

A
REPORT ON
University Website
BY

Ranipa Jash Ramniklal

2020A7PS0119P

AT
PlatiFi Solutions Pvt. Ltd.
A Practice School Station of



BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI

July, 2022

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Ranipa Jash Ramniklal 2020A7PS0119P B.E. Computer Science

**Prepared in the partial fulfilment of the
Practice School – I Course**

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Acknowledgement

- I am much obliged to the staff of Birla Institute of Technology and Sciences, Pilani for conducting the Practice School program for the industry exposure and experience.
- My immense gratitude to Vibha mam, mentor at Platifi Solutions for giving us tasks which helped me to learn many new technologies.
- My special thanks to Dr. Vineet Garg, PS instructor at Platifi solutions, for his constant guidance , supervision and solving our queries.
- I am much obliged to the staff of Platifi for conducting various programs for industry exposure.

Abstract Sheet

**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE
PILANI (RAJASTHAN), Practice School Division**

PS Station: PlatiFi Solutions Pvt. Ltd.

Duration: 2 Months

Date of Submission: 17 July 2022

Title of the Project: University Website

BITS ID /Name: 2020A7PS0119P / Ranipa Jash Ramniklal

Discipline of the Student: Computer Science

**Name and Designation of the PS-I Station Manager and Mentors: Vibha Mam (Mentor)
, Samarth Sir (Business Development Member)**

Name of the PS Faculty: Dr. Vineet Garg

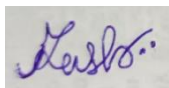
Project Key Words: MERN (MongoDB, Express, React, Node)

Project Areas: Web Development

Quality assurance of the product: Yes

Abstract:

I have developed basic structure of website containing home page, login page and Contact page using React.js. For Backend, I have used Node.js, Express.js and MongoDB for database. This project is basically a MERN stack project in which I have performed CRUD operations.



Signature of Student

Name: Ranipa Jash Ramniklal

Date: 17 July 2022

Signature of PS Faculty

Name: Dr. Vineet Garg

Date: 17 July 2022

Response Option Sheet

**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE
PILANI (RAJASTHAN), Practice School Division**

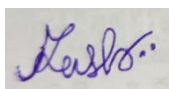
PS Station: PlatiFi Solutions Pvt. Ltd.

Title of the Project: University Website

BITS ID /Name: 2020A7PS0119P / Ranipa Jash Ramniklal

Usefulness of the project to the on-campus courses of study in various disciplines. Project should be scrutinized keeping in view the following response options. Write Course No. and Course Name against the option under which the project comes.

Sl. No.	Response Option	Response
1	A new course can be designed out of this project.	No
2	The project can help modification of the course content of some of the existing courses.	No
3	The project can be used directly in some of the existing Compulsory Discipline Courses/ Discipline Courses Other than Compulsory Courses.	No
4	The project can be used in preparatory courses like Analysis and Application Oriented Courses / Engineering Science / Technical Art and Core Courses.	No
5	This project cannot come under any of the above mentioned options as it relates to the professional work of the host organization.	Yes



Signature of Student

Name: Ranipa Jash Ramniklal

Date: 17 July 2022

Signature of PS Faculty

Name: Dr. Vineet Garg

Date: 17 July 2022

NO DUES CERTIFICATE

**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE
PILANI (RAJASTHAN), Practice School Division**

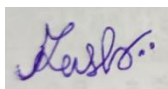
PS Station: PlatiFi Solutions Pvt. Ltd.

Name: Ranipa Jash Ramniklal

BITS ID: 2020A7PS0119P

Note: Please enter dues / no dues. Also put your name, sign and date.

1. Organization Coordinator (HR): no dues
2. Professional Expert (Manager/Mentor): no dues
3. Librarian: no dues
4. Accounts Section: no dues
5. PS Faculty: no dues
6. Any Other: no dues



Signature of Student

Name: Ranipa Jash Ramniklal

Date: 17 July 2022

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1. Introduction to PS Station

PlatiFi is a cloud-based software-as-a-service (SaaS) and Platform-as-a-service (PaaS) firm. It provides flexible, safe, and automated cloud-based delivery of top-tier software applications and IT infrastructure.

