

EXAM ALTERATION HELPER

PROJECT REPORT

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*is partial fulfilment of the requirements for the Course – 15CSE313
(Software Engineering)*

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING



श्रद्धावान् लभते ज्ञानम्

**DEPARTMENT OF COMPUTER SCIENCE AND
ENGINEERING**

AMRITA SCHOOL OF ENGINEERING

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COIMBATORE -641112

MARCH 2020

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BONAFIDE CERTIFICATE

This is to certify that the report entitled “Exam Alteration Helper” submitted by

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is partial fulfilment of the requirements for the award of grade in course – **15CSE313 (Software Engineering)** is a bonafide record of the work carried out at Amrita School of Engineering, Coimbatore.

Evaluated on:

Course Faculty

Faculty Examiner

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1. PREVIEW OF THE PROJECT

ABSTRACT:

Many complexities and confusions still persist in the slot exchange of faculties during the allocation of examination schedules. We have developed this web application where faculties can themselves exchange their examination slots with other faculties after the exam schedule has been uploaded with ease.

1.1 Need:

The very own purpose of developing this web application is to reduce the time, complexities and confusions that prevail during slot changes among faculties and also update the slot changes automatically in the exam schedule when two faculties agree to exchange slots through the application. This also reduces the discrepancies because manually updating it may cause errors.

1.2 Motivation:

Faculties call other faculties or find them in the campus, meet them personally and request for slot exchange when exam duties are allocated to them. Rather doing this, faculties can use our web application where once the exam schedule is uploaded, faculties can view exam slots allocated to them and if they have to change a slot, they can see a list of other faculties who are free during the particular slot and send a request to them for slot exchange by choosing one of their slots.

In this world where technology makes life simple we aim to make the exam slot exchange process more simpler and easy by providing the faculties with our application which is very useful, handy and helpful.

1.3 Tools and Technologies used:

- Visual Studio Code [Editor]
- Eclipse IDE
- HTML, CSS, BOOTSTRAP, JS : Frontend
- NODEJS, EXPRESS : Backend
- JIRA
- SonarQube : Static code testing
- Selenium : UI Testing
- Mocha Chai Jest : Unit testing
- Jenkins
- Docker
- Heroku – Hosting Platform
- Github – Version Control

2. Software Requirements Specifications

2.1 Functional and Non-Functional Requirements

FUNCTIONAL REQUIREMENTS	NON-FUNCTIONAL REQUIREMENTS
All the faculties must have an account.	Passwords shall never be viewable at the point of entry or at any other time.
Faculties must be able to view the examination schedule allocated to them.	The website must open in all the web browsers irrespective of the OS without any technical issues.
Faculties must be able to see the other faculties who are free during a particular slot.	Receiving mails within 5 seconds and file upload takes less time.
Faculties must be able to exchange their slots with other faculties by choosing a faculty from the list viewed.	Passwords are encrypted so user authentication is more secured.

2.2 Weekly Plan for Sprint 1:

WEEK	PLAN OF ACTION
1	Database Creation and UI designing.
2	Login screen and dashboard - UI development.
3	Frontend-Database connection using backend for user authentication/login.
4	Development of other required pages like FAQ, about, edit details, etc. and their connections using backend.
5	Product testing using various testing applications and making the required changes.

WEEK	PLAN OF ACTION
1	Designing UI and design for various features of faculties.
2	UI and frontend development.
3	Frontend-Database connection using backend and various feature development for the faculties.
4	Pipelining and docker setup for continuous integration.
5	Product testing using various testing applications and hosting the software product.

2.3 Boundaries and Constraints:

- Login credentials for each faculty will be given by the admin.
- When large numbers of users access the web page at the same time, the system may crash.
- Loading time is long for some pages

3. Product Backlog

3.1 Report of product backlog of Sprint 1 from JIRA

Key	Summary	Issue Type	Priority	Status	Story Points (1 – 19)
CSEBEAHN-37 *	As the admin, I need to set up accounts for all the faculties	Story	Highest	DONE	- → 3
CSEBEAHN-40 *	As a faculty, I must be able to login to my dashboard.	Story	High	DONE	- → 2
CSEBEAHN-43 *	As a faculty, I must be able to edit and update my details.	Story	Medium	DONE	- → 2
CSEBEAHN-46 *	As a faculty, I must get a link to reset my password, if I forget it.	Story	Medium	DONE	- → 2
CSEBEAHN-48 *	As the Dean, I must be able to login to my dashboard.	Story	High	DONE	- → 1
CSEBEAHN-50 *	As an Admin, I must be able to login to my dashboard.	Story	Highest	DONE	- → 2
CSEBEAHN-52 *	As a faculty, I must be able to check out the FAQs.	Story	Low	DONE	- → 2
CSEBEAHN-54 *	As a faculty, I must be able to ask a new question if unavailable in FAQs.	Story	Lowest	DONE	- → 2
CSEBEAHN-55 *	As the Dean, I should be able to view the details of the faculties.	Story	Medium	DONE	- → 2
CSEBEAHN-57 *	As the admin, I must answer any new FAQ from the faculties.	Story	Low	DONE	1
CSEBEAHN-58 *	Setup a Github Repository	Task	Medium	DONE	-
CSEBEAHN-59 *	Create Express server connection using Nodejs	Task	Medium	DONE	-
CSEBEAHN-60 *	To find out a better hosting platform	Task	Medium	DONE	-
CSEBEAHN-69 *	Implement Python program to access csv files	Task	Medium	DONE	-
CSEBEAHN-135 *	Choose a tool among various tools available for static code, UI and Unit testing for Sprint 1 and 2	Task	Medium	DONE	-
CSEBEAHN-136 *	Perform Static code testing using the tool chosen for the same for Sprint 1	Task	Medium	DONE	-
CSEBEAHN-138 *	Perform UI testing for Sprint 1	Task	Medium	DONE	-
CSEBEAHN-140 *	Perform Unit testing for Sprint 1	Task	Medium	DONE	-
CSEBEAHN-142 *	Check the responsiveness of the website for various devices, Sprint 1	Task	Medium	DONE	-

3.2 EPIC 1: Login Portal

3.2.1 EPIC 1 Stories:

Key	Summary	Issue Type	Priority	Status	Story Points (11)
CSEBEAHN-52	As a faculty, I must be able to check out the FAQs.	Story	Low	DONE	2
CSEBEAHN-50	As an Admin, I must be able to login to my dashboard.	Story	Highest	DONE	2
CSEBEAHN-40	As a faculty, I must be able to login to my dashboard.	Story	High	DONE	2
CSEBEAHN-48	As the Dean, I must be able to login to my dashboard.	Story	High	DONE	1
CSEBEAHN-54	As a faculty, I must be able to ask a new question if unavailable in FAQs.	Story	Lowest	DONE	2
CSEBEAHN-46	As a faculty, I must get a link to reset my password, if I forget it.	Story	Medium	DONE	2

3.3 EPIC 2: Exam Office Administration

3.3.1 EPIC 2 Stories:

Key	Summary	Issue Type	Priority	Status	Story Points (4)
CSEBEAHN-57	As the admin, I must answer any new FAQ from the faculties.	Story	Low	DONE	1
CSEBEAHN-37	As the admin, I need to set up accounts for all the faculties	Story	Highest	DONE	3

Incomplete Issues [View in issue navigator](#)

Key	Summary	Issue Type	Priority	Status	Story Points (2)
CSEBEAHN-38	As the admin, I should be able alter the portal	Story	Low	TO DO	2

3.4 EPIC 3: Supervision

3.4.1 EPIC 3 Stories:

Key	Summary	Issue Type	Priority	Status	Story Points (2)
CSEBEAHN-55	As the Dean, I should be able to view the details of the faculties.	Story	Medium	DONE	2
Incomplete Issues					
View in Issue navigator					
Key	Summary	Issue Type	Priority	Status	Story Points (2)
CSEBEAHN-56	As the Dean, I must be able to view the exam dates and the time table of teachers allotted to each exam hall.	Story	Medium	TO DO	2

3.5 EPIC 4: Faculty Privileges

3.5.1 EPIC 4 Stories:

Key	Summary	Issue Type	Priority	Status	Story Points (12)
CSEBEAHN-43	As a faculty, I must be able to edit and update my details.	Story	Medium	DONE	2
Incomplete Issues					
View in Issue navigator					
Key	Summary	Issue Type	Priority	Status	Story Points (12)
CSEBEAHN-42	As a faculty, I must be able to contact the admin in-case of any technical difficulties.	Story	Low	TO DO	1
CSEBEAHN-41	As a faculty, I should be able to view the faculties who are free during a specific time slot for invigilation substitution	Story	Highest	TO DO	3
CSEBEAHN-39	As a faculty, I should be able to check for my allotted examination hall from the time table	Story	Highest	TO DO	2
CSEBEAHN-45	As a faculty, I should be able to send request to an other faculty to substitute one of my invigilation slot	Story	Highest	TO DO	3
CSEBEAHN-44	As a faculty, I must be able to view substitution requests from other faculties, and exchange slots.	Story	Highest	TO DO	3

3.6 EPIC 5: Exam Scheduling

3.6.1 EPIC 5 Stories:

Key	Summary	Issue Type	Priority	Status	Story Points (5)
CSEBEAHN-51	As the admin, I must notify the faculties that the exams have been scheduled.	Story	Low	TO DO	2
CSEBEAHN-53	As the admin, I need to upload the exam schedule to the portal.	Story	Highest	TO DO	3

3.7 Report of product backlog of Sprint 2 from JIRA

Key	Summary	Issue Type	Priority	Status	Story Points (21)
CSEBEAHN-38	As the admin, I should be able alter the portal	Story	Low	DONE	2
CSEBEAHN-39	As a faculty, I should be able to check for my allotted examination hall from the time table	Story	Highest	DONE	2
CSEBEAHN-41	As a faculty, I should be able to view the faculties who are free during a specific time slot for invigilation substitution	Story	Highest	DONE	3
CSEBEAHN-42	As a faculty, I must be able to contact the admin in-case of any technical difficulties.	Story	Low	DONE	1
CSEBEAHN-44	As a faculty, I must be able to view substitution requests from other faculties, and exchange slots.	Story	Highest	DONE	3
CSEBEAHN-45	As a faculty, I should be able to send request to an other faculty to substitute one of my invigilation slot	Story	Highest	DONE	3
CSEBEAHN-51	As the admin, I must notify the faculties that the exams have been scheduled.	Story	Low	DONE	2
CSEBEAHN-53	As the admin, I need to upload the exam schedule and hall allotment to the portal.	Story	Highest	DONE	3
CSEBEAHN-56	As the Dean, I must be able to view the exam dates and the time table of teachers allotted to each exam hall.	Story	Medium	DONE	2
CSEBEAHN-131	Host the final deployable product on the Heruko platform	Task	Medium	DONE	-
CSEBEAHN-137	Perform Static code testing using the tool chosen for the same for Sprint 2	Task	Medium	DONE	-
CSEBEAHN-139	Perform UI testing for Sprint 2	Task	Medium	DONE	-
CSEBEAHN-141	Perform Unit testing for Sprint 2	Task	Medium	DONE	-
CSEBEAHN-143	Check the responsiveness of the website for various devices, Sprint 2	Task	Medium	DONE	-
CSEBEAHN-145 *	Continuous Integration with Jenkins and Public cloud	Task	Medium	DONE	-

3.8 EPIC 1: Login Portal

3.8.1 EPIC 1 Stories:

Key	Summary	Issue Type	Priority	Status	Story Points (11)
CSEBEAHN-52	As a faculty, I must be able to check out the FAQs.	Story	Low	DONE	2
CSEBEAHN-50	As an Admin, I must be able to login to my dashboard.	Story	Highest	DONE	2
CSEBEAHN-40	As a faculty, I must be able to login to my dashboard.	Story	High	DONE	2
CSEBEAHN-48	As the Dean, I must be able to login to my dashboard.	Story	High	DONE	1
CSEBEAHN-54	As a faculty, I must be able to ask a new question if unavailable in FAQs.	Story	Lowest	DONE	2
CSEBEAHN-46	As a faculty, I must get a link to reset my password, if I forget it.	Story	Medium	DONE	2

3.9 EPIC 2: Exam Office Administration

3.9.1 EPIC 2 Stories:

Key	Summary	Issue Type	Priority	Status	Story Points (6)
CSEBEAHN-57	As the admin, I must answer any new FAQ from the faculties.	Story	Low	DONE	1
CSEBEAHN-37	As the admin, I need to set up accounts for all the faculties	Story	Highest	DONE	3
CSEBEAHN-38	As the admin, I should be able alter the portal	Story	Low	DONE	2

3.10 EPIC 3: Supervision

3.10.1 EPIC 3 Stories:

Key	Summary	Issue Type	Priority	Status	Story Points (4)
CSEBEAHN-55	As the Dean, I should be able to view the details of the faculties.	Story	Medium	DONE	2
CSEBEAHN-56	As the Dean, I must be able to view the exam dates and the time table of teachers allotted to each exam hall.	Story	Medium	DONE	2

3.11 EPIC 4: Faculty Privileges

3.11.1 EPIC 4 Stories:

Key	Summary	Issue Type	Priority	Status	Story Points (14)
CSEBEAHN-43	As a faculty, I must be able to edit and update my details.	Story	Medium	DONE	2
CSEBEAHN-42	As a faculty, I must be able to contact the admin in-case of any technical difficulties.	Story	Low	DONE	1
CSEBEAHN-39	As a faculty, I should be able to check for my allotted examination hall from the time table	Story	Highest	DONE	2
CSEBEAHN-41	As a faculty, I should be able to view the faculties who are free during a specific time slot for invigilation substitution	Story	Highest	DONE	3
CSEBEAHN-45	As a faculty, I should be able to send request to an other faculty to substitute one of my invigilation slot	Story	Highest	DONE	3
CSEBEAHN-44	As a faculty, I must be able to view substitution requests from other faculties, and exchange slots.	Story	Highest	DONE	3

