendKeys("FAC0035");
        driver.findElement(By.id("pass")).click();
        driver.findElement(By.id("pass")).sendKeys("Saladfox@456");
        driver.findElement(By.id("pass")).sendKeys(Keys.ENTER);
        driver.findElement(By.cssSelector(".sidebar-nav-item:nth-child(3) div")).click();

        driver.findElement(By.xpath("//input[@type='checkbox']")).click()
        ());
        driver.findElement(By.linkText("Resources")).click();
        driver.findElement(By.name("myfile")).click();

        driver.findElement(By.name("myfile")).sendKeys("C:\\fakepath\\
AWS Certified Cloud Practitioner certificate.pdf");

        driver.findElement(By.name("save")).click();
        driver.findElement(By.cssSelector(".fa-trash")).click();
        driver.findElement(By.cssSelector(".dropdown-toggle")).click();
        driver.findElement(By.cssSelector(".dropdown-menu-item:nth-child(2) span")).click();
        driver.close();
    }
}

```

7.5.4.2.6. Gatepass-collective:

```
import org.junit.Test;  
import org.junit.Before;  
import org.junit.After;  
import static org.junit.Assert.*;  
import static org.hamcrest.CoreMatchers.is;  
import static org.hamcrest.core.IsNot.not;  
import org.openqa.selenium.By;  
import org.openqa.selenium.WebDriver;  
import org.openqa.selenium.firefox.FirefoxDriver  
import org.openqa.selenium.chrome.ChromeDriver;  
import org.openqa.selenium.remote.RemoteWebDriver;  
import org.openqa.selenium.remote.DesiredCapabilities;  
import org.openqa.selenium.Dimension;  
import org.openqa.selenium.Keys;  
import java.util.*;  
import java.net.MalformedURLException;  
import java.net.URL;  
public class GatepasscollectiveTest {  
    private WebDriver driver;  
    private Map<String, Object> vars;  
    JavascriptExecutor js;  
    @Before  
    public void setUp() {  
        driver = new ChromeDriver();  
        js = (JavascriptExecutor) driver;  
        vars = new HashMap<String, Object>();  
    }  
    @After  
    public void tearDown() {
```

```

        driver.quit();
    }

    @Test

    public void gatepasscollective() {
        driver.get("http://13.235.95.187/dash/login.php");
        driver.manage().window().setSize(new Dimension(1296, 696));
        driver.findElement(By.id("user")).click();
        driver.findElement(By.id("user")).sendKeys("FAC0035");
        driver.findElement(By.id("pass")).click();
        driver.findElement(By.id("pass")).sendKeys("Saladfox@456");
        driver.findElement(By.id("pass")).sendKeys(Keys.ENTER);
        driver.findElement(By.cssSelector(".sidebar-nav-item:nth-child(5) div")).click();
        driver.findElement(By.cssSelector("tbody:nth-child(3) td:nth-child(7) > a")).click();
        driver.findElement(By.cssSelector(".dropdown-toggle")).click();
        driver.findElement(By.linkText("Logout")).click();
        driver.findElement(By.id("user")).click();
        driver.findElement(By.id("user")).sendKeys("HFAC001");
        driver.findElement(By.id("pass")).click();
        driver.findElement(By.id("pass")).sendKeys("Vector@3456");
        driver.findElement(By.id("pass")).sendKeys(Keys.ENTER);
        driver.findElement(By.cssSelector(".sidebar-nav-item:nth-child(5) div")).click();
        driver.findElement(By.cssSelector("tbody:nth-child(3) td:nth-child(6) > a")).click();
        driver.findElement(By.cssSelector(".dropdown-toggle")).click();
        driver.findElement(By.cssSelector(".dropdown-menu-item:nth-child(2) span")).click();
    }
}

```

7.5.5. Dynamic Testing – Penetration testing

7.5.5.1. Tools used and setup details

Tool used is ZAP. ZAP is an open-source tool which is offered by OWASP (Open Web Application Security Project), for penetration testing of your website/web application. It helps to find the security vulnerabilities in application. The vulnerabilities include

- SQL injection
- Broken Authentication
- Sensitive data exposure
- Broken Access control
- Security misconfiguration
- Cross Site Scripting (XSS)
- Insecure Deserialization
- Components with known vulnerabilities
- Missing security headers

Setup Details:

- The first thing to do is install ZAP on the system you intend to perform penetration testing on.
- ZAP requires Java 8+ in order to run. The Mac OS/X installer includes an appropriate version of Java but you must install Java 8+ separately for Windows, Linux, and Cross-Platform versions.