Platifi was found by team of experienced business leaders and technologists with their backgrounds in IT hardware, structural design software, Internet of Things, cloud computing, big data, and software development.

PlatiFi services include infrastructure setup, shared storage, protected intellectual property, and centralised software programme management. It utilises the strength, flexibility, and scalability of Microsoft Azure Cloud Platform to deliver Virtual Workspace/Desktop as a Service to Education and Enterprise Segments.

They have majorly developed below two services and marketed them more as compared to other services.

- **Exponential Learning Framework**

Platifi hosts workspace/Desktop environment on their platform for thousands of employees in small, medium, and large businesses throughout the world.

- **OptiFlex Cloud based Solutions**

It is cloud-based system. It provides flexibility to end user to add or view analytical content and data with ease anytime anywhere. It provides easy data sharing and edits options. This helps employees of an organization to work effectively on projects remotely and in real time.

2. Details of the Technical Training during on-boarding:

During our on-boarding to Platifi we were briefed about kind of work being carried out at organization. Platifi provides cloud-based platform services to their customers. They also build websites as per customer's requirement. It aims to provide best services and solutions that can be effectively used by their customer to meet their expectations.

We were provided ample of resources and video lecture to have good basic understanding of Web Designing skills.

Ms. Vibha from Platifi Solutions was assigned as our tech mentor. She used to assign us weekly task. All the task assigned need to be done individually. She used to arrange formal meetings twice a week to showcase our work and used to provide more insights about use cases and applications of various tools.

The first task was to design static layout of webpage. It required prior knowledge of web designing language and tools. It made use of CSS Table and CSS Grid. The second task was to design responsive web pages using BootStrap5.

In above tasks were used HTML (purpose was to build basic template of webpage), CSS (used for styling to have better appearance to webpage).

The upcoming task we were asked to design form using HTML, CSS and JavaScript. The use of JavaScript made webpage more interactive and responsive.

Apart from this I used framework like Node.js and Express.js to query database. I used React.app to create webpage. I have built APIs based on CRUD principle. In CRUD, C – Create, R – Read, U – Update and D – Delete. All these operations are performed on Database with help of APIs.

This is brief of overall project developed during our internship. The detailed functionality will be captured in the later sections of the reports.

3. Details of the Assigned Project(s):

In first and second task I had gained good knowledge HTML, CSS and JavaScript theoretically and also understood its application in building real time websites.