3.12 EPIC 5: Exam Scheduling

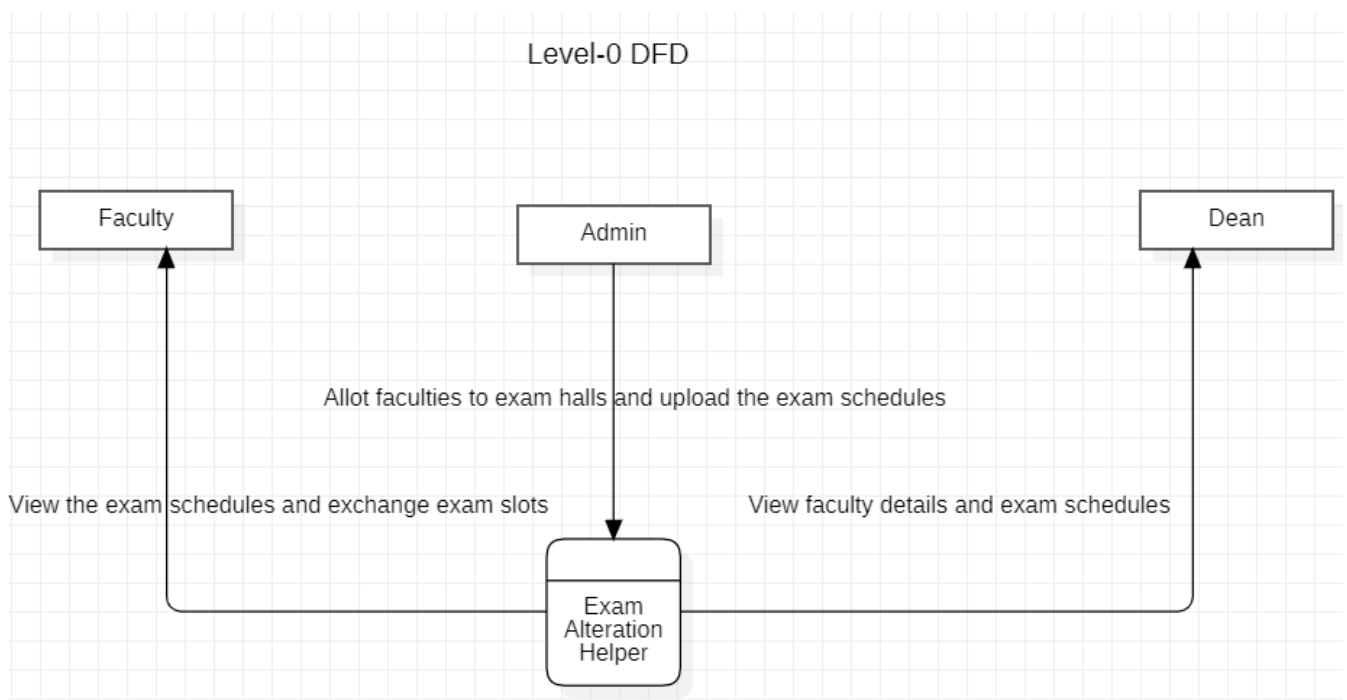
3.12.1 EPIC 5 Stories:

Key	Summary	Issue Type	Priority	Status	Story Points (5)
CSEBEAHN-51	As the admin, I must notify the faculties that the exams have been scheduled.	Story	Low	DONE	2
CSEBEAHN-53	As the admin, I need to upload the exam schedule and hall allotment to the portal.	Story	Highest	DONE	3