7.5.5.2. Screenshots/Reports

Sl. No.	Vulnerability	Risk
1	SQL injection	No
2	Cross Site Scripting (XSS)	Low
3	Sensitive data exposure	Low
4	Server Leaks	Low
5	Cookies Flag	Low
6	Missing Security Headers	Low
7	Cross Domain Java Script Source File inclusion	Low
8	Application Error Disclosure	Medium
9	Parameter Tampering	Medium

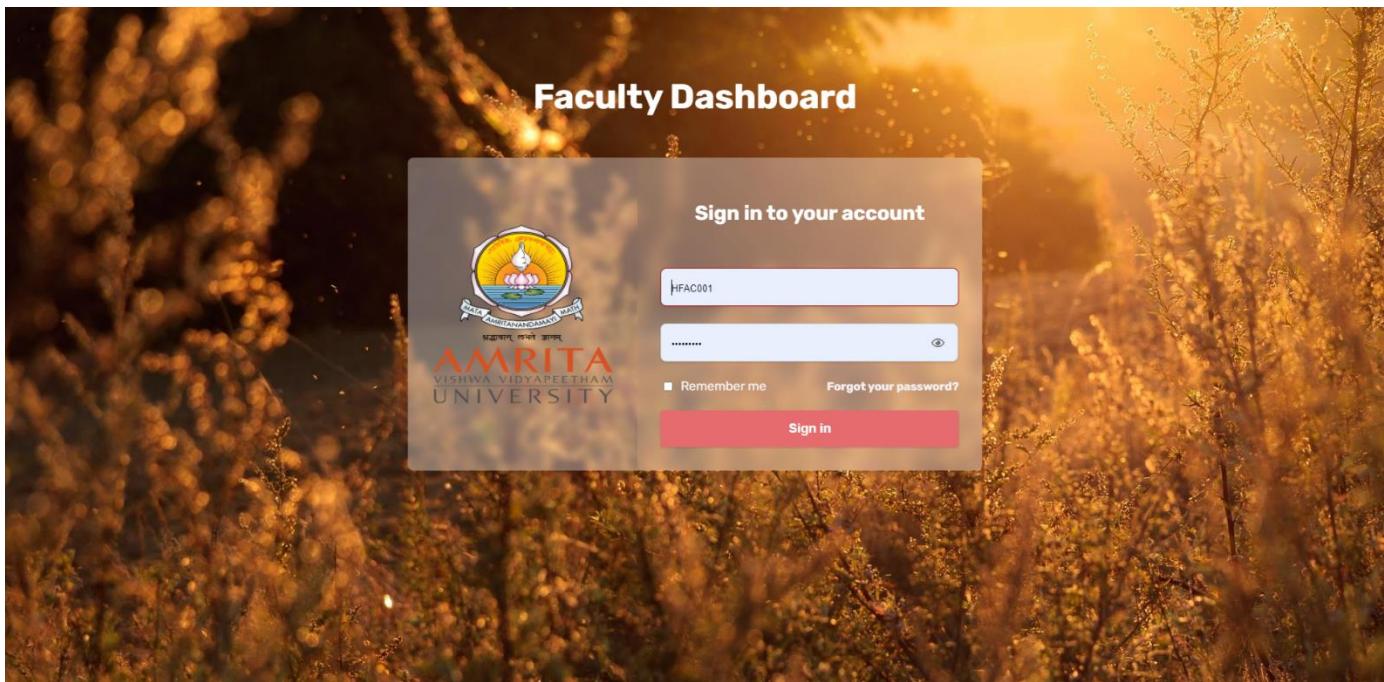
High	Medium	Low	Informational	High	Medium	Low
Absence of Anti-CSRF Tokens (2)						
Cookie No HttpOnly Flag (1)						
Cookie Without SameSite Attribute (1)						
Cross-Domain JavaScript Source File Inclusion (3)						
Server Leaks Information via "X-Powered-By" HTTP Response Header Field(s) (1)						
X-Content-Type-Options Header Missing (1)						

Scan Results Overview													
Id	Source	Req. Timestamp	Method	URL	Code	Reason	RTT	Size Resp. Body	Highest Alert	Note	Tags	File	
4.519 ↳ Proxy	10/6/21 6:16:42 PM	POST	https://update.googleapis.com/service/update2/json	200 OK	1.3 s	218 bytes			JSON				
4.520 ↳ Proxy	10/6/21 6:16:19 PM	GET	http://e2-13-235-95-187.ap-south-1.compute.amazonaws...	200 OK	222 ms	9,205 bytes	⚠️ Medium		Form, Script, Comment				
4.521 ↳ Proxy	10/6/21 6:16:19 PM	GET	http://e2-13-235-95-187.ap-south-1.compute.amazonaws...	200 OK	94 ms	14,199 bytes	⚠️ Low		Comment				
4.522 ↳ Proxy	10/6/21 6:16:19 PM	GET	https://cdns.cloudflare.com/ajax/libs/font-awesome/4.7.0/...	200 OK	232 ms	31,000 bytes	⚠️ Medium		Comment				
4.523 ↳ Proxy	10/6/21 6:16:19 PM	GET	http://e2-13-235-95-187.ap-south-1.compute.amazonaws...	200 OK	231 ms	2,123 bytes	⚠️ Low						
4.524 ↳ Proxy	10/6/21 6:16:20 PM	GET	https://cdns.cloudflare.com/ajax/libs/chart.js/2.9.3/chart...	200 OK	152 ms	521 bytes	⚠️ Medium						
4.525 ↳ Proxy	10/6/21 6:16:20 PM	GET	https://cdns.cloudflare.com/ajax/libs/font-awesome/4.7.0/...	200 OK	273 ms	77,160 bytes	⚠️ Medium						
4.526 ↳ Proxy	10/6/21 6:16:20 PM	GET	https://calendar.google.com/calendar/embed?height=600...	200 OK	1.33 s	4,220 bytes	⚠️ Medium		Script				
4.527 ↳ Proxy	10/6/21 6:16:21 PM	GET	https://calendar.google.com/calendar/stats/0/4082181024...	200 OK	357 ms	22,172 bytes	⚠️ Low		Comment				