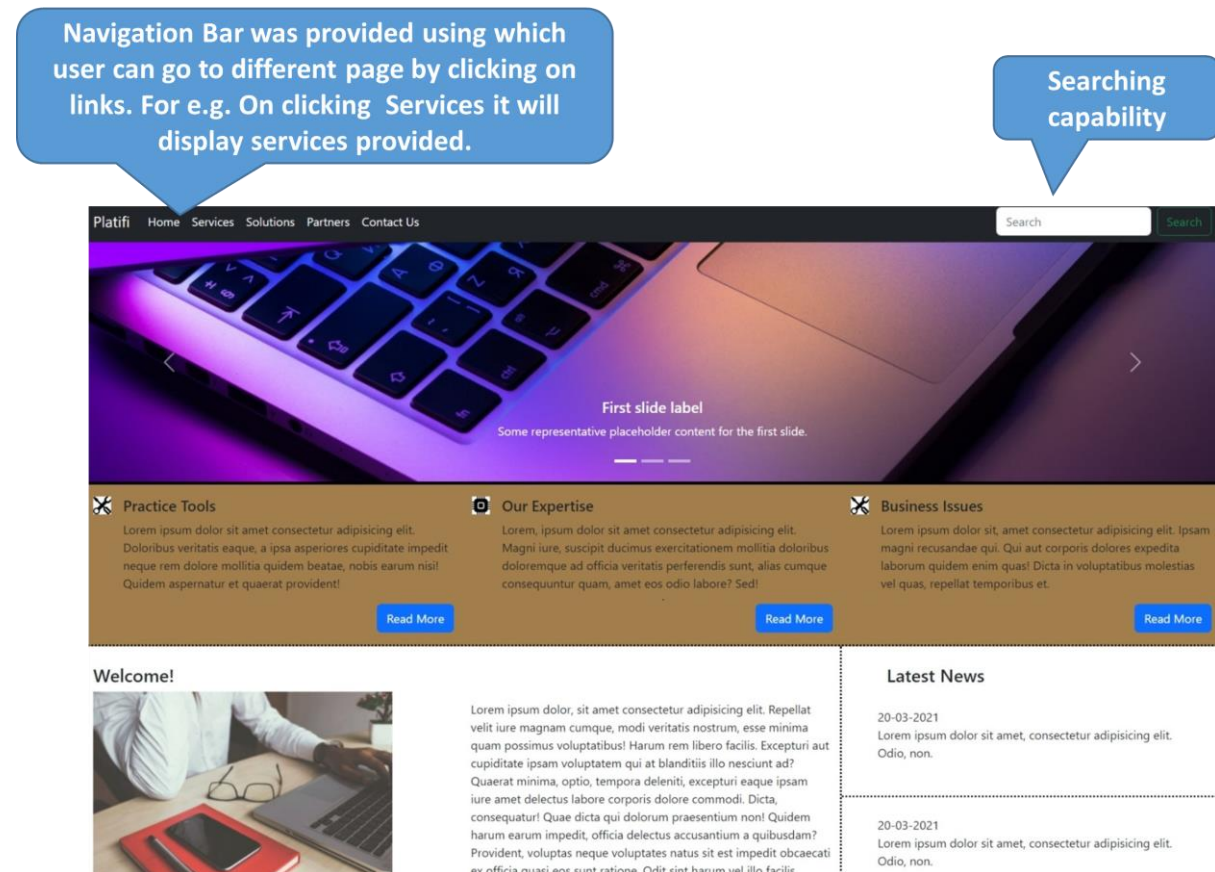


Figure 1. Website using BootStrap5

After midterm, I have built project using MERN stack. The MERN abbreviated as M – MongoDB (used as Database to store Data), E – Express.js (framework of Node), R – React.App (used to design single page application) and N – Node.js (for backend).

Using above I had built university website. The website contained various features that are required in any university website.

Feature 1: When any user (For e.g., admin person of university) wants to login into website and get some data about student, user needs to provide its correct Username and Password to navigate to Home Page.

Purpose: The mechanism is useful to protect data from any unauthorized access. This provides security to the university data.