4. Diagrams

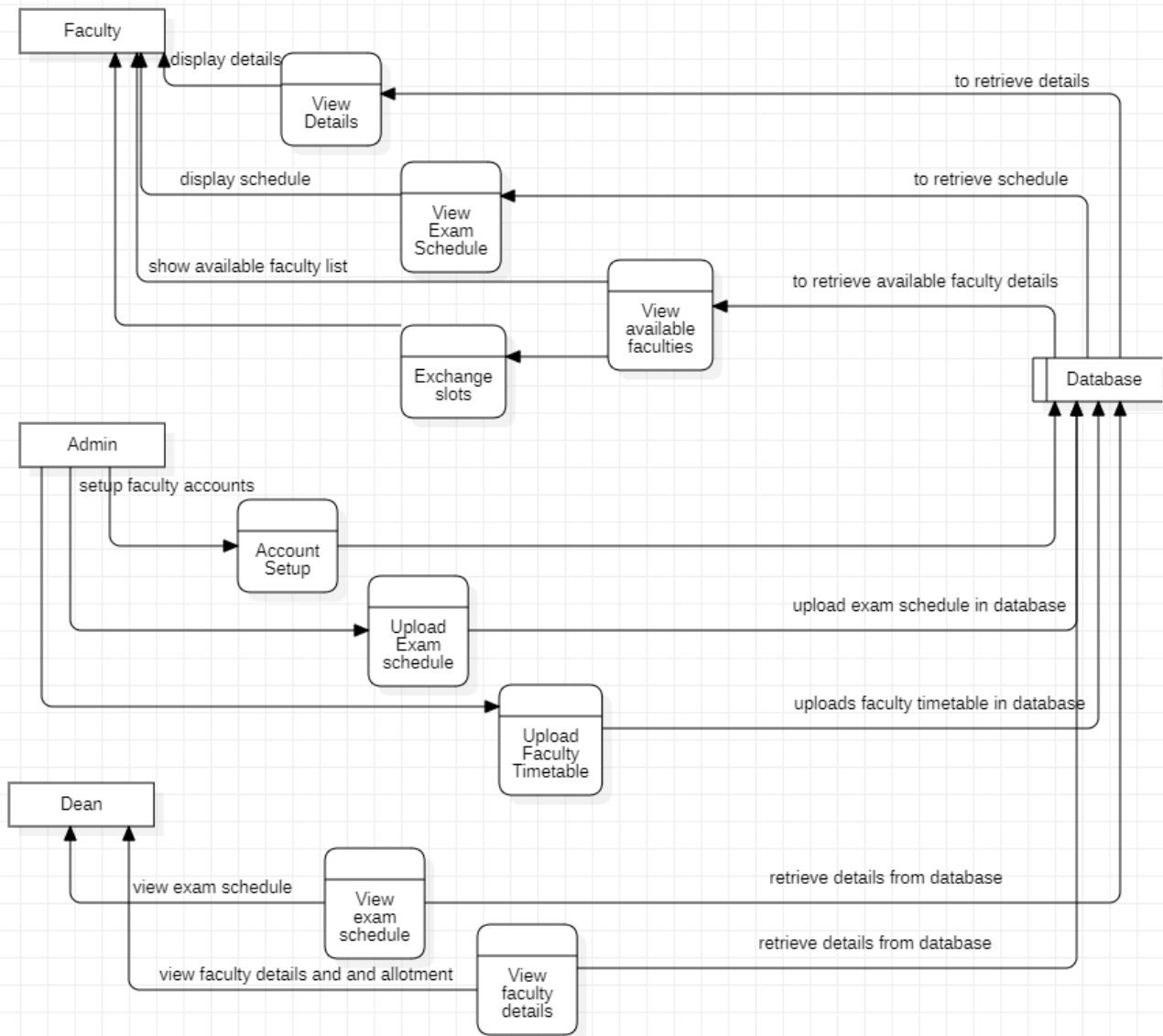
4.1 Data Flow Diagram

Level 0



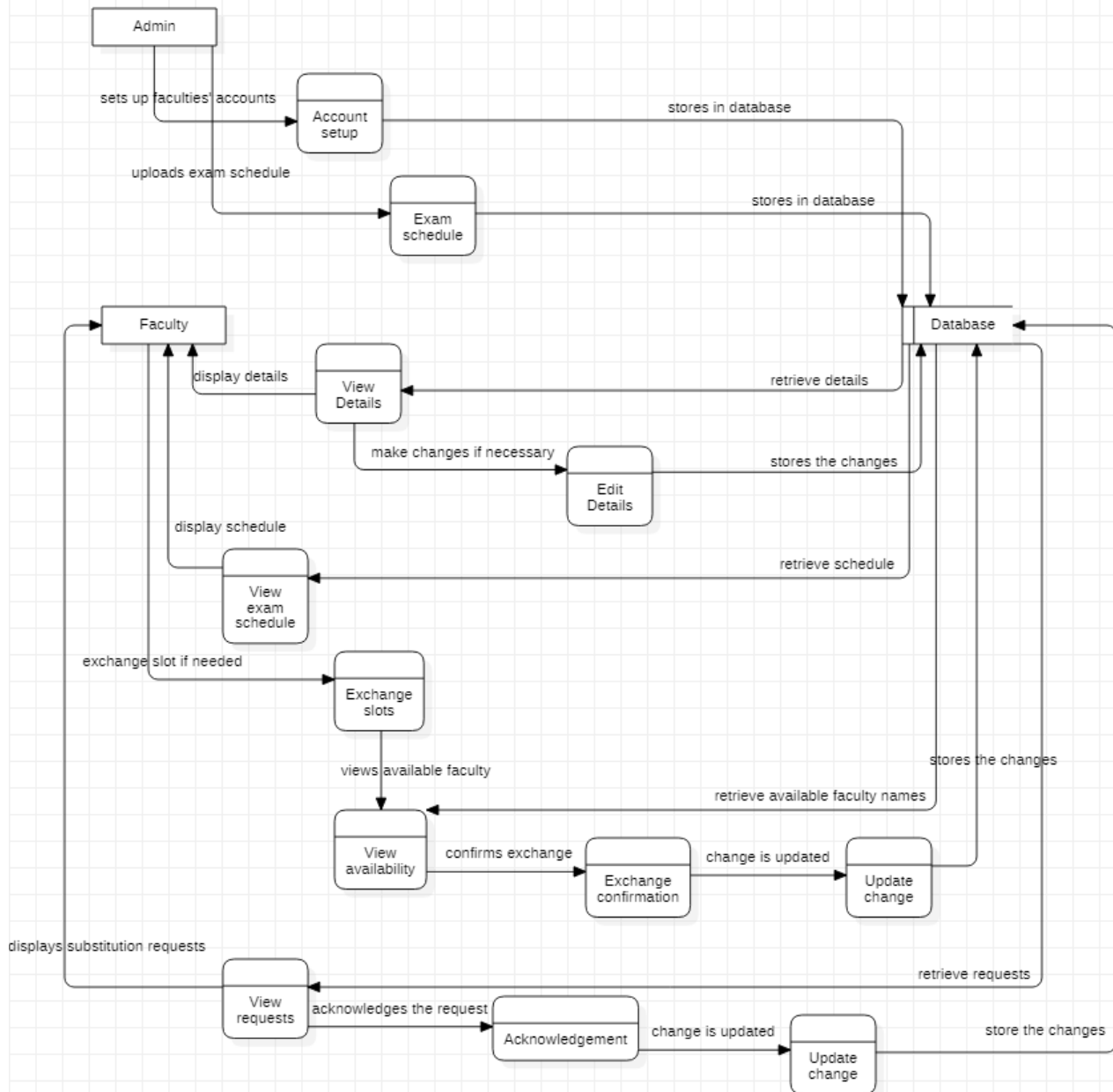
Level 1

Level-1 DFD



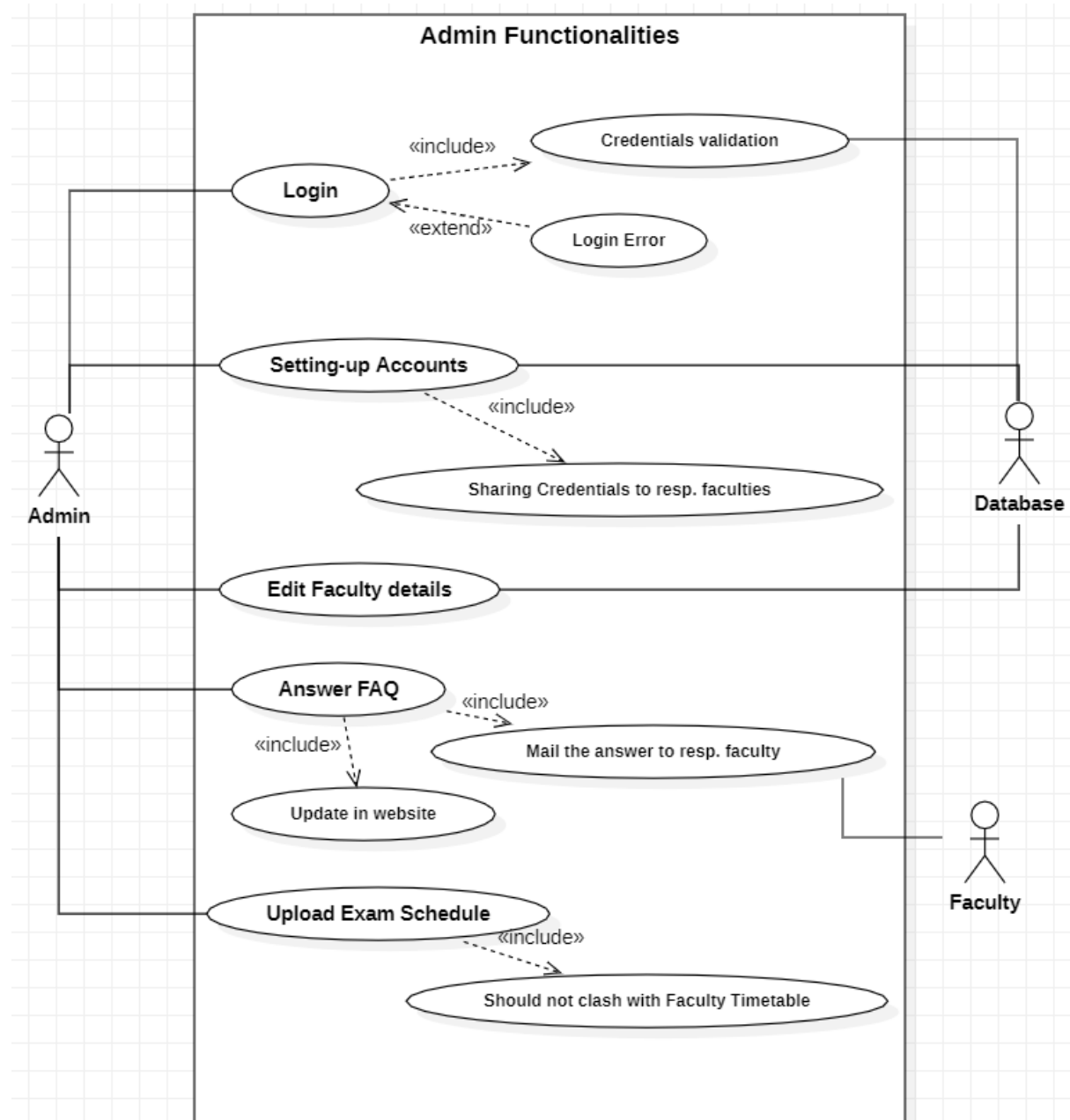
Level 2

Level-2 DFD

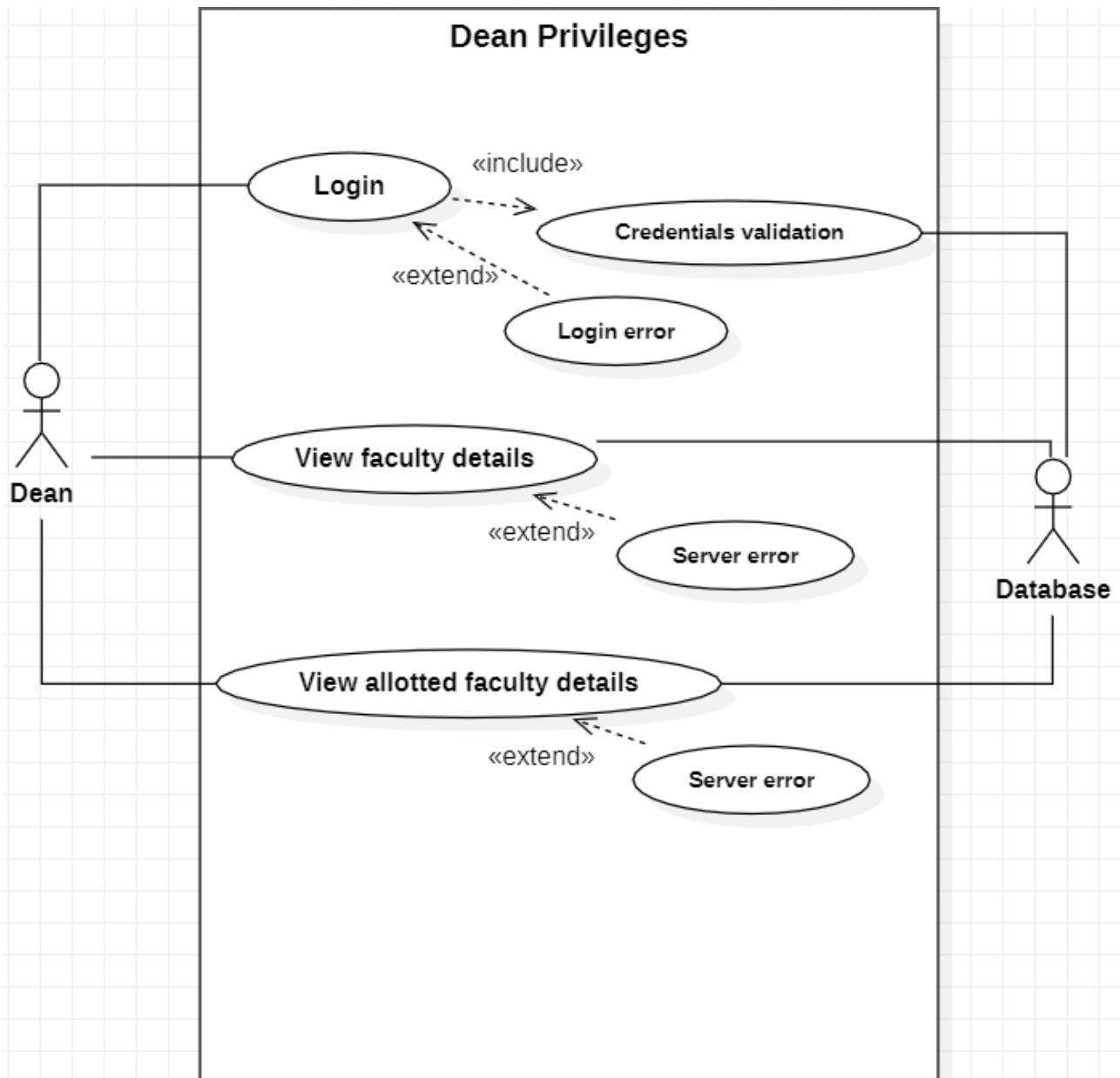


4.2 Use Case Diagrams

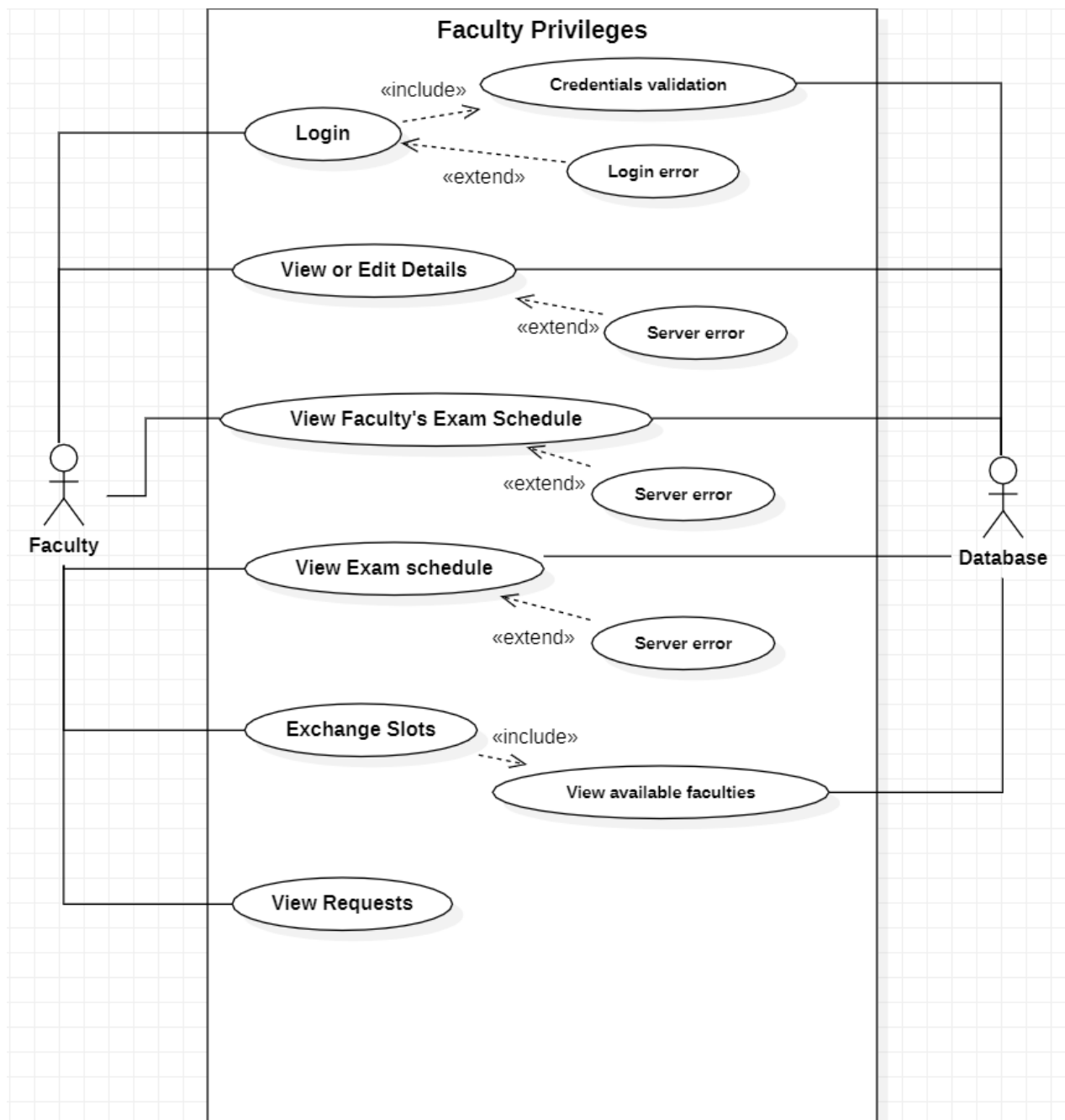
4.2.1 Admin Functionalities



4.2.2 Dean Privileges



4.2.3 Faculty Privileges



5. Scrum activities

5.1 Sprint 1 backlog samples

[CSEBEAHN-40] As a faculty, I must be able to login to my dashboard. Created: 02/Mar/21 Updated: 09/Mar/21 Resolved: 09/Mar/21	
Status:	Done
Project:	1 CSE B 2021 DV G6 Exam alteration helper New
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	Story	Priority:	High
Reporter:	Aadhith S.	Assignee:	Vignesh H
Resolution:	Done	Votes:	0
Labels:	None		
Σ Remaining Estimate:	Not Specified	Remaining Estimate:	Not Specified
Σ Time Spent:	Not Specified	Time Spent:	Not Specified
Σ Original Estimate:	Not Specified	Original Estimate:	Not Specified

Sub-Tasks:	Key	Summary	Type	Status	Assignee
	CSEBEAHN-84	Design and implement the UI of the lo...	Sub-task	Done	Vignesh H
	CSEBEAHN-85	Connect the UI and the backend to ver...	Sub-task	Done	Vignesh H
	CSEBEAHN-86	Create a page "dashboard of the facul...	Sub-task	Done	Vignesh H

Epic Link:	Login Portal
Sprint:	CSEBEAH Sprint 1

[CSEBEAHN-37] [As the admin, I need to set up accounts for all the faculties](#)

Created: 02/Mar/21 Updated: 06/Apr/21 Resolved: 06/Apr/21

Status:	Done
Project:	1 CSE B 2021 DV G6 Exam alteration helper New
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	Story	Priority:	Highest
Reporter:	Aadhith S.	Assignee:	Aadhith S.
Resolution:	Done	Votes:	0
Labels:	None		
Σ Remaining Estimate:	Not Specified	Remaining Estimate:	Not Specified
Σ Time Spent:	Not Specified	Time Spent:	Not Specified
Σ Original Estimate:	Not Specified	Original Estimate:	Not Specified

Sub-Tasks:	Key	Summary	Type	Status	Assignee
	CSEBEAHN-62	Implement the UI using HTML, CSS, Boo...	Sub-task	Done	
	CSEBEAHN-63	Create SQL scripts to create a schema...	Sub-task	Done	

	CSEBEAHN-64	Create SQL scripts to populate the fa...	Sub-task	Done	
	CSEBEAHN-65	Connect the database to the frontend ...	Sub-task	Done	
	CSEBEAHN-66	Implement G-mail API to mail the cred...	Sub-task	Done	
Epic Link:	Exam Office Administration				
Sprint:	CSEBEAH Sprint 1				

[CSEBEAHN-46] As a faculty, I must get a link to reset my password, if I forget it.	
Created: 02/Mar/21 Updated: 06/Apr/21 Resolved: 06/Apr/21	
Status:	Done
Project:	1 CSE B 2021 DV G6 Exam alteration helper New
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	Story	Priority:	Medium
Reporter:	Aadhith S.	Assignee:	Yenigalla Yasasvi Krishna
Resolution:	Done	Votes:	0
Labels:	None		
Σ Remaining Estimate:	Not Specified	Remaining Estimate:	Not Specified
Σ Time Spent:	Not Specified	Time Spent:	Not Specified
Σ Original Estimate:	Not Specified	Original Estimate:	Not Specified

Sub-Tasks:	Key	Summary	Type	Status	Assignee
	CSEBEAHN-93	Create a "FORGET PASSWORD" button on ...	Sub-task	Done	
	CSEBEAHN-95	Send mail with a link using G-mail AP...	Sub-task	Done	
	CSEBEAHN-96	Create a change password page – direc...	Sub-task	Done	
	CSEBEAHN-101	Connect this page to the database to ...	Sub-task	Done	
Epic Link:	Login Portal				
Sprint:	CSEBEAH Sprint 1				

[CSEBEAHN-54] [As a faculty, I must be able to ask a new question if unavailable in FAQs.](#) Created: 02/Mar/21 Updated: 04/Apr/21 Resolved: 04/Apr/21

Status:	Done
Project:	1 CSE B 2021 DV G6 Exam alteration helper New
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	Story	Priority:	Lowest
Reporter:	Aadhith S.	Assignee:	Tharun Kumar A
Resolution:	Done	Votes:	0
Labels:	None		
Σ Remaining Estimate:	Not Specified	Remaining Estimate:	Not Specified
Σ Time Spent:	Not Specified	Time Spent:	Not Specified
Σ Original Estimate:	Not Specified	Original Estimate:	Not Specified

Sub-Tasks:	Key	Summary	Type	Status	Assignee
	CSEBEAHN-103	Create a form to get name, email, and...	Sub-task	Done	
	CSEBEAHN-104	Implement a python program to store t...	Sub-task	Done	
Epic Link:	Login Portal				
Sprint:	CSEBEAH Sprint 1				

[CSEBEAHN-55] [As the Dean, I should be able to view the details of the faculties.](#) Created: 02/Mar/21 Updated: 04/Apr/21 Resolved: 04/Apr/21