4.528 ↳ Proxy	10/6/21 6:16:21 PM	GET	https://calendar.google.com/calendar/_/webcalendar/stat...	200 OK	1.14 s	228,761 bytes	⚠️ Informational		Comment				
4.529 ↳ Proxy	10/6/21 6:16:22 PM	GET	https://apis.google.com/_/apis/api-libraries/library...	200 OK	1.33 s	12,555 bytes	⚠️ Medium		Comment				
4.530 ↳ Proxy	10/6/21 6:16:23 PM	POST	https://clients6.google.com/comiccalendar/_/api/comiccal...	204 No Content	511 ms	0 bytes							
4.531 ↳ Proxy	10/6/21 6:16:23 PM	GET	https://apis.google.com/_/apis/app-studio/_/js/capi.e...	200 OK	869 ms	311,448 bytes	⚠️ Informational		Hidden, Comment				
4.536 ↳ Proxy	10/6/21 6:16:24 PM	GET	https://clients6.google.com/comiccalendar/_/js/capi.e...	200 OK	316 ms	302 bytes	⚠️ Medium		Script				
4.538 ↳ Proxy	10/6/21 6:16:25 PM	GET	https://apis.google.com/_/apis/app-studio/_/js/capi.e...	200 OK	370 ms	12,551 bytes	⚠️ Medium		Comment				
4.539 ↳ Proxy	10/6/21 6:16:25 PM	GET	https://apis.google.com/_/apis/app-studio/_/js/capi.e...	200 OK	465 ms	64,392 bytes	⚠️ Informational		Comment				
4.540 ↳ Proxy	10/6/21 6:16:26 PM	GET	https://clients6.google.com/comiccalendar/3/calendars/en...	200 OK	604 ms	271 bytes	⚠️ Low		JSON				
4.541 ↳ Proxy	10/6/21 6:16:26 PM	GET	https://clients6.google.com/comiccalendar/3/calendars/lo...	200 OK	830 ms	4,872 bytes	⚠️ Low		JSON				
4.542 ↳ Proxy	10/6/21 6:16:28 PM	POST	https://update.googleapis.com/service/update2/json	200 OK	596 ms	218 bytes			JSON				

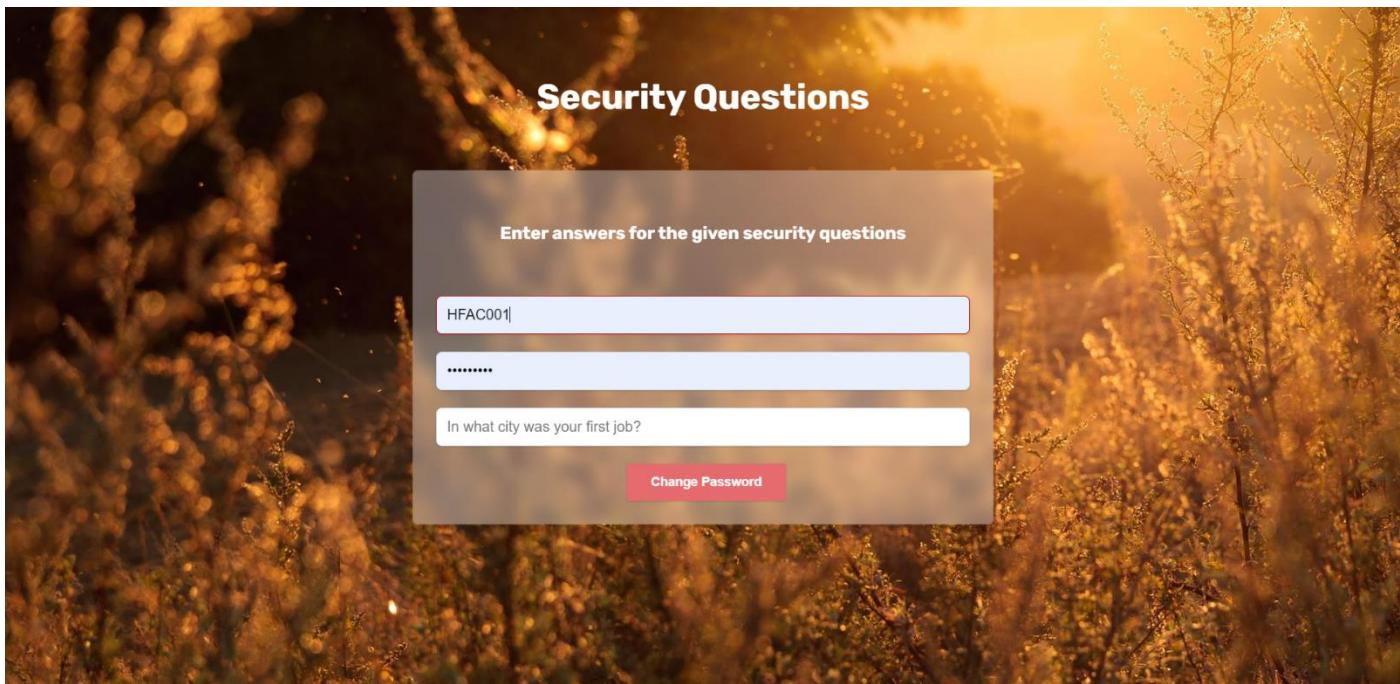
Crawled URLs Scan Results													
Processed	Id	Req. Timestamp	Method	URL	Code	Reason	RTT	Size Resp. Header	Size Resp. Body	Highest Alert	Note	Tags	File
Out of Scope	100	10/6/21 6:00:28 PM	POST	https://accounts.google.com/ListAccounts?gsia=1&s...	403	Forbidden	0 ms	130 bytes	40 bytes				
Out of Scope	101	10/6/21 6:00:29 PM	POST	https://accounts.google.com/ListAccounts?gsia=1&s...	403	Forbidden	0 ms	130 bytes	40 bytes				
Out of Scope	102	10/6/21 6:00:29 PM	GET	http://e2-13-235-95-187.ap-south-1.compute.amazon...	302	Found	131 ms	393 bytes	5,737 bytes	⚠️ Low			
Out of Scope	103	10/6/21 6:00:29 PM	GET	http://e2-13-235-95-187.ap-south-1.compute.amazon...	200	OK	85 ms	311 bytes	1,729 bytes	⚠️ Medium			