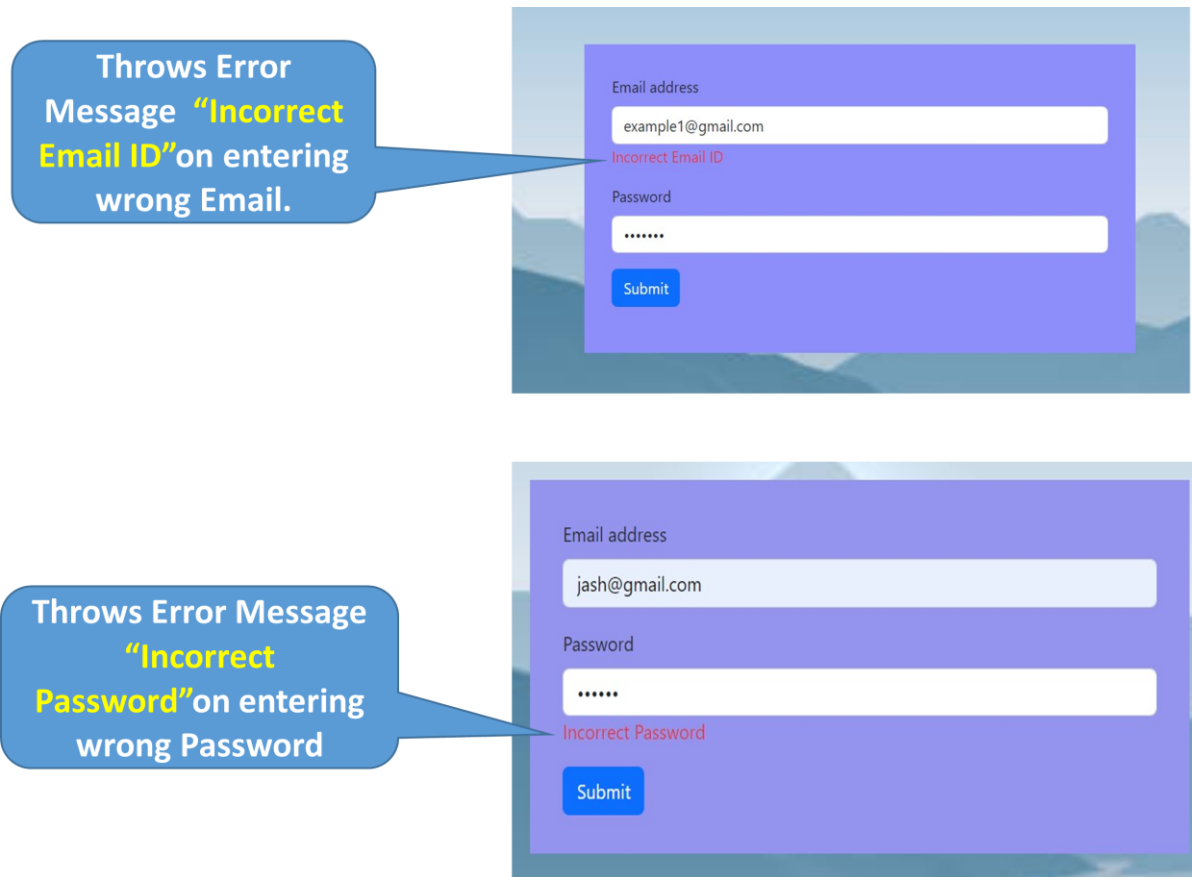


Figure 2. Login Page of University Website

After giving correct username and password, it would navigate to University Home Page. There is navigation bar added to left of webpage. It contains four links namely Student Information, Faculty Information and Contact Information as shown below,