Status:	Done
Project:	1 CSE B 2021 DV G6 Exam alteration helper New
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	Story	Priority:	Medium
Reporter:	Aadhith S.	Assignee:	Tadishetty Dharmaraj
Resolution:	Done	Votes:	0
Labels:	None		
Σ Remaining Estimate:	Not Specified	Remaining Estimate:	Not Specified
Σ Time Spent:	Not Specified	Time Spent:	Not Specified
Σ Original Estimate:	Not Specified	Original Estimate:	Not Specified

Sub-Tasks:	Key	Summary	Type	Status	Assignee
	CSEBEAHN-78	Create "FACULTY DETAILS" button using...	Sub-task	Done	
	CSEBEAHN-79	Create a new page that displays all t...	Sub-task	Done	
	CSEBEAHN-80	Connect this page to the database to ...	Sub-task	Done	
Epic Link:	Supervision				
Sprint:	CSEBEAH Sprint 1				

[CSEBEAHN-41] [As a faculty, I should be able to view the faculties who are free during a specific time slot for invigilation substitution](#) Created: 02/Mar/21 Updated: 14/May/21 Resolved: 14/May/21

Status:	Done
Project:	1 CSE B 2021 DV G6 Exam alteration helper New
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	Story	Priority:	Highest
Reporter:	Vignesh H	Assignee:	Aadhith S.
Resolution:	Done	Votes:	0
Labels:	None		
Σ Remaining Estimate:	Not Specified	Remaining Estimate:	Not Specified
Σ Time Spent:	Not Specified	Time Spent:	Not Specified
Σ Original Estimate:	Not Specified	Original Estimate:	Not Specified

Sub-Tasks:	Key	Summary	Type	Status	Assignee
	CSEBEAHN-109	Create a "EXCHANGE SLOT" button in th...	Sub-task	Done	
	CSEBEAHN-110	Create a page to display all the facu...	Sub-task	Done	
	CSEBEAHN-111	Create text boxes to enter the date, ...	Sub-task	Done	
	CSEBEAHN-112	Connect this page to the csv to fetch...	Sub-task	Done	
Epic Link:	Faculty Privileges				
Sprint:	CSEBEAH Sprint 2				

[CSEBEAHN-39] As a faculty, I should be able to check for my allotted examination hall from the time table Created: 02/Mar/21 Updated: 13/May/21 Resolved: 13/May/21	
Status:	Done
Project:	1 CSE B 2021 DV G6 Exam alteration helper New
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

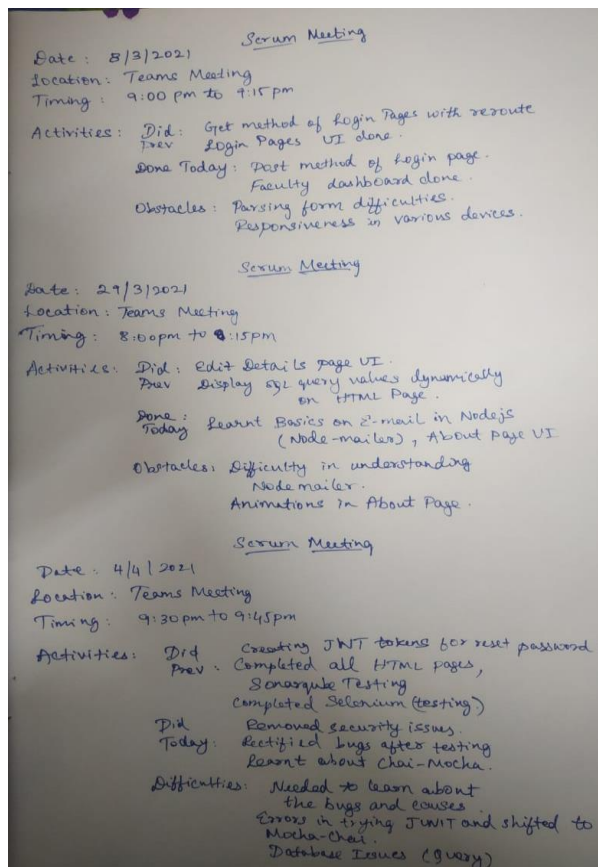
Type:	Story	Priority:	Highest
Reporter:	Vignesh H	Assignee:	Vignesh H
Resolution:	Done	Votes:	0
Labels:	None		
Σ Remaining Estimate:	Not Specified	Remaining Estimate:	Not Specified
Σ Time Spent:	Not Specified	Time Spent:	Not Specified

Σ Original Estimate:	Not Specified	Original Estimate:	Not Specified
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Sub-Tasks:	Key	Summary	Type	Status	Assignee
	CSEBEAHN-105	Create a button "View slots and excha...	Sub-task	Done	
	CSEBEAHN-106	Create a new page that display the fa...	Sub-task	Done	
	CSEBEAHN-107	Connect this page to the database to ...	Sub-task	Done	
Epic Link:	Faculty Privileges				
Sprint:	CSEBEAH Sprint 2				

5.2 Stand-up Notes

5.2.1 Sprint 1 stand-up note



5.2.2 Sprint 2 stand-up notes:

STANDUP NOTES 1 on 20-04-2021

Name	Question	Answer
Aadhith S.	What did you do yesterday?	Formulated an idea on how to have the faculty hall allotments as a csv.
	What will you do today?	To formulate idea on how to store the requests for slot exchange.
	Are there any impediments in your way?	None.
Tadishetty Dharmaraj	What did you do yesterday?	Reviewed the Selenium test cases of sprint 1.
	What will you do today?	To think about how to frame test cases for the current sprint.
	Are there any impediments in your way?	I started gathering resources about advanced test cases for Selenium.
	What did you do	Gathered resources to learn JS.

Vignesh H	yesterday?	
	What will you do today?	I will learn on the basics of JS.
	Are there any impediments in your way?	None.
Yenigalla Yasasvi Krishna	What did you do yesterday?	Reviewed the test cases of sprint 1.
	What will you do today?	To think about how to frame test cases for the current sprint.
	Are there any impediments in your way?	None.
Tharun Kumar A	What did you do yesterday?	I decided I should learn about Jenkins software and Cloud services.
	What will you do today?	I started gathering resources about Jenkins.
	Are there any impediments in your way?	I found learning about cloud services new.

STANDUP NOTES 2 on 22-04-2021

Name	Question	Answer
Aadhith S.	What did you do yesterday?	Learned about csv-parser.
	What will you do today?	Implement a backend and HTML to parse CSV and display the CSV file in HTML.
	Are there any impediments in your way?	None.
Tadishetty Dharmaraj	What did you do yesterday?	Searched on better UI testing software than Selenium.
	What will you do today?	Ideated on test cases for the current sprint.
	Are there any impediments in your way?	None.
Vignesh H	What did you do yesterday?	I did some JS implementation in websites.
	What will you do today?	I will learn about animations in JS.
	Are there any impediments in your way?	Finding the right resource takes time.
Yenigalla Yasasvi Krishna	What did you do yesterday?	Learnt about advanced test cases in mocha.
	What will you do today?	Try to implement the test cases on a test website.
	Are there any impediments in your way?	None.
Tharun Kumar A	What did you do yesterday?	I downloaded Jenkins.
	What will you do today?	I started exploring Jenkins.

	Are there any impediments in your way?	None.
--	--	-------

STANDUP NOTES 3 on 23-04-2021

Name	Question	Answer
Aadhith S.	What did you do yesterday?	Learnt on how to embed the user ID in the frontend part.
	What will you do today?	To implement the backend for removing a faculty account.
	Are there any impediments in your way?	I am not able to find a way to retrieve email ID to delete an account
Tadishetty Dharmaraj	What did you do yesterday?	I implemented a few test cases on a test website.
	What will you do today?	I will implement more test cases on the test website.
	Are there any impediments in your way?	None.
Vignesh H	What did you do yesterday?	I implemented basic JS animations in a website.
	What will you do today?	I will think about a JS animation that will enhance the home page of our project.
	Are there any impediments in your way?	None.
Yenigalla Yasasvi Krishna	What did you do yesterday?	Learnt about advanced test cases in chai.
	What will you do today?	Try to implement the test cases on a test website.
	Are there any impediments in your way?	No adequate resource was found for chai yet.
Tharun Kumar A	What did you do yesterday?	I started gathering resources on Jenkins.
	What will you do today?	I started learning about Jenkins.
	Are there any impediments in your way?	Need to learn about Jenkins and CD/CI pipeline.

STANDUP NOTES 4 on 26-04-2021

Name	Question	Answer
Aadhith S.	What did you do yesterday?	Learnt about express Router
	What will you do today?	Tried to implement it on our project file
	Are there any impediments in your way?	The static content are not rendering.

Tadishetty Dharmaraj	What did you do yesterday?	Reviewed the Selenium test cases of sprint 1.
	What will you do today?	To think about how to frame test cases for the current sprint.
	Are there any impediments in your way?	I started gathering resources about advanced test cases for Selenium.
Vignesh H	What did you do yesterday?	Reviewed JIRA and noted the changes to be done in the frontend
	What will you do today?	Few frontend changes in the dashboard of admin and dean
	Are there any impediments in your way?	None.
Yenigalla Yasasvi Krishna	What did you do yesterday?	I started gathering resources to implement continuous integration
	What will you do today?	Learnt about some tools to implement continuous integration
	Are there any impediments in your way?	None.
Tharun Kumar A	What did you do yesterday?	planned to learn about the role of DevOps
	What will you do today?	started gathering resources to learn about the role of DevOps
	Are there any impediments in your way?	None

STANDUP NOTES 5 on 28-04-2021

Name	Question	Answer
Aadhith S.	What did you do yesterday?	Revised SQL commands
	What will you do today?	Tried to optimize the existing SQL commands.
	Are there any impediments in your way?	None
Tadishetty Dharmaraj	What did you do yesterday?	Searched on better UI testing software than Selenium.
	What will you do today?	Ideated on test cases for the current sprint.
	Are there any impediments in your way?	None.
Vignesh H	What did you do yesterday?	Drafted the idea to make home page.
	What will you do today?	Started doing home page with animations
	Are there any impediments in your way?	Unable to get the perfect animation.
Yenigalla Yasasvi Krishna	What did you do yesterday?	Learnt about Travis vs Jenkins briefly
	What will you do today?	Started gathering resources for Jenkins
	Are there any impediments in your way?	None

	way?	
Tharun Kumar A	What did you do yesterday?	planned to learn about integration of software
	What will you do today?	started learning about integration
	Are there any impediments in your way?	it took time to fully understand

STANDUP NOTES 6 on 30-04-2021

Name	Question	Answer
Aadhith S.	What did you do yesterday?	Learned about the functionalities of csv-parser.
	What will you do today?	Tried to optimize the back end code
	Are there any impediments in your way?	None
Tadishetty Dharmaraj	What did you do yesterday?	I implemented a few test cases on a test website.
	What will you do today?	I will implement more test cases on the test website.
	Are there any impediments in your way?	None.
Vignesh H	What did you do yesterday?	Learnt about ANIME JS.
	What will you do today?	Complete the home page of the website.
	Are there any impediments in your way?	None.
Yenigalla Yasasvi Krishna	What did you do yesterday?	Learnt how to write the code in Jenkins
	What will you do today?	Tried for writing code and implementing it
	Are there any impediments in your way?	None
Tharun Kumar A	What did you do yesterday?	planned to explore Jenkins
	What will you do today?	with the gathered resources, explored Jenkins
	Are there any impediments in your way?	None

STANDUP NOTES 7 on 10-05-2021

Name	Question	Answer
Aadhith S.	What did you do yesterday?	Ideate on how to make a request for slot alteration
	What will you do today?	Tried implementing a path for making a new slot exchange request
	Are there any	None

	impediments in your way?	
Tadishetty Dharmaraj	What did you do yesterday?	Learn Mocha
	What will you do today?	Learn Mocha
	Are there any impediments in your way?	None
Vignesh H	What did you do yesterday?	Planned about the design of the web pages for Sprint 2
	What will you do today?	Did 2 web pages admin upload exam tt, hall allocation.
	Are there any impediments in your way?	None
Yenigalla Yasasvi Krishna	What did you do yesterday?	Learn Selenium.
	What will you do today?	Learn Selenium.
	Are there any impediments in your way?	None.
Tharun Kumar A	What did you do yesterday?	Learn CI using Jenkins
	What will you do today?	Explored Jenkins
	Are there any impediments in your way?	None

STANDUP NOTES 8 on 12-05-2021

Name	Question	Answer
Aadhith S.	What did you do yesterday?	Completed implementing make a new slot request
	What will you do today?	Made a page for Dean to view the faculty
	Are there any impediments in your way?	None
Tadishetty Dharmaraj	What did you do yesterday?	Learn Chai
	What will you do today?	Lean Chai
	Are there any impediments in your way?	None.
Vignesh H	What did you do yesterday?	Did one web page dean view exam tt.
	What will you do today?	Did 2 web pages faculty view exam tt, hall allocation.
	Are there any impediments in your way?	None
	What did you do	Learn Selenium

Yenigalla Yasasvi Krishna	yesterday?	
	What will you do today?	Learn Selenium
	Are there any impediments in your way?	None
Tharun Kumar A	What did you do yesterday?	Gathered resources in CI
	What will you do today?	Tried to Link Github with Jenkins
	Are there any impediments in your way?	None

STANDUP NOTES 9 on 15-04-2021

Name	Question	Answer
Aadhith S.	What did you do yesterday?	Upload pages linking of upload tt and hall alloc in admin page.
	What will you do today?	Ideate on how to accept or reject slot request.
	Are there any impediments in your way?	How to delete or update record in CSV without Python
Tadishetty Dharmaraj	What did you do yesterday?	Learn Chai
	What will you do today?	Write test cases.
	Are there any impediments in your way?	None.
Vignesh H	What did you do yesterday?	Did 1 web page dean view hall allocation.
	What will you do today?	Sonarqube Static code analysis
	Are there any impediments in your way?	None
Yenigalla Yasasvi Krishna	What did you do yesterday?	Learnt Selenium
	What will you do today?	Tried for writing code (Test Cases).
	Are there any impediments in your way?	None
Tharun Kumar A	What did you do yesterday?	Learn about ngrok and webhooks
	What will you do today?	Linked webhook and triggered a build
	Are there any impediments in your way?	None