Out of Scope	104	10/6/21 6:00:30 PM	GET	http://e2-13-235-95-187.ap-south-1.compute.amazon...	200	OK	102 ms	255 bytes	5,087 bytes	⚠️ Low			
Out of Scope	105	10/6/21 6:00:30 PM	GET	https://cdns.cloudflare.com/ajax/libs/font-awesome/5...	403	Forbidden	0 ms	130 bytes	40 bytes				
Out of Scope	106	10/6/21 6:00:30 PM	GET	http://e2-13-235-95-187.ap-south-1.compute.amazon...	200	OK	193 ms	267 bytes	418 bytes	⚠️ Low			
Out of Scope	107	10/6/21 6:00:30 PM	GET	https://fonts.googleapis.com/css2?family=Rubik:wght...	403	Forbidden	0 ms	130 bytes	40 bytes				
Out of Scope	108	10/6/21 6:00:30 PM	GET	http://e2-13-235-95-187.ap-south-1.compute.amazon...	200	OK	500 ms	259 bytes	117,452 bytes	⚠️ Low			
Out of Scope	109	10/6/21 6:00:30 PM	GET	https://picasum.photos/d/4131920/1080	403	Forbidden	0 ms	130 bytes	40 bytes				
Out of Scope	110	10/6/21 6:00:30 PM	GET	http://e2-13-235-95-187.ap-south-1.compute.amazon...	404	NotFound	199 ms	186 bytes	337 bytes				
Out of Scope	111	10/6/21 6:00:31 PM	GET	http://e2-13-235-95-187.ap-south-1.compute.amazon...	302	Found	151 ms	335 bytes	5,508 bytes	⚠️ Low			
Out of Scope	112	10/6/21 6:00:32 PM	GET	http://e2-13-235-95-187.ap-south-1.compute.amazon...	200	OK	90 ms	311 bytes	1,729 bytes	⚠️ Medium			
Out of Scope	113	10/6/21 6:00:32 PM	GET	https://cdns.cloudflare.com/ajax/libs/font-awesome/5...	403	Forbidden	0 ms	130 bytes	40 bytes				
Out of Scope	114	10/6/21 6:00:32 PM	GET	https://fonts.googleapis.com/css2?family=Rubik:wght...	403	Forbidden	0 ms	130 bytes	40 bytes				
Out of Scope	115	10/6/21 6:00:32 PM	GET	https://picasum.photos/d/4131920/1080	403	Forbidden	0 ms	130 bytes	40 bytes				
Out of Scope	116	10/6/21 6:00:32 PM	POST	https://accounts.google.com/ListAccounts?gsia=1&s...	403	Forbidden	0 ms	130 bytes	40 bytes				
Out of Scope	117	10/6/21 6:00:33 PM	GET	http://e2-13-235-95-187.ap-south-1.compute.amazon...	200	OK	183 ms	311 bytes	1,665 bytes	⚠️ Medium			
Out of Scope	118	10/6/21 6:00:33 PM	GET	https://cdns.cloudflare.com/ajax/libs/font-awesome/5...	403	Forbidden	0 ms	130 bytes	40 bytes				
Out of Scope	119	10/6/21 6:00:33 PM	GET	https://fonts.googleapis.com/css2?family=Rubik:wght...	403	Forbidden	0 ms	130 bytes	40 bytes				