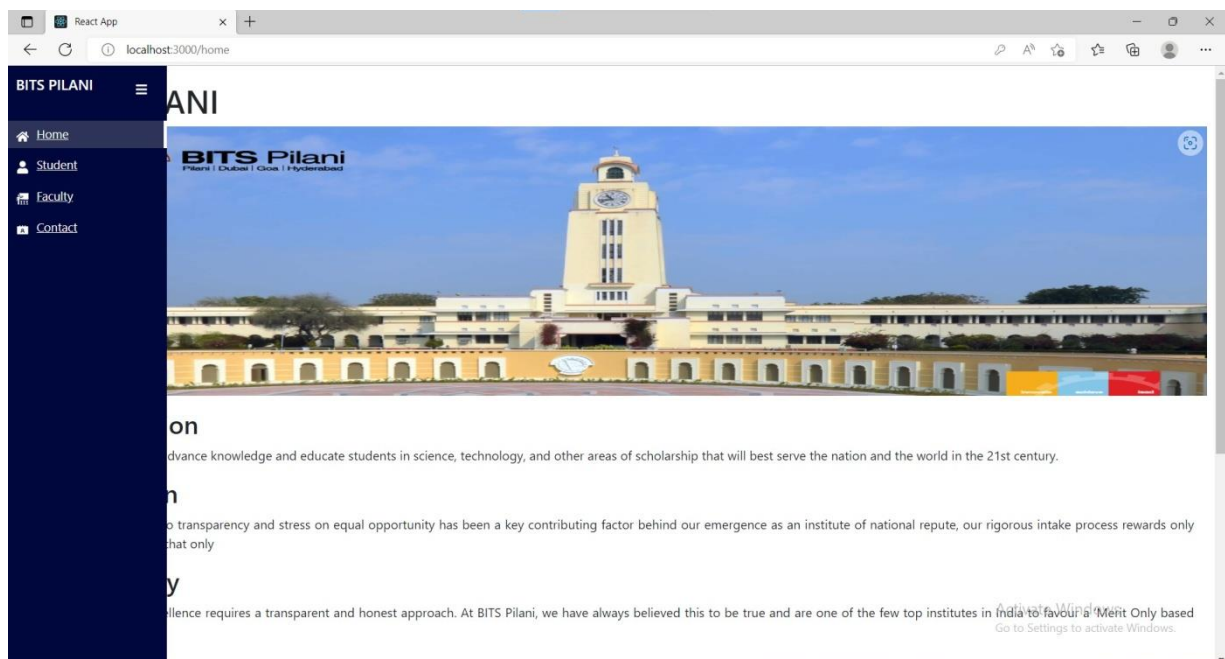


Figure 3. Home Page of University Website

Feature 2: Whenever any new student gets admission at university its basic details like Name, Branch, Gender, Contact Number and Email Id needs to be captured. To fulfil this need we have given option of “Add Student” at top right of webpage. On clicking this button modal will be created and popup will get displayed on screen as shown below.

Purpose: It will be useful to maintain the record of student studying in university and even the branch of that student.

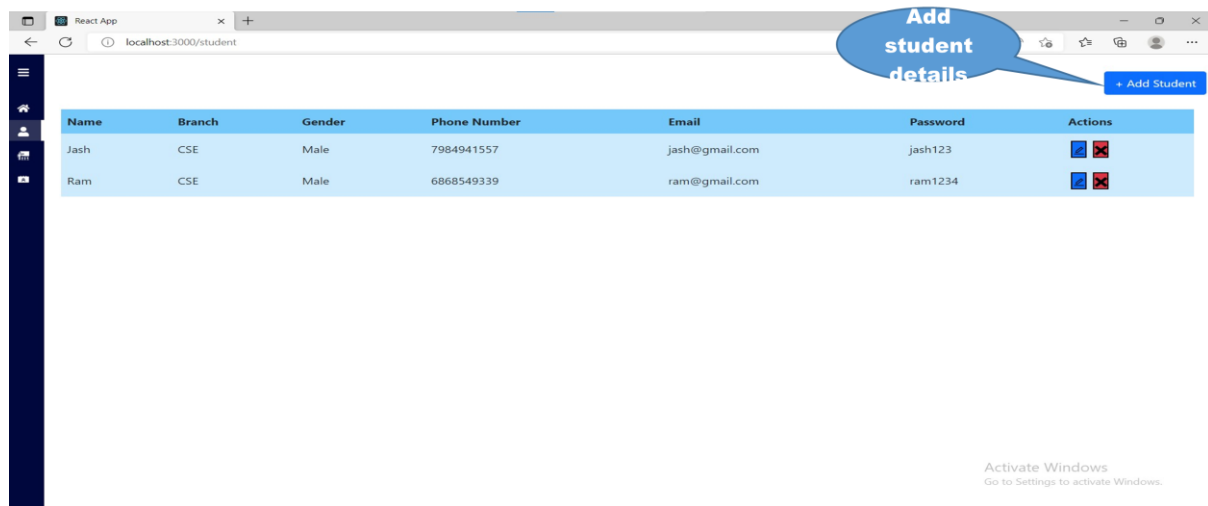


Figure 4. Student Details Page

Add On to Feature 2: The details entered should be correct. For e.g., while entering mobile number it should not contain alphabetic characters. It will throw an error displaying invalid contact number as show below.

Purpose: This helps to maintain correct information for particular student.