5.3

5.3.1 Sprint 1 retrospective notes:

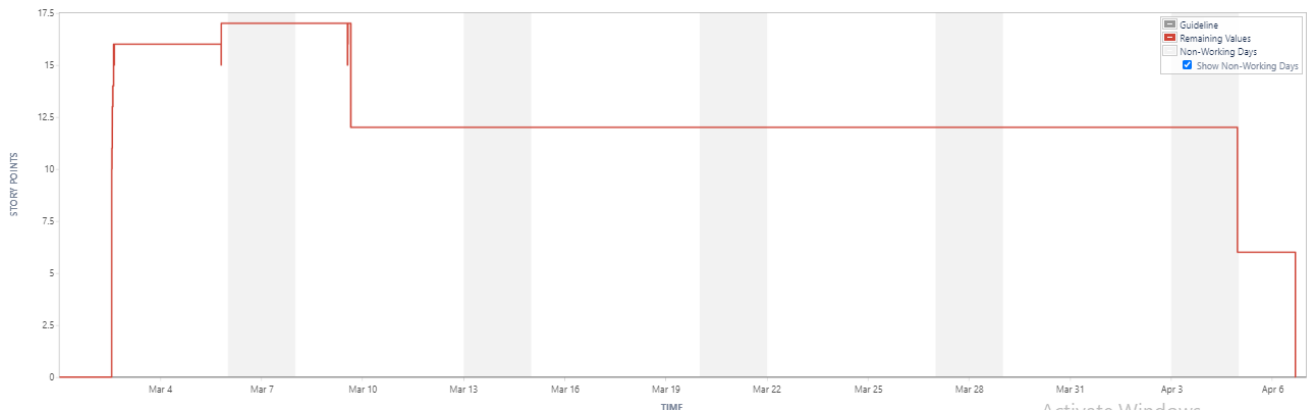
Sl.no	START	CONTINUE	STOP
1	Continue doing the backed better because of few setbacks.	Testers testing and showing the bugs quickly for developers to rectify.	Updating JIRA lately though the work has been completed.
2	More animations needed to be done using Java Script.	Developers developing quickly for testers to test and rectify bugs.	Doing work late nights.
3	Start working early daily rather than doing it late night.	Team coordination, team spirit and positive attitude.	Stop unorganized and unaligned coding techniques.
4	Code organization, modularization and alignment	Version control in Git Hub. Pushing different code versions at regular intervals.	Start learning more about testing tools earlier rather than learning on the day of testing.
5	Being on time for standup meetings	Execute the work as per planned in the Sprint plan.	

5.3.2 Sprint 2 retrospective notes:

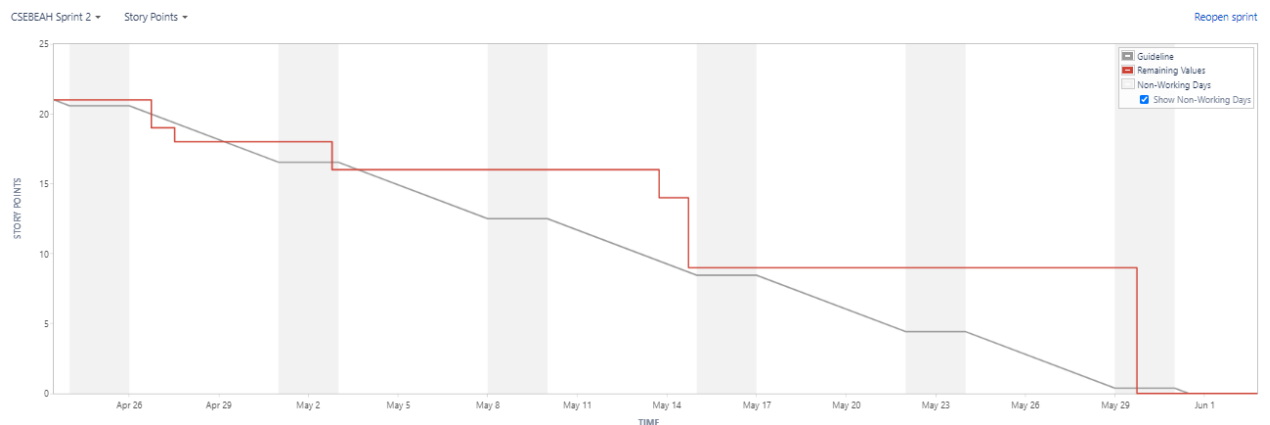
Sl.no	START	CONTINUE	STOP
1	. More animations needed to be done using Java Script.	Testers testing and showing the bugs quickly for developers to rectify.	Stop unorganized and unaligned coding techniques.
2	Code organization, modularization and alignment	Developers developing quickly for testers to test and rectify bugs.	.
3	Being on time for stand-up meetings	Team coordination, team spirit and positive attitude.	\
4	Learn more advanced techniques like VueJs or AngularJs for frontend	Version control in Git Hub. Pushing different code versions at regular intervals.	
5		Execute the work as per planned in the Sprint plan.	

5.4 Burn down Charts based on Story Points:

Sprint 1:



Sprint 2:



6. Implementation

Exam alteration helper is a web based application used by teachers to switch exam invigilation slots based on the availability of the faculties during a particular date and time slot.

7. Sample Code

HTML SAMPLE CODE:

```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Reset Password</title>
  <link rel="stylesheet" href="./css/style.css">
  <link rel="preconnect" href="https://fonts.gstatic.com">
  <link href="https://fonts.googleapis.com/css2?family=Josefin+Sans:wght@700&display=swap" rel="stylesheet">
  <link href="https://fonts.googleapis.com/css2?family=Raleway&display=swap" rel="stylesheet">
</head>

<body class="d-flex flex-column min-vh-100 bodyclass">
  <header class="d-flex flex-row align-items-center text-white">
    <h3 class="p-3 mr-auto">Exam Alteration Helper</h3>
  </header>
```

```
<main class="resetform">
  <form action="/updateoldpassword" method="POST">
    <div class="form-group m-4">
      <label for="exampleInputName1" class="text-uppercase m-1"><strong>Enter your old Password</strong></label>
      <input type="password" name="oldpass" class="form-control" placeholder="Enter your old Password" required>
    </div>
    <div class="form-group m-4">
      <label for="exampleInputName1" class="text-uppercase m-1"><strong>Enter your New Password</strong></label>
      <input type="password" name="newpass1" class="form-control" placeholder="Enter your new Password" required>
    </div>
    <div class="form-group m-4">
      <label for="exampleInputEmail1" class="text-uppercase"><strong>Confirm your Password</strong></label>
      <input type="password" name="newpass2" class="form-control" placeholder="Re-enter your new password" required>
    </div>
    <button type="submit" class="forgotsubmit btn btn-login float-left">Submit</button>
  </form>
</main>
```

```
<footer class="mt-auto">
  <div class="d-flex flex-row justify-content-around p-3">
    <div>
      <form action="/faq" method="GET">
        <button class="btn" id="ftr_btn">FAQ's</button>
      </form>
    </div>
    <div>
      <form action="mailto:cb.en.u4cse18163@cb.students.amrita.edu" method="GET">
        <button class="btn" id="ftr_btn">Mail Us</button>
      </form>
    </div>
    <div>
      <form action="/about" method="GET">
        <button class="btn" id="ftr_btn">About</button>
      </form>
    </div>
  </div>
</footer>
```

```

<script src="https://code.jquery.com/jquery-3.4.1.slim.min.js"
  integrity="sha384-J6qa4849b1E2+poT4WnyKhv5vZF5SrPo0iEjwBvKU7imGFAV0wwj1yYfoRSJoZ+n"
  crossorigin="anonymous"></script>
<script src="https://cdn.jsdelivr.net/npm/popper.js@1.16.0/dist/umd/popper.min.js"
  integrity="sha384-Q6E9RHvbIyZFJoft+2mJbHaEWldlvI9IOYy5n3zV9zzTtmI3UksdQRVvoxMfooAo"
  crossorigin="anonymous"></script>
<link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.4.1/css/bootstrap.min.css"
  integrity="sha384-Vkoo8x4CGs03+Hhxv8T/Q5PaXtkKtu6ug5TOeNV6gBiFeWPGFN9MuhOf23Q9Ifjh" crossorigin="anonymous">
<script src="https://stackpath.bootstrapcdn.com/bootstrap/4.4.1/js/bootstrap.min.js"
  integrity="sha384-wfSDF2E50Y2D1uUdj0O3uMBJnjuUD4Ih7YwaYd1iqfktj0Uod8GCExl30g8ifwB6"
  crossorigin="anonymous"></script>
</body>
</html>

```

CSS SAMPLE CODE:

```

html, body{
  width: 100%;
}

main h1, main h2, main h3, main h4, main h5{
  font-family: 'Josefin Sans', sans-serif;
}

main h3{
  color: #c3073f;
}

footer{
  font-family: 'Raleway', sans-serif;
  background-color: #f7f7f7 ;
}

#ftr_btn{
  color: #c3073f;
}

header{
  font-family: 'Raleway', sans-serif;
}

header h3{
  color: #c3073f;
  text-shadow: 4px 4px 4px #6f2232;
  font-family: 'Josefin Sans', sans-serif;
}

```

NODEJS SAMPLE CODE:

```
require('dotenv').config();

const express = require('express');
const app = express();

const path = require('path');
const session = require('express-session');

const bodyParser = require('body-parser');
const { urlencoded } = require('body-parser');

const mysql = require('mysql');

const fs = require('fs')

const bcrypt = require('bcrypt');
const saltRounds = 10;

const fileupload = require("express-fileupload");
app.use(fileupload());
```

```
//db init
var connection = mysql.createConnection({
  host      : process.env.MYSQL_URL,
  user      : process.env.MYSQL_USERNAME,
  password  : process.env.MYSQL_PASSWORD,
  database  : process.env.MYSQL_DATABASE_ACC,
  typeCast: false
});

connection.connect((error) => {
  if(error){
    console.log(error);
  }
  else{
    console.log('Database Connected Sucessfully!');
  }
});
```

8. Software Engineering tools used

8.1.1 Static Code analysis of Sprint 1

8.1.1.1 Screenshots/report of the scanning results

The screenshot shows the SonarQube dashboard for the project 'Exam_alteration_helper'. The status is 'Passed' with 'All conditions passed'. The dashboard displays several key metrics:

- New Code:** 0 Bugs, 0 Vulnerabilities, 0 Security Hotspots.
- Overall Code:** Reliability (A), Security (A), Security Review (A), Maintainability (A).
- Debt:** 4h 52min.
- Code Smells:** 27.
- Coverage:** 0.0% (Coverage on 302 Lines to cover).
- Unit Tests:** -.
- Duplications:** 8.9% (Duplications on 1k Lines).
- Duplicated Blocks:** 9.

The screenshot shows the 'Issues' page in SonarQube, filtered for 'CODE SMELL'. The left sidebar shows the filter settings:

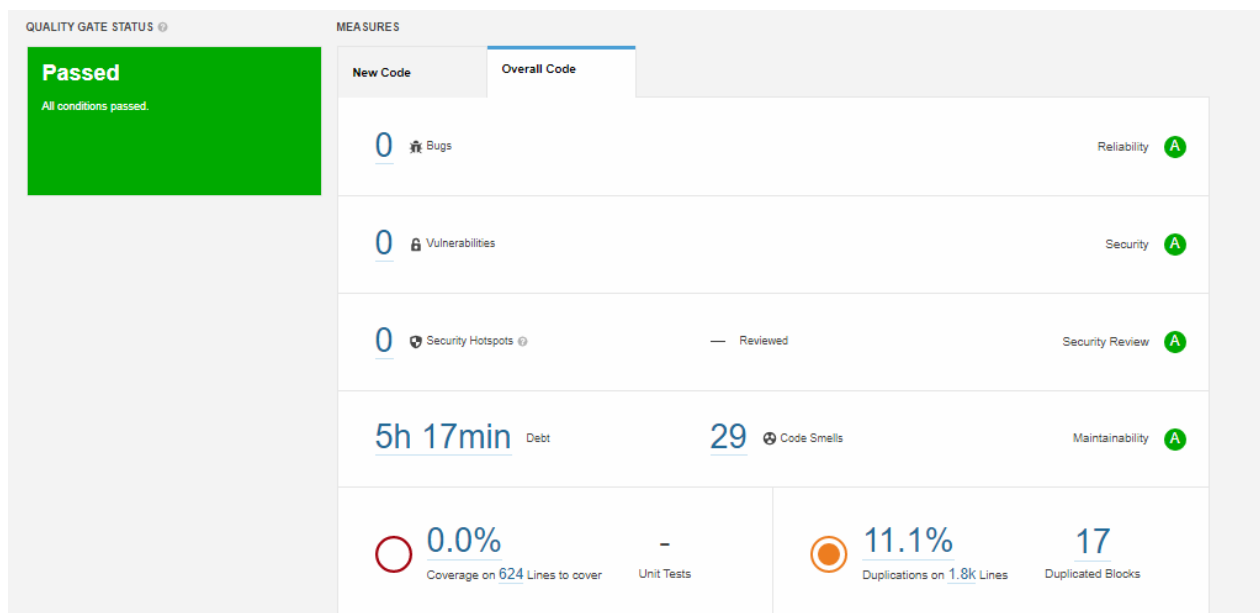
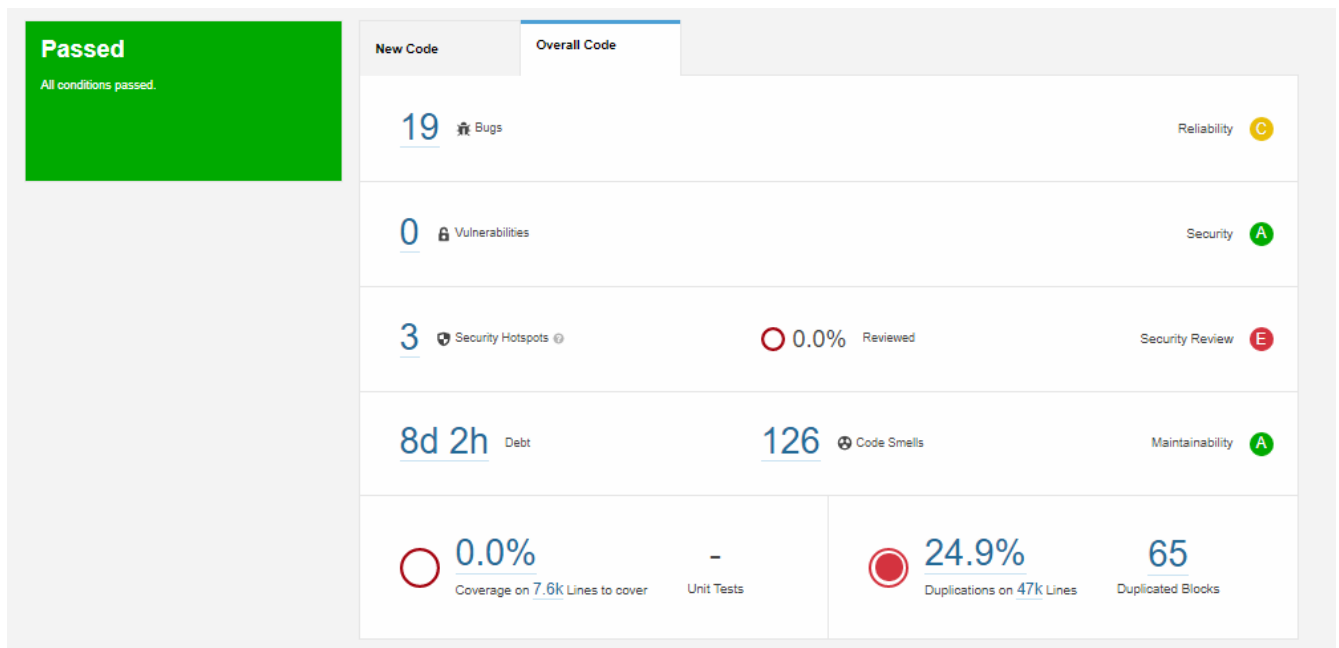
- Filters:** Clear All Filters
- Type:** CODE SMELL (Clear)
- Severity:** Blocker (1), Critical (7), Major (18), Minor (0), Info (1)
- Scope:**
- Resolution:**
- Status:**
- Security Category:**
- Creation Date:**
- Language:**
- Rule:**
- Tag:**