Out of Scope	120	10/6/21 6:00:33 PM	GET	https://picasum.photos/d/4131920/1080	403	Forbidden	0 ms	130 bytes	40 bytes				
Out of Scope	121	10/6/21 6:00:33 PM	GET	http://e2-13-235-95-187.ap-south-1.compute.amazon...	200	OK	97 ms	265 bytes	4,571 bytes	⚠️ Low			
Out of Scope	122	10/6/21 6:00:33 PM	GET	https://clients6.google.com/comiccalendar/_/js/capi.e...	403	Forbidden	0 ms	130 bytes	40 bytes				
Out of Scope	123	10/6/21 6:00:33 PM	GET	https://picasum.photos/d/4131920/1080	403	Forbidden	0 ms	130 bytes	40 bytes				
Out of Scope	124	10/6/21 6:00:36 PM	GET	http://e2-13-235-95-187.ap-south-1.compute.amazon...	302	Found	197 ms	335 bytes	5,608 bytes	⚠️ Low			
Out of Scope	125	10/6/21 6:00:36 PM	GET	http://e2-13-235-95-187.ap-south-1.compute.amazon...	200	OK	100 ms	311 bytes	1,729 bytes	⚠️ Medium			
Out of Scope	126	10/6/21 6:00:36 PM	GET	https://cdns.cloudflare.com/ajax/libs/font-awesome/5...	403	Forbidden	0 ms	130 bytes	40 bytes				
Out of Scope	127	10/6/21 6:00:36 PM	GET	https://fonts.googleapis.com/css2?family=Rubik:wght...	403	Forbidden	0 ms	130 bytes	40 bytes				
Out of Scope	128	10/6/21 6:00:36 PM	GET	https://picasum.photos/d/4131920/1080	403	Forbidden	0 ms	130 bytes	40 bytes				

8. Screenshots of project

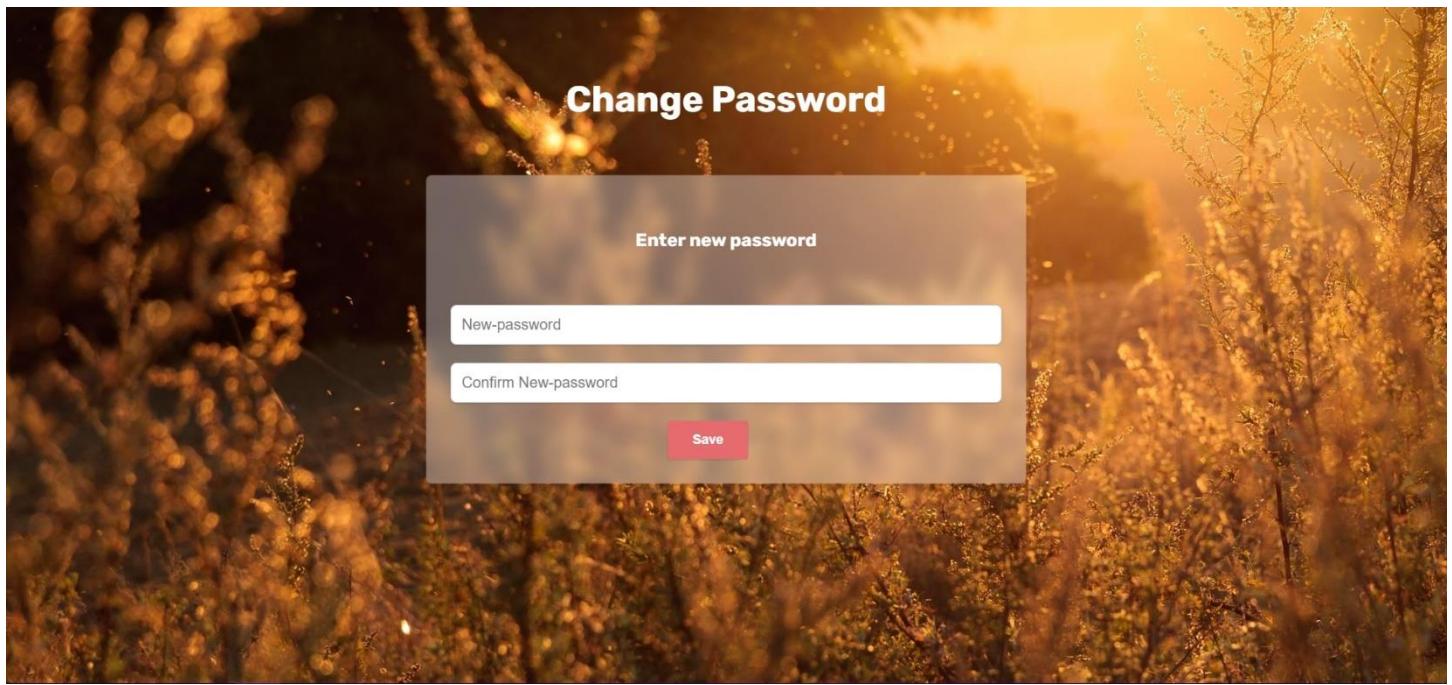
8.1. Login



8.1.1. Forget password



8.1.2. Change password



8.2. Schedule/Timetable

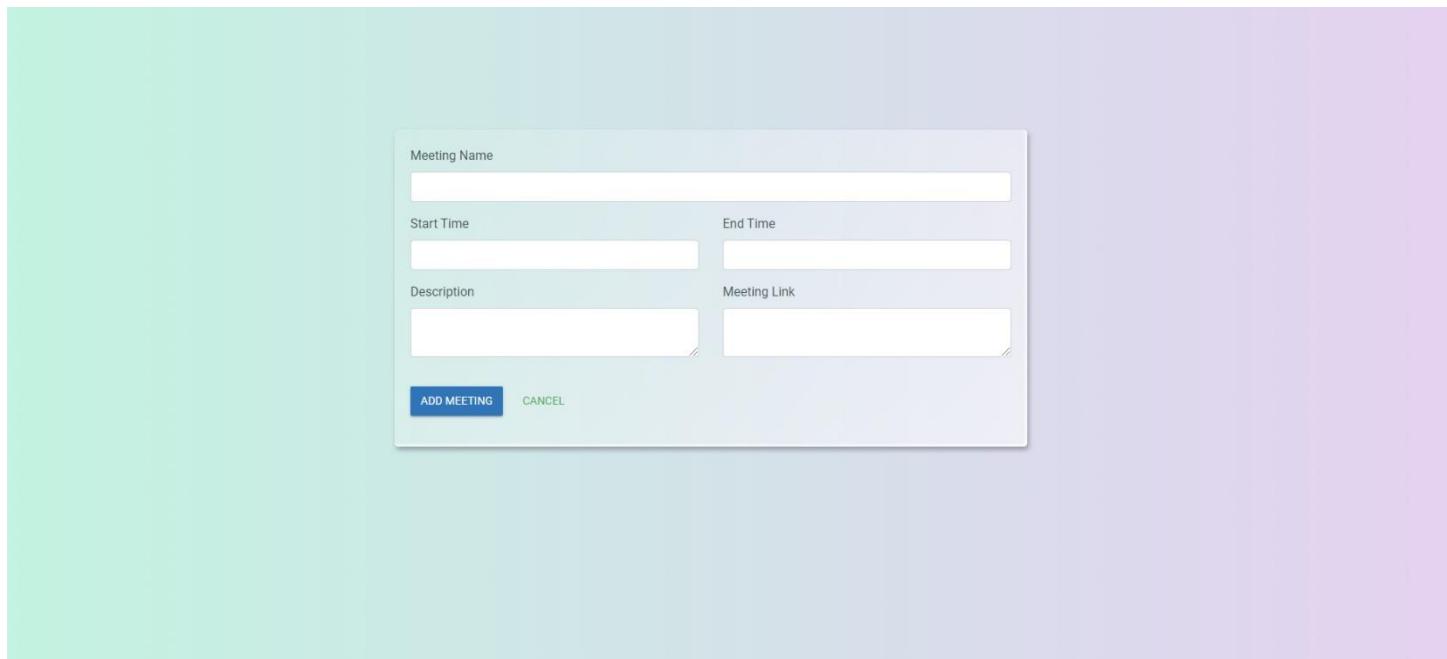
A screenshot of a web-based academic calendar and timetable system. On the left, there is a purple sidebar with icons for calendar, users, groups, home, and help. The main area is divided into two sections: 'Academic Calendar' and 'Timetable'.

Academic Calendar: Shows the month of June 2021. Specific dates are highlighted in yellow: June 8th and 9th, and July 1st. A note 'SE VI Semester' is placed over the yellowed area. The days of the week are labeled from Sunday to Saturday.

Timetable: A grid showing classes from 9 AM to 3 PM for five days of the week. The columns represent time slots: 9 - 10 AM, 10 - 11 AM, 11 AM - 12 PM, 12 - 1 PM, 1 - 2 PM, and 2 - 3 PM. The last column is for 'Meeting'.