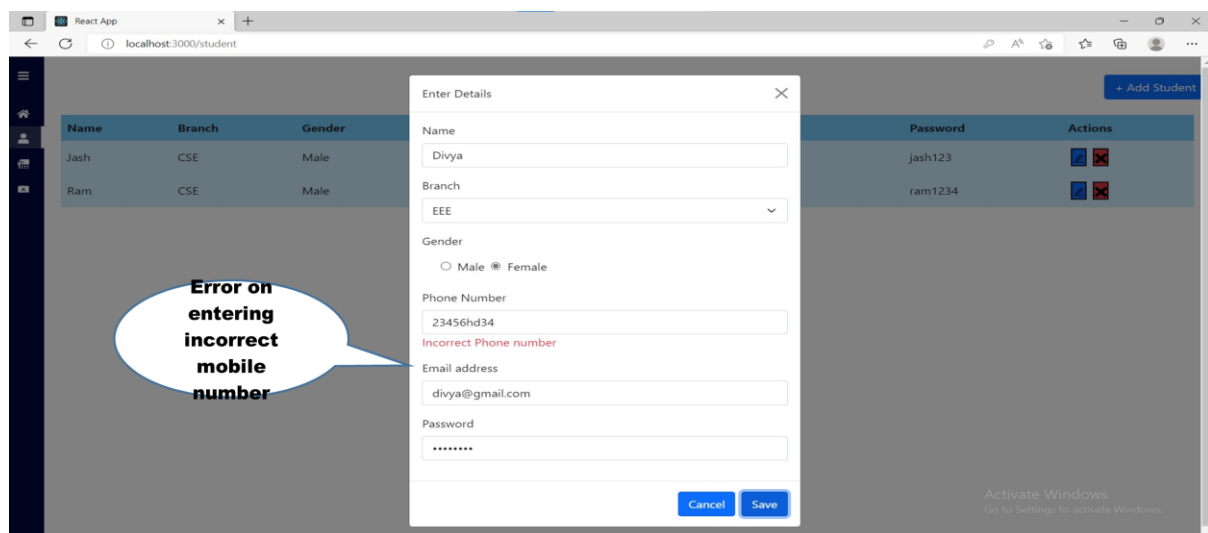
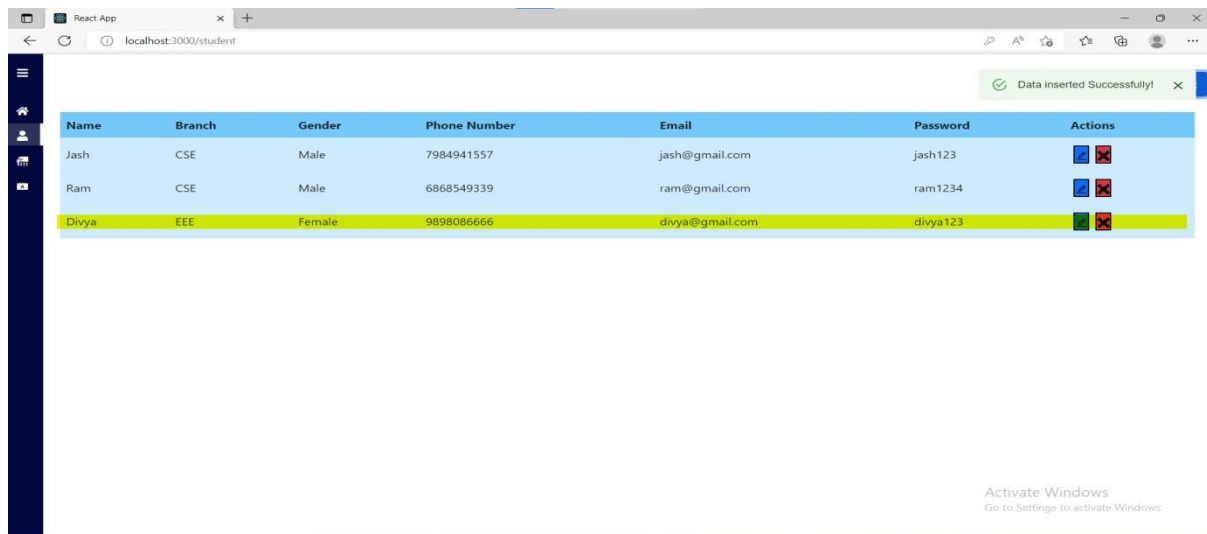


Figure 5. Error on entering incorrect details

After following above steps, a record of student is added (**C**reate) into MongoDB database. After that data will be fetched (**R**ead) from database and displayed to the user on screen as shown below (highlighted in yellow).