The main list of issues shows the following details:

- Refactor this function to reduce its Cognitive Complexity from 36 to the 15 allowed.** Why is this an issue? 2 minutes ago L184 brain-overload
- 'username' is already defined.** Why is this an issue? 2 minutes ago L211 confusing
- 'password' is already defined.** Why is this an issue? 2 minutes ago L212 confusing
- 'username' is already defined.** Why is this an issue? 2 minutes ago L229 confusing
- 'password' is already defined.** Why is this an issue? 2 minutes ago L230 confusing
- Refactor this function to reduce its Cognitive Complexity from 39 to the 15 allowed.** Why is this an issue? 2 minutes ago L330 brain-overload
- Update this function so that its implementation is not identical to the one on line 338.** Why is this an issue? 2 minutes ago L345 confusing, duplicate, suspicious
- Update this function so that its implementation is not identical to the one on line 338.** Why is this an issue? 2 minutes ago L352 confusing, duplicate, suspicious
- Update this function so that its implementation is not identical to the one on line 338.** Why is this an issue? 2 minutes ago L359 confusing, duplicate, suspicious

8.1.2 Static Code analysis of Sprint 2

8.1.2.1 Screenshots/report of the scanning results



8.2 Unit Testing

8.2.1 Tool used and its setup details

- We have used Mocha & Chai for unit testing using JavaScript.
- We created a new JavaScript file and defined functions to test the validity of username and password.
- Mocha: Mocha is a JavaScript test framework for Node.js programs, featuring browser support, asynchronous testing, test coverage reports, and use of any assertion library.
- Chai: Chai HTTP provides an interface for live integration testing via Super-Agent.

8.2.2 Test cases statistics for Sprint 1:

Pass:

```
PS C:\Users\91905\Desktop\Exam_alteration_helper-main\api> npm test

> api@1.0.0 test C:\Users\91905\Desktop\Exam_alteration_helper-main\api
> mocha --recursive

1) MAIN PAGE
  ✓ TESTCASE1 PASSED (54ms)

2) ADMIN LOGIN PAGE
  ✓ Should be success if credential is non empty

3) DEAN LOGIN PAGE
  ✓ Should be success if credential is non empty

4) FACULTY LOGIN PAGE
  ✓ Should be success if credential is non empty

4 passing (89ms)

PS C:\Users\91905\Desktop\Exam_alteration_helper-main\api> 
```

8.2.3 Test cases codes of Sprint 1:

Pass:

```
var expect = require('chai').expect;
var assert = require('chai').assert;
var should = require('chai').should;
var request = require('request');

describe('1) MAIN PAGE', function(done)
{
  it('TESTCASE1 PASSED', function(done)
  {
    request('http://localhost:3000/' , function(error, response, body)
    {
      expect(response.statusCode).to.equal(200);
      done();
    });
  });
});
```

```
describe('2) ADMIN LOGIN PAGE', function(done)
{
  it('Should be success if credential is non empty', function(done)
  {
    let username='admin_amrita';
    let password='admin_amrita';
    request.get('http://localhost:3000/adminlogin?username='+username+'&&password='+password,function(error,response,body)
    {
      expect(response.statusCode).to.equal(200);
      done();
    });
  });
});
```

```
describe('3) DEAN LOGIN PAGE', function(done)
{
  it('Should be success if credential is non empty', function(done)
  {
    let username='dean_amrita';
    let password='dean_amrita';
    request.get('http://localhost:3000/deanlogin?username='+username+'&&password='+password,function(error,response,body)
    {
      expect(response.statusCode).to.equal(200);
      done();
    });
  });
});
```

```
describe('4) FACULTY LOGIN PAGE', function(done)
{
  it('Should be success if credential is non empty', function(done)
  {
    let username='gautham@cb.amrita.edu';
    let password='gautham123';
    request.get('http://localhost:3000/?username='+username+'&&password='+password,function(error,response,body)
    {
      expect(response.statusCode).to.equal(200);
      done();
    });
  });
});
```


8.2.4 Test cases statistics for Sprint 2:

We have used **JEST** as the tool for unit testing.

Pass:

```
PASS Jest-test/app.test.js
  GET /
    ✓ 1) It should respond with FAQ Page (182 ms)
    ✓ 2) It should respond with ABOUT Page (10 ms)
    ✓ 3) It should respond with HOME Page (8 ms)
    ✓ 4) It should respond with admin dashboard in admin login page (8 ms)
    ✓ 5) It should respond with add a faculty in admin login page (22 ms)
    ✓ 6) It should respond with delete or edit a faculty in admin login page (14 ms)
    ✓ 7) It should respond with uploading time table in admin login page (7 ms)
    ✓ 8) It should respond with uploading new hall allotment in admin login page (5 ms)
    ✓ 9) It should respond with viewing FAQ in admin login page (7 ms)
    ✓ 10) It should respond with downloading hall allocation in admin login page (4 ms)

Test Suites: 1 passed, 1 total
Tests:       10 passed, 10 total
Snapshots:   0 total
Time:        1.929 s, estimated 3 s
Ran all test suites matching ./\Jest-test/i.
```

8.2.5 Test cases codes of Sprint 2:

```
describe("GET / ", () => {
  test("1) It should respond with FAQ Page", async () => {
    const response = await request(x.app).get("/");
    expect(response.statusCode).toBe(200);
  });
});

describe("GET / ", () => {
  test("2) It should respond with ABOUT Page", async () => {
    const response = await request(x.app).get("/faq");
    expect(response.statusCode).toBe(200);
  });
});

describe("GET / ", () => {
  test("3) It should respond with HOME Page", async () => {
    const response = await request(x.app).get("/about");
    expect(response.statusCode).toBe(200);
  });
});

describe("GET / ", () => {
  test("4) It should respond with admin dashboard in admin login page", async () => {
    const response = await request(x.app).get("/admin/login");
    expect(response.statusCode).toBe(200);
  });
});
```

8.3 UI Testing

8.3.1 Tool used

- We have used Selenium for UI testing.

8.3.2 Test cases statistics of Sprint 1:

Pass:

Test	# Passed	# Skipped	# Retried	# Failed	Time (ms)	Included Groups	Excluded Groups
Default suite							
Default test	6	0	0	0	60,367		

Class	Method	Start	Time (ms)
Default suite			
Default test — passed			
testingdemo.allpages	test_case_01	1617735360381	10186
	test_case_02	1617735370570	9012
	test_case_05	1617735379583	11324
	test_case_06	1617735390908	9106
	test_case_14	1617735400015	11506
	test_case_15	1617735411522	9194

```
PASSED: test_case_01
PASSED: test_case_02
PASSED: test_case_05
PASSED: test_case_06
PASSED: test_case_14
PASSED: test_case_15
```

```
=====
Default test
Tests run: 6, Failures: 0, Skips: 0
=====
```

```
=====
Default suite
Total tests run: 6, Passes: 6, Failures: 0, Skips: 0
=====
```

8.3.3 Test case code for Sprint 1:

Pass:

Testing for Admin Login

```
//-----Test Case with Valid Login Credentials-----
@Test
public static void test_case_01() throws InterruptedException
{
    System.setProperty("webdriver.chrome.driver", "C:\\browserdriver\\chromedriver.exe");
    WebDriver driver = new ChromeDriver();
    driver.manage().timeouts().implicitlyWait(20, TimeUnit.SECONDS);
    driver.manage().window().maximize();
    driver.get("http://localhost:3000/adminlogin?");
    Thread.sleep(1000);
    WebElement txtbx_username = driver.findElement(By.name("username"));
    txtbx_username.sendKeys("admin_amrita");
    Thread.sleep(1000);
    driver.findElement(By.name("password")).sendKeys("admin_amrita");
    Thread.sleep(1000);
    driver.findElement(By.name("login_type")).click();
    String expected_title = "Admin Dashboard";
    String actual_title = driver.getTitle();
    Assert.assertEquals(expected_title, actual_title);
    System.out.println("admin login page Successfully passed");
    driver.manage().timeouts().implicitlyWait(20, TimeUnit.SECONDS);
    Thread.sleep(3000);
}

//-----Test Case with Invalid Login Credentials-----
@Test
public static void test_case_02() throws InterruptedException
{
    System.setProperty("webdriver.chrome.driver", "C:\\browserdriver\\chromedriver.exe");
    WebDriver driver = new ChromeDriver();
    driver.manage().timeouts().implicitlyWait(20, TimeUnit.SECONDS);
    driver.manage().window().maximize();
    driver.get("http://localhost:3000/adminlogin?");
    Thread.sleep(1000);
    WebElement txtbx_username = driver.findElement(By.name("username"));
    txtbx_username.sendKeys("adminbro");
    Thread.sleep(1000);
    driver.findElement(By.name("password")).sendKeys("admin_amrita");
    Thread.sleep(1000);
    driver.findElement(By.name("login_type")).click();
    System.out.println("Wrong username and/or password!");
    Thread.sleep(3000);
}
```

Pass:

Testing for Dean Login

```
//-----Test Case with Valid Login Credentials-----
@Test
public static void test_case_05() throws InterruptedException
{
    System.setProperty("webdriver.chrome.driver", "C:\\browserdriver\\chromedriver.exe");
    WebDriver driver = new ChromeDriver();
    driver.manage().timeouts().implicitlyWait(20, TimeUnit.SECONDS);
    driver.manage().window().maximize();
    driver.get("http://localhost:3000/deanlogin?");
    Thread.sleep(1000);
    WebElement txtbx_username = driver.findElement(By.name("username"));
    txtbx_username.sendKeys("dean_amrita");
    Thread.sleep(1000);
    driver.findElement(By.name("password")).sendKeys("dean_amrita");
    Thread.sleep(1000);
    driver.findElement(By.name("login_type")).click();
    String expected_title = "Dean Dashboard";
    String actual_title = driver.getTitle();
    Assert.assertEquals(expected_title, actual_title);
    System.out.println("dean login page Successfully passed");
    driver.manage().timeouts().implicitlyWait(20, TimeUnit.SECONDS);
    Thread.sleep(3000);
}

//-----Test Case with InValid Login Credentials-----
@Test
public static void test_case_06() throws InterruptedException
{
    System.setProperty("webdriver.chrome.driver", "C:\\browserdriver\\chromedriver.exe");
    WebDriver driver = new ChromeDriver();
    driver.manage().timeouts().implicitlyWait(20, TimeUnit.SECONDS);
    driver.manage().window().maximize();
    driver.get("http://localhost:3000/deanlogin?");
    Thread.sleep(1000);
    WebElement txtbx_username = driver.findElement(By.name("username"));
    txtbx_username.sendKeys("deansir");
    Thread.sleep(1000);
    driver.findElement(By.name("password")).sendKeys("deanMam");
    Thread.sleep(1000);
    driver.findElement(By.name("login_type")).click();
    String expected_title = "Dean Login";
    String actual_title = driver.getTitle();
    Assert.assertEquals(expected_title, actual_title);
    System.out.println("Wrong username and/or password!");
    Thread.sleep(3000);
}
```