Day	9 - 10 AM	10 - 11 AM	11 AM - 12 PM	12 - 1 PM	1 - 2 PM	2 - 3 PM	Meeting
Monday	R405 15CSE339 Operating Systems (III Sem)	L001 15CSE339 Operating System Lab (III Sem)	Lunch		14CSE413 M.Tech Project Guidance	-	
Tuesday	R405 15CSE339 Operating System (III Sem)		Lunch	R302 15CSE313 Software Engineering (VI Sem)	-		
Wednesday	R302 15CSE313 Software Engineering (VI Sem)	Lunch	R405 15CSE339 Operating Systems (II Sem)	-			
Thursday	L001 15CSE313 Software Engineering Lab (VI Sem)	R405 15CSE339 Operating System (III Sem)	Lunch		14CSE413 M.Tech Project Guidance	-	
Friday	R405 15CSE339 Operating System (III Sem)	R302 15CSE313 Software Engineering (VI Sem)	Lunch				

8.2.1. Add meeting



8.3. Faculty Profile

Ram Kumar S

Search..

Schedule

My profile

My Courses

Attendance

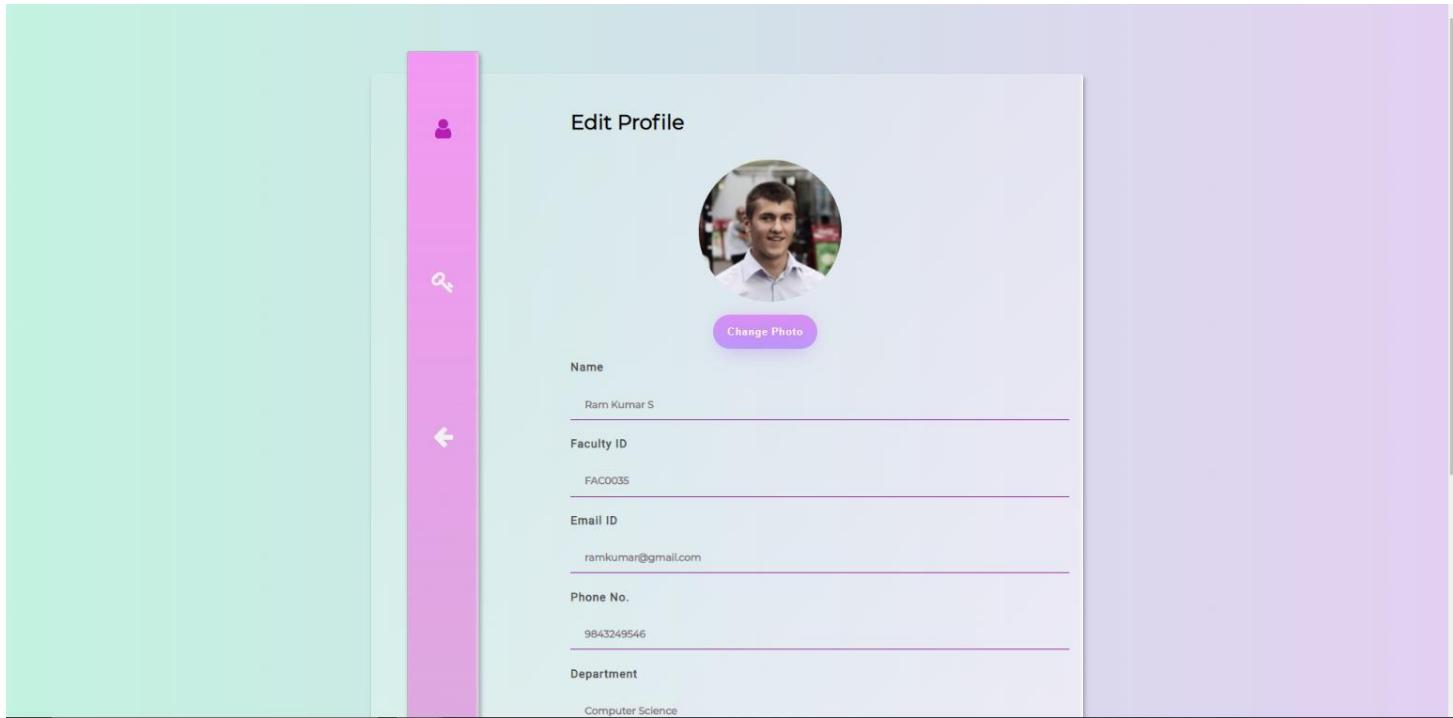
Gatepass

Help

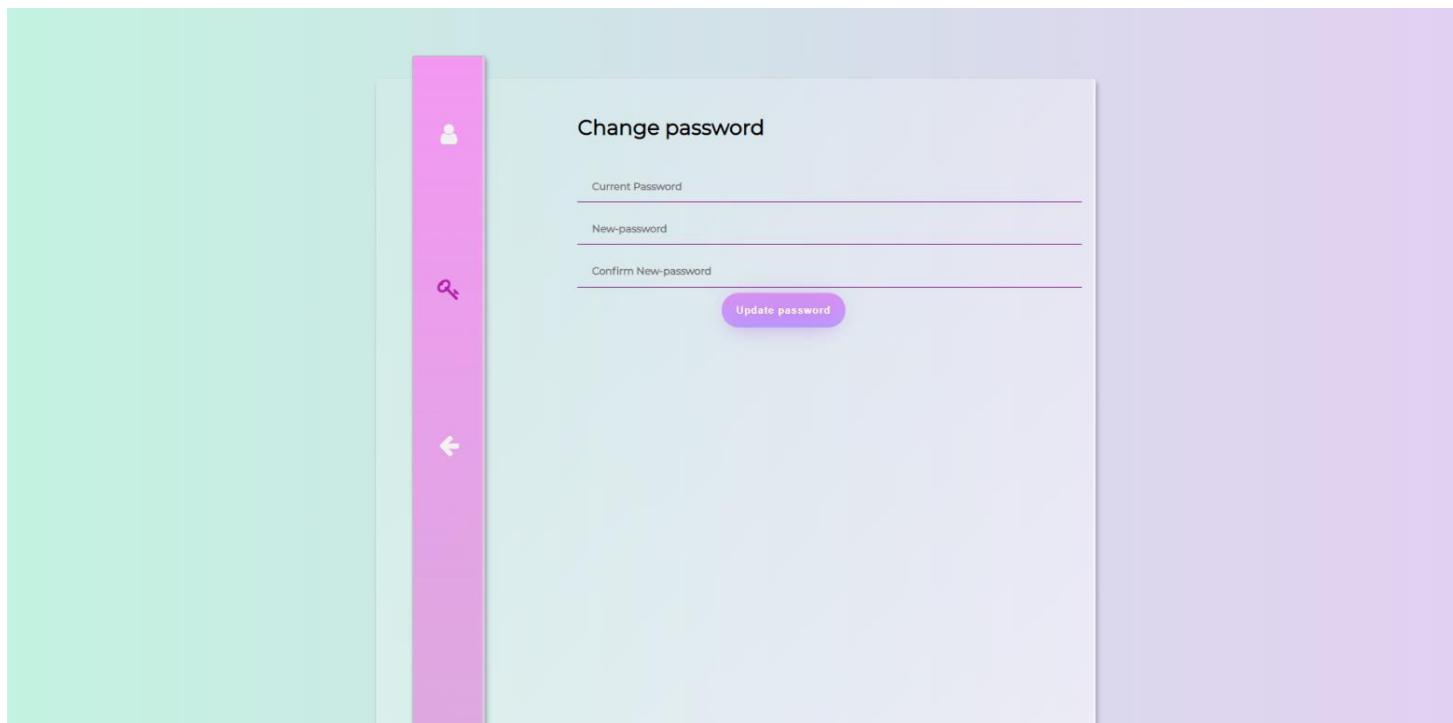
Name: Ram Kumar S
Faculty ID: FAC0035
Qualifications: B.Tech, M.Tech
Email ID: ramkumar@gmail.com
Phone No.: 9843249546
Position: Assistant Professor
Department: Computer Science
Areas of Interest: Digital Image Processing, Web Security
Residential Address: 12, Dharen Apartments, Peelamedu, Coimbatore-99
e-wallet: Rs. 150 ⚠ Kindly recharge your e-wallet!

8.4. Settings

8.4.1. Edit Profile



8.4.2. Change Password



8.5. My Courses

8.5.1. Resources

The screenshot shows the 'Resources' section of the Amrita eLearning platform. On the left is a purple sidebar with icons for calendar, users, groups, grid, home, and help. At the top right are search, refresh, notifications, and user profile icons. Two course dropdown menus are at the top: 'CSE311' and 'CSE385'. The main area has a header 'Resources' and a table with columns 'Filename', 'Size', and 'Date'. A message 'No Resources found' is displayed. Below is an 'Upload Resources' section with a 'Choose File' input, a file preview area, and a teal 'upload' button.

8.5.2. Assignments

The screenshot shows the 'Assignments' section of the Amrita eLearning platform. The layout is identical to the 'Resources' section, with the same purple sidebar, course dropdowns, and top navigation. The main area has a header 'Assignments' and a table with columns 'Filename', 'Start Date', 'End Date', 'Format', and 'Description'. A button 'Add Assignments' is present. Below is a 'Make Assignment' section with a 'Choose File' input, date pickers for start and end dates, and a teal 'CREATE' button.

8.5.3. Mark list

Ram Kumar S

Search..



Student ID	Assignment#1	Assignment#2	Assignment#3	Quiz#1	Quiz#2	Quiz#3	Periodicals#1	Periodicals#2	Internals
STU001	6/10	3/10	4/10	4/10	5/10	6/50	24/50	12/70	28
STU002	9/10	3/10	4/10	4/10	5/10	4/50	33/50	44/70	46.375
STU003	8/10	3/10	5/10	4/10	5/10	3/50	45/50	23/70	42
STU004	9/10	9/10	7/10	8/10	7/10	8/50	45/50	46/70	60.8125
STU005	7/10	3/10	6/10	4/10	5/10	6/50	34/50	35/70	43.75
STU006	7/10	3/10	5/10	4/10	5/10	7/50	44/50	33/70	47.25
STU007	5/10	10/10	8/10	6/10	7/10	8/50	44/50	33/70	52.9375
STU008	5/10	10/10	8/10	6/10	7/10	8/50	44/50	33/70	52.9375
STU009	5/10	10/10	9/10	6/10	7/10	8/50	44/50	22/70	52.9375

8.5.3.1.Update Marks

Student ID:

Assessment Type:

Mark:

8.6. Attendance

8.6.1. Leave Summary

The screenshot shows a dark-themed application interface titled "Leave Application Summary". On the left is a vertical purple sidebar with icons for Schedule, My profile, Notifications, Attendance (which is selected), Gatepass, and Help. The main content area has a search bar at the top. A table lists six leave applications:

ID	Type of leave	Start date	End date	Reason	Status
1	Sick Leave	2021-04-15	2021-04-17	I am sick	Rejected
2	On Duty	2021-04-07	2021-04-25	I am taking two Students to present their paper in Stanford University	Accepted
3	Paid leave	2021-04-04	2021-04-07	I want to go for vacation	Pending
4	Sick Leave	2020-10-20	2020-10-23	Got into a small accident and fractured my leg. So requesting a few days off for resting.	Accepted
5	Casual Leave	2020-09-09	2020-09-11	Have to attend the marriage of my cousin.	Accepted
6	Paid Leave	2020-08-25	2020-08-29	I would like to use my paid leave quota to take a few weeks off.	Rejected

8.6.2. Attendance Summary

The screenshot shows a dark-themed application interface titled "Attendance". The left sidebar is identical to the previous one. The main content area has a search bar at the top. It features a "Percentage of leave taken" section with four bars and a "Leave Application Summary" section with a table.