Testing for Faculty Login

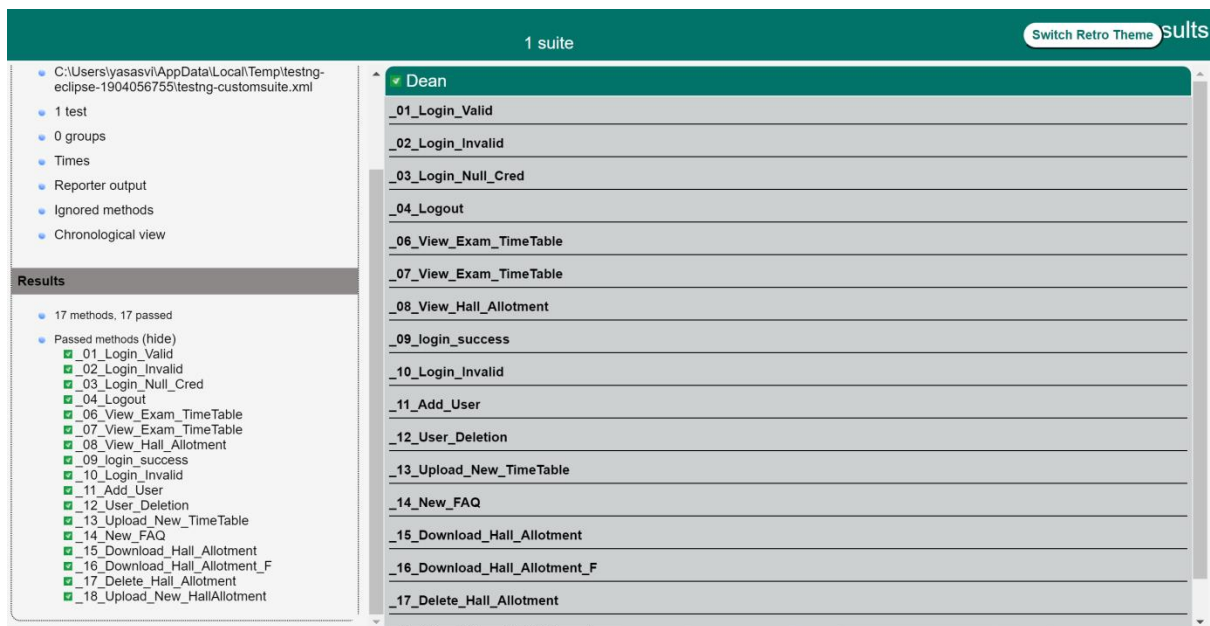
Pass:

```
//-----Test Case with Valid Login Credentials-----
@Test
public static void test_case_14() throws InterruptedException
{
    System.setProperty("webdriver.chrome.driver", "C:\\browserdriver\\chromedriver.exe");
    WebDriver driver = new ChromeDriver();
    driver.manage().timeouts().implicitlyWait(20, TimeUnit.SECONDS);
    driver.manage().window().maximize();
    driver.get("http://localhost:3000/?");
    Thread.sleep(1000);
    WebElement txtbx_username = driver.findElement(By.name("username"));
    txtbx_username.sendKeys("gautham@cb.amrita.edu");
    Thread.sleep(1000);
    driver.findElement(By.name("password")).sendKeys("gautham123");
    Thread.sleep(1000);
    driver.findElement(By.name("login_type")).click();
    String expected_title = "Faculty Dashboard";
    String actual_title = driver.getTitle();
    Assert.assertEquals(expected_title, actual_title);
    System.out.println("faculty login page Successfully passed");
    driver.manage().timeouts().implicitlyWait(20, TimeUnit.SECONDS);
    Thread.sleep(3000);
}

//-----Test Case with InValid Login Credentials-----
@Test
public static void test_case_15() throws InterruptedException
{
    System.setProperty("webdriver.chrome.driver", "C:\\browserdriver\\chromedriver.exe");
    WebDriver driver = new ChromeDriver();
    driver.manage().timeouts().implicitlyWait(20, TimeUnit.SECONDS);
    driver.manage().window().maximize();
    driver.get("http://localhost:3000/?");
    Thread.sleep(1000);
    WebElement txtbx_username = driver.findElement(By.name("username"));
    txtbx_username.sendKeys("gautham12345");
    Thread.sleep(1000);
    driver.findElement(By.name("password")).sendKeys("gautham");
    Thread.sleep(1000);
    driver.findElement(By.name("login_type")).click();
    String expected_title = "Login";
    String actual_title = driver.getTitle();
    Assert.assertEquals(expected_title, actual_title);
    System.out.println("Wrong username and/or password!");
    driver.manage().timeouts().implicitlyWait(20, TimeUnit.SECONDS);
    Thread.sleep(3000);
}
```

8.3.4 Test cases statistics of Sprint 2:

Pass:



PASSED: _14_New_FAQ
PASSED: _12_User_Deletion
PASSED: _18_Upload_New_HallAllotment
PASSED: _15_Download_Hall_Allotment
PASSED: _08_View_Hall_Allotment
PASSED: _02_Login_Invalid
PASSED: _16_Download_Hall_Allotment_F
PASSED: _03_Login_Null_Cred
PASSED: _06_View_Exam_TimeTable
PASSED: _04_Logout
PASSED: _10_Login_Invalid
PASSED: _17_Delete_Hall_Allotment
PASSED: _11_Add_User
PASSED: _07_View_Exam_TimeTable
PASSED: _13_Upload_New_TimeTable
PASSED: _09_login_success
PASSED: _01_Login_Valid

```
=====
Default test
Tests run: 17, Failures: 0, Skips: 0
=====
```

8.3.5 Test case code for Sprint 2:

```
388
389 @Test
390 public static void _12_User_Deletion() throws InterruptedException
391 {
392     System.setProperty("webdriver.chrome.driver", "C:\\browserdriver\\chromedriver.exe");
393     WebDriver driver = new ChromeDriver();
394     driver.manage().timeouts().implicitlyWait(20, TimeUnit.SECONDS);
395     driver.manage().window().maximize();
396     driver.get("http://localhost:3000");
397     Thread.sleep(6800);
398     driver.findElement(By.xpath("/html/body/main/div[2]/div[2]")).click();
399     Thread.sleep(1520);
400     driver.findElement(By.xpath("/html/body/main/div[2]/div[2]/div/a")).click();
401     Thread.sleep(1500);
402     WebElement txtbx_username = driver.findElement(By.xpath("//*[id=\"mainform\"] /form/div[1]/
403     txtbx_username.sendKeys("admin_amrita");
404     Thread.sleep(1500);
405     driver.findElement(By.name("password")).sendKeys("admin_amrita");
406     Thread.sleep(1500);
407     driver.findElement(By.xpath("//*[id=\"mainform\"] /form/button")).click();
408     Thread.sleep(1500);
409     driver.findElement(By.xpath("/html/body/main/div[2]/div/div[2]/form/button")).click();
410     Thread.sleep(1500);
411     WebElement email = driver.findElement(By.xpath("/html/body/main/div[1]/form/div[2]/input"));
412     email.sendKeys("ambika_p_test@cb.amrita.edu");
413     Thread.sleep(1000);
414     driver.findElement(By.xpath("/html/body/main/div[1]/form/div[3]/button")).click();
415     Thread.sleep(1000);
416     String expected_tittle = "User has been deleted successfully!";
417     WebElement actual_tittle1 = driver.findElement(By.id("error"));
418     WebElement actual_tittle = actual_tittle1.findElement(By.tagName("h5"));
419     String actual = actual_tittle.getAttribute("innerHTML");
420
421     if(expected_tittle.equals(actual)) {
422         System.out.println("User Deleted Successfully");
423     }else {
424         System.out.println("User Deletion Failed");
425     }
426 }
```

```
554 @Test
555 public static void _16_Download_Hall_Allotment_F() throws InterruptedException
556 {
557     System.setProperty("webdriver.chrome.driver", "C:\\browserdriver\\chromedriver.exe");
558     WebDriver driver = new ChromeDriver();
559     driver.manage().timeouts().implicitlyWait(20, TimeUnit.SECONDS);
560     driver.manage().window().maximize();
561     driver.get("http://localhost:3000");
562     Thread.sleep(6800);
563     driver.findElement(By.xpath("/html/body/main/div[2]/div[2]")).click();
564     Thread.sleep(1520);
565     driver.findElement(By.xpath("/html/body/main/div[2]/div[2]/div/a")).click();
566     Thread.sleep(1500);
567     WebElement txtbx_username = driver.findElement(By.xpath("//*[id=\"mainform\"] /form/div[1]/
568     txtbx_username.sendKeys("admin_amrita");
569     Thread.sleep(1500);
570     driver.findElement(By.name("password")).sendKeys("admin_amrita");
571     Thread.sleep(1500);
572     driver.findElement(By.xpath("//*[id=\"mainform\"] /form/button")).click();
573     Thread.sleep(1500);
574     driver.findElement(By.xpath("/html/body/main/div[2]/div/div[6]/form/button")).click();
575     Thread.sleep(1500);
576     WebElement ddown = driver.findElement(By.name("examname"));
577     Select select = new Select(ddown);
578     select.selectByValue("periodical2");
579     Thread.sleep(2000);
580     WebElement ddown1 = driver.findElement(By.name("year"));
581     Select select1 = new Select(ddown1);
582     select1.selectByValue("2019");
583     Thread.sleep(2000);
584     WebElement ddown2 = driver.findElement(By.name("department"));
585     Select select2 = new Select(ddown2);
586     select2.selectByValue("cse");
587     Thread.sleep(2000);
588     driver.findElement(By.xpath("/html/body/main/div/form/div[4]/button")).click();
589     Thread.sleep(1500);
590     System.out.println("Download Failed-File Doesn't Exist");
591 }
```


9. Pipeline and Docker Script for Continuous Integration

```
pipeline {
  agent any
  environment {
    CI = 'true'
  }
  stages {
    stage('Cloning Git') {
      steps {
        git 'https://github.com/L3g3Nd4Ry-
iwnl/Exam_alteration_helper.git'
      }
    }
    stage('Install dependencies') {
      steps {
        sh 'npm install'
      }
    }
    stage('Create .env') {
      steps {
        sh '''touch .env
              printf "PORT = 3000\\n\\nMYSQL_URL = \\n\\nlocalhost\\n\\n\\n\\n
MYSQL_USERNAME = \\n\\nroot\\n\\n\\n\\nMYSQL_PASSWORD = \\n\\nhello_mysql\\n\\n\\n\\nMYS
QL_DATABASE_ACC = \\n\\nfaculty_db\\n\\n\\n\\nADMIN_USP = \\n\\nadmin_amrita\\n\\n\\n\\n
ADMIN_HASH = \\n\\n\\x242b\\x2410\\x24XSGNYxtoH1G5uyw.NQ1HruV/6N6p73TF6jsKn329U1
uOoWGTIQ10y\\n\\n\\n\\nDEAN_USP = \\n\\ndeans\\n\\n\\n\\nDEAN_HASH = \\n\\n\\x242
b\\x2410\\x24mLmAQ5KW/nLwFkA0dYVExe3weriG/WLwvWmAnnSA6gys1jYuP001G\\n\\n\\n\\nNOD
E_ENV = \\n\\ndevelopment\\n\\n\\n\\nSESS_NAME = \\n\\nsid\\n\\n\\n\\nSESS_LIFETIME = 10
00 * 60 * 60 * 1\\n\\n\\n\\nSESS_SECRET = \\n\\nL1K5_Z5_W3VjIv\\n\\n\\n\\nQUOTE_OTD = \\n\\n
The greatest glory in living lies not in never falling, but in rising every ti
me we fall.\\n\\n\\n\\nRESET_PASSWORD_JWT = \\n\\nR3s3Tp455W0rD\\n\\n\\n\\nGMAIL_ID =
\\n\\nexamalterationhelper@gmail.com\\n\\n\\n\\nGMAIL_PASSWORD = \\n\\nexam_1234!!\\n\\n
\\n\\nGMAIL_HOST = \\n\\nsmtp.gmail.com\\n\\n\\n\\nGMAIL_PORT = 465" > .env'''
        echo "Done creating .env"
      }
    }
    stage('Jest test'){
      steps{
        sh 'npm run jest-test'
      }
    }
    stage('Mocha test') {
      parallel {
        stage('start app.js'){
          steps{
```



```

        sh '''set -x
            npm start &
            sleep 1
            echo $! > .pidfile
            set +x
            set -x
            kill $(cat .pidfile)
        '''
    }
}
stage('start test.js'){
    steps{
        sh 'npm run mocha-test'
    }
}
}
stage('Docker image creation') {
    steps {
        sh '''docker login --username saadhith --password hello_docker
            docker build . -t saadhith/exam-alteration-helper --pull=true
            docker push saadhith/exam-alteration-helper
        '''
        echo "Completed docker image building"
    }
}
}
post{
    failure{
        emailx attachLog: true, body: '''The log has been attached.<br>Please check.<br>Thanks''', subject: 'Jenkins Build failed', to: 'saadhith2@gmail.com'
    }
    success{
        emailx attachLog: true, body: '''The log has been attached.<br>Please check.<br>Thanks''', subject: 'Jenkins Build passed', to: 'saadhith2@gmail.com'
    }
}
}
}

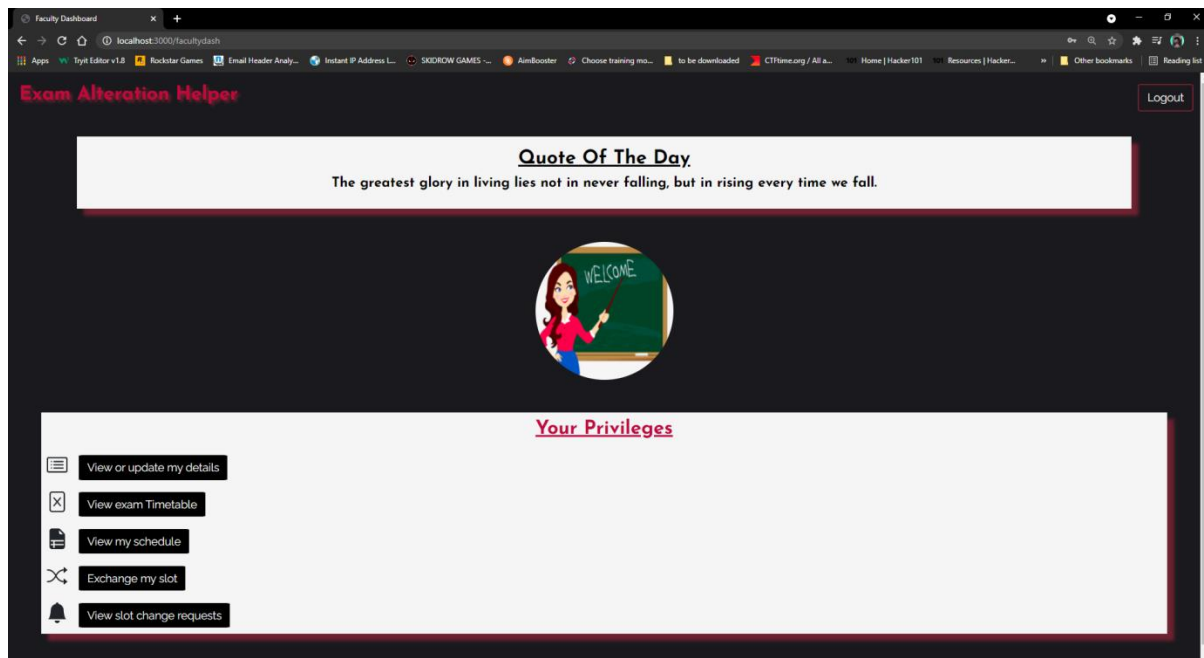
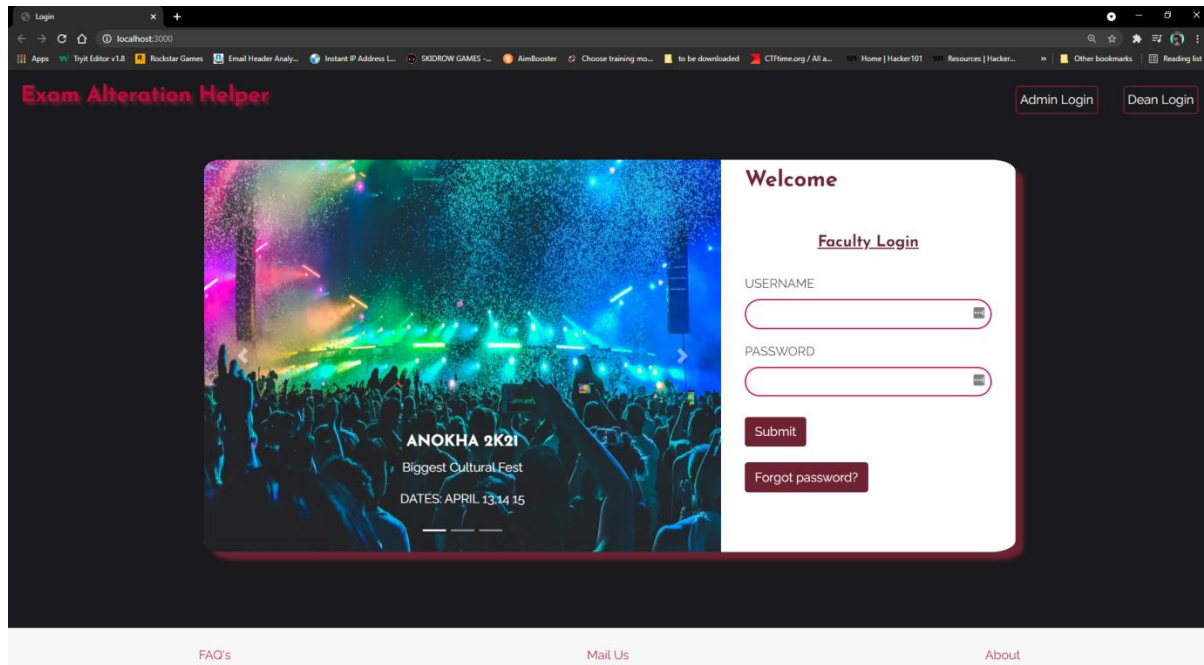
```