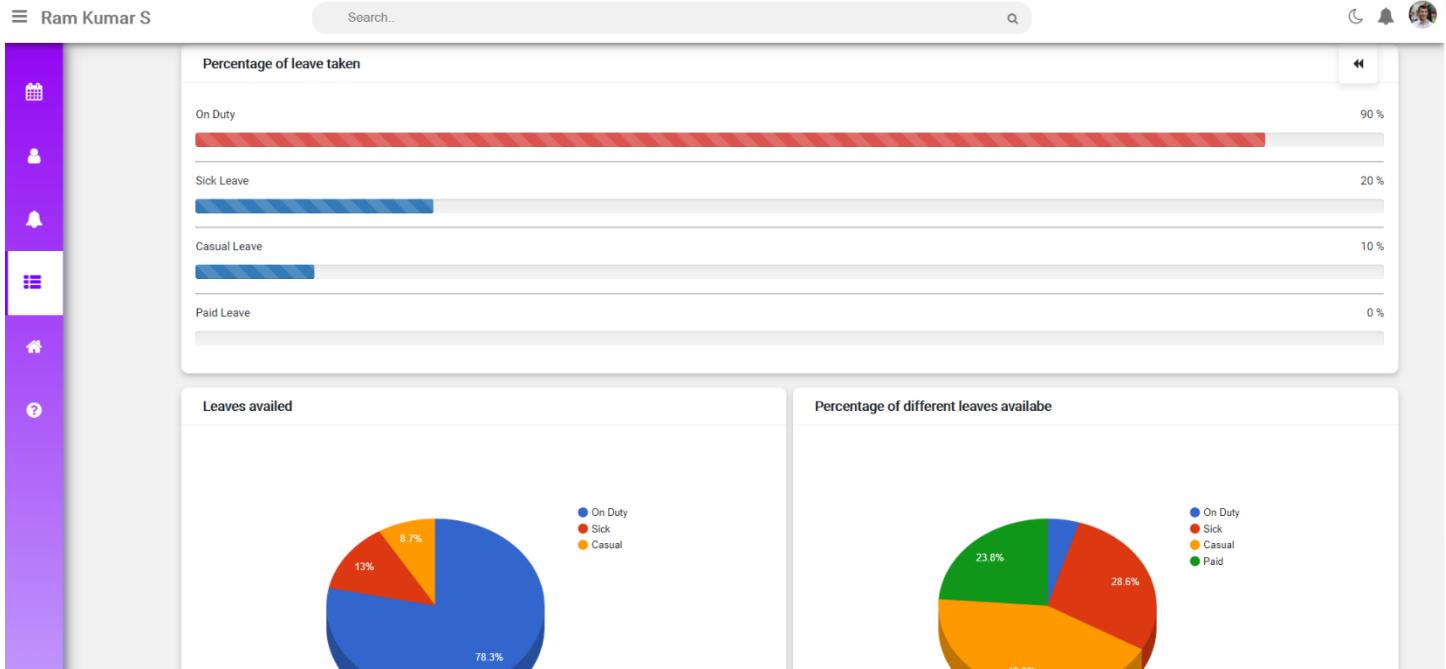
Percentage of leave taken:

- On Duty: 90%
- Sick Leave: 20%
- Casual Leave: 10%
- Paid Leave: 0%

Leave Application Summary:

Type of leave	Start date	End date	Status
Sick Leave	2021-04-15	2021-04-17	Rejected
On Duty	2021-04-07	2021-04-25	Accepted
Paid leave	2021-04-04	2021-04-07	Pending
Sick Leave	2020-10-20	2020-10-23	Accepted
Casual Leave	2020-09-09	2020-09-11	Accepted

8.6.3. Leave Chart



8.6.4. Apply for Leave

A modal dialog for applying for leave, containing fields for leave type, start date, end date, reason, and apply/cancel buttons.

Leave Type:

Start Date: End Date:

Reason:

APPLY LEAVE **CANCEL**

8.7. Gatepass

8.7.1. Faculty side

This screenshot shows the 'Student Leave Application' section of the system. On the left, there is a vertical purple sidebar with icons for calendar, user profile, courses, manage pass, gatepass, and help. The main content area has a search bar at the top. Below it is a table titled 'Student Leave Application' with columns: Student ID, Leave Type, Start Date, End Date, Reason, and Status. Two rows are listed:

Student ID	Leave Type	Start Date	End Date	Reason	Status	Forward	Reject
STU1	Sick Leave	2021-04-30	2021-05-02	I am going to get vaccinated and hence want two days off	forwarded	Forward	Reject
STU1	On Duty	2021-05-12	2021-05-16	I am going to participate in a hackathon	pending	Forward	Reject

8.7.2. Head faculty side

This screenshot shows the 'Manage Leave Application' section. The left sidebar is identical to the previous one, with the 'Manage pass' option highlighted in purple. The main content area has a search bar at the top. Below it is a table titled 'Manage Leave Application' with columns: Employee, Leave Type, Start Date, End Date, Reason, No of Leave, and Status. Four rows are listed:

Employee	Leave Type	Start Date	End Date	Reason	No of Leave	Status	Reject
FAC0035	On Duty	2021-06-07	2021-06-08	uigku	1	Pending	Reject
FAC0035	Sick Leave	2021-06-07	2021-06-11	i am sick	4	Pending	Reject
FAC0035	Casual leave	2021-06-06	2021-06-08	cxbvvn	2	Pending	Reject
FAC0035	Sick Leave	2021-05-11	2021-05-19	jihjh	8	Pending	Reject

9. Conclusion

Thus, faculty dashboard project is developed and tested successfully. To summarize, it was developed using PHP, built using dockers, unit tested by PHPunit, Continuous integration by Jenkins and hosted using AWS and quality assured by SonarQube. The GitHub repository is [Faculty Management Portal](#).