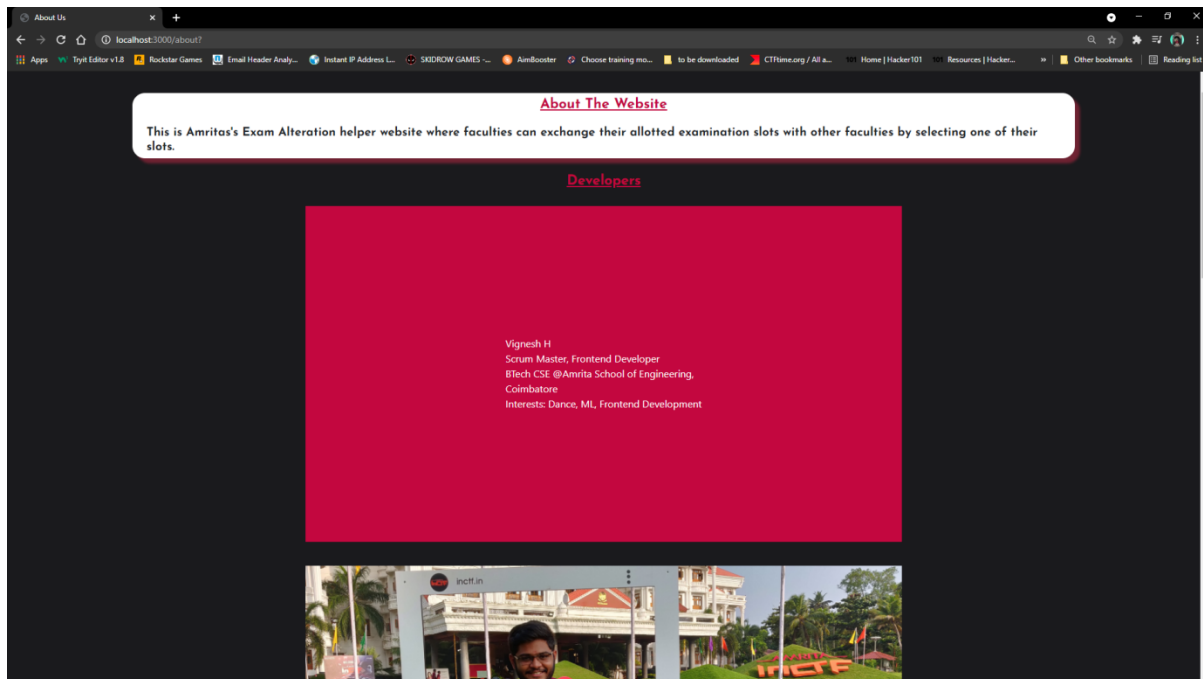
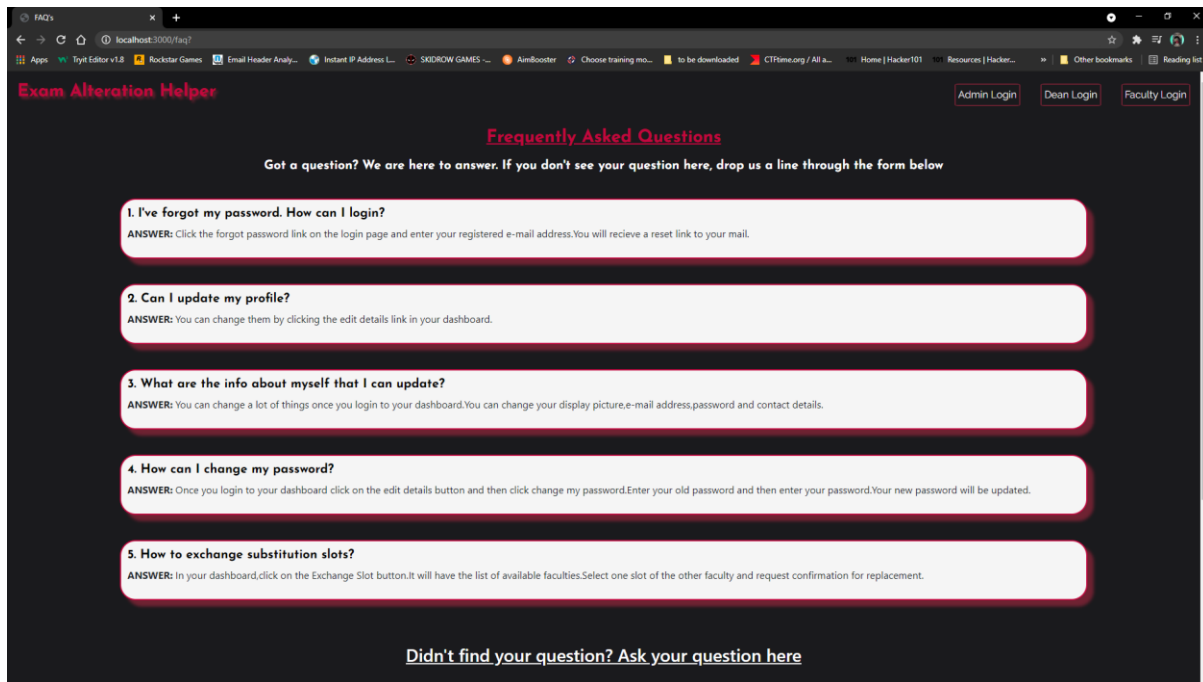
```

FROM node:16
WORKDIR /api
COPY package.json /api
RUN npm install
COPY . /api
CMD ["npm", "start"]
EXPOSE 3000

```


10. Screen shots of Project





Exam Alteration Helper

periodical2 timetable

periodical2.pdf 1 / 8 92%

Amrita Vishwa Vidyapeetham, Amrita School of Engineering, Coimbatore.
Second Assessment Online Exam Schedule for Fourth Semester B Tech 2019 Even Semester (2020-2021) 03.03.2021

Date, Day & Session	ARE	CBE	CIE	CCE	CSE	ECE	EEE	ELC	MEE
24.03.2021 Wednesday	19AVP211 Amrita Value Program II								
25.03.2021 SLOT 1 Thursday			19MAT211 Optimization Techniques		19MAT213 Optimization Techniques		19MAT216 Probability and Statistics		
25.03.2021 SLOT 3 Thursday			19MAT205 Probability and Random Processes						
25.03.2021 SLOT 4 Thursday	19MAT211 Numerical Computing with Matlab	19CE221 Chemical Engineering Thermodynamics	19MAT213 Complex Analysis and Probability Theory					19MAT216 Probability and Complex Variables	
26.03.2021 SLOT 1 Friday	19EE222 Compressible Fluid Flow			19EE221 Digital Signal Processing		19EE221 Control Systems			
26.03.2021 SLOT 3 Friday			19EC222 Data Structures and Algorithms						
26.03.2021 SLOT 4 Friday		19CE222 Industrial Chemistry	19CE221 Geology & Soil Mechanics	19CC221 Embedded Computing					19ME220 Thermodynamics
27.03.2021 SLOT 1 Saturday	19EE3240 Psychology for Engineers / 19EE3244 Understanding Science of Food & Nutrition			19EE3240 Psychology for Engineers / 19EE3244 Understanding Science of Food & Nutrition		19H244 Understanding Science of Food & Nutrition			

Timings: SLOT 1: 09.30am to 10.30 am SLOT 2: 11.30 am to 12.30 pm SLOT 3: 01.30pm to 02.30pm SLOT 4: 03.30pm to 04.30pm

Exam Alteration Helper

ENTER YOUR OLD PASSWORD

ENTER YOUR NEW PASSWORD

CONFIRM YOUR PASSWORD

Submit

[FAQ's](#)

[Mail Us](#)

[About](#)

View Hall Allocation List

Exam Alteration Helper

Logout

Hello Faculty

[View the Hall Allocation List](#)

[Choose the Year and Exam-Name](#)

EXAM NAME

Periodical 1

YEAR

2018

Submit

FAQ's Mail Us About

View my slots

Exam Alteration Helper

Logout

Select the slot you want to exchange.
Click on the radio button of the slot you want to request and click Submit!
It will bring a page of faculties who are free for your current selected slot.

S.No	Date	Slot	Start Time	End Time	Room Number	Subject	Make request
1	19-05-2021	1	09 00 a.m.	12 00 p.m.	D-301	Linear Algebra	<input type="radio"/>

Submit

FAQ's Mail Us About

View and edit your requests

localhost:3000/faculty/requests/view?

Exam Alteration Helper

Logout


If you want to accept a slot exchange request, click on accept!
If you want to reject a slot exchange request, click on reject!

S.No	Requested Faculty	Their Date	Their Slot	It's Start Time	It's End Time	It's Room Number	It's Subject	Your Date	Your Slot	It's Start Time	It's End Time	It's Room Number	It's Subject	Action
1	Gautham R	18-05-2021	1	09 00 a.m.	12 00 p.m.	A-101	Compiler Design	19-05-2021	1	09 00 a.m.	12 00 p.m.	D-301	Linear Algebra	Accept Reject

FAQ's Mail Us About

Admin Dashboard

localhost:3000/admin/dashboard



Your Privileges

- Setup a new faculty account
- Delete a faculty
- Upload new exam timetable
- Upload new hall allotment
- View new FAQ
- Download Hall Allocation
- Delete Hall Allocation

About

The screenshot shows a web browser window with the title 'View Hall Allocation List'. The address bar shows 'localhost:3000/admin/download/hallalloc?'. The page has a dark background with the title 'Exam Alteration Helper' in red at the top left. A 'Logout' button is in the top right. The main content area has two instructions: 'Select the Hall Allocation List you want to download' and 'Choose the Exam-Name, Year and the Department'. Below these is a form with three dropdown menus: 'EXAM NAME' (selected: Periodical 1), 'YEAR' (selected: 2018), and 'DEPARTMENT' (selected: CSE). A red 'Submit' button is at the bottom of the form. The footer contains links for 'FAQ's', 'Mail Us', and 'About'.

11. Conclusion

The Exam Alteration Helper web app has been successfully developed and deployed for the welfare of teachers to help them exchange their slots on the course of exam scheduling at ease.