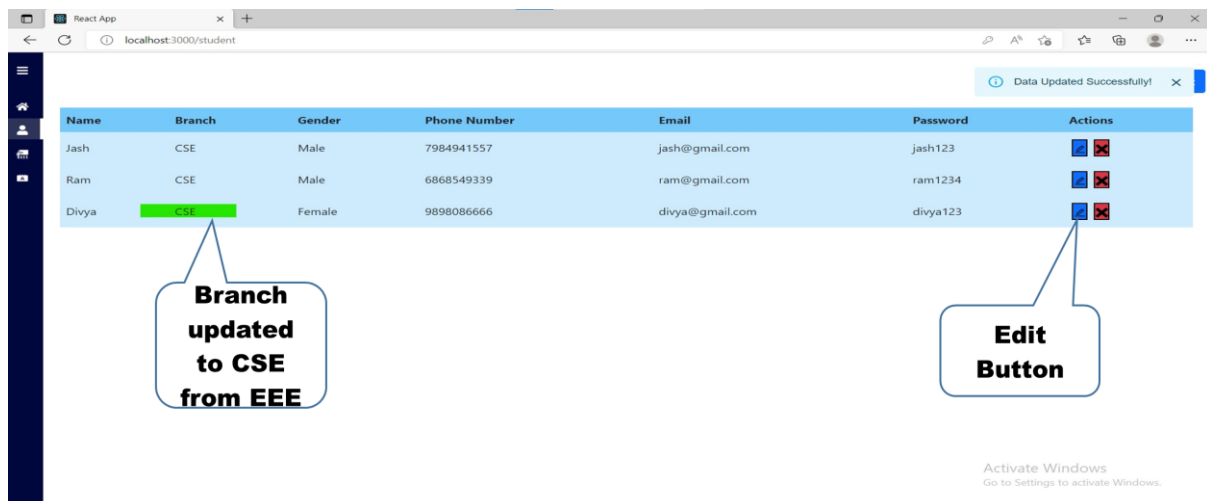
Name	Branch	Gender	Phone Number	Email	Password	Actions
Jash	CSE	Male	7984941557	jash@gmail.com	jash123	[Edit] [Delete]
Ram	CSE	Male	6868549339	ram@gmail.com	ram1234	[Edit] [Delete]
Divya	EEE	Female	9898086666	divya@gmail.com	divya123	[Edit] [Delete]

Figure 6. Details of newly added student

This completes the **CREATE** and **READ** part of **CRUD** principle.

Feature 3: While adding the details of particular student, by chance any detail of student was incorrectly added by user, there is box with edit sign which allows updating the wrongly added information. On clicking the edit box pop-up with older information will be displayed on screen. After updating details and saving it again changes the details of student.

Purpose: To overcome the human error occurred while entering the information.



Name	Branch	Gender	Phone Number	Email	Password	Actions
Jash	CSE	Male	7984941557	jash@gmail.com	jash123	[Edit] [Delete]
Ram	CSE	Male	6868549339	ram@gmail.com	ram1234	[Edit] [Delete]
Divya	CSE	Female	9898086666	divya@gmail.com	divya123	[Edit] [Delete]

Figure 7. Use of edit button to update student details

This completes the **UPDATE** part of **CRUD** principle.

Feature 4: After successful completion of degree student move out of university. The entry of that particular student needs to be removed from database. In order to implicate this there is box with cross sign associated with every record as shown below. On clicking the cross box, respective student details will be removed from database.

Purpose: This mechanism is required to have consistent data into database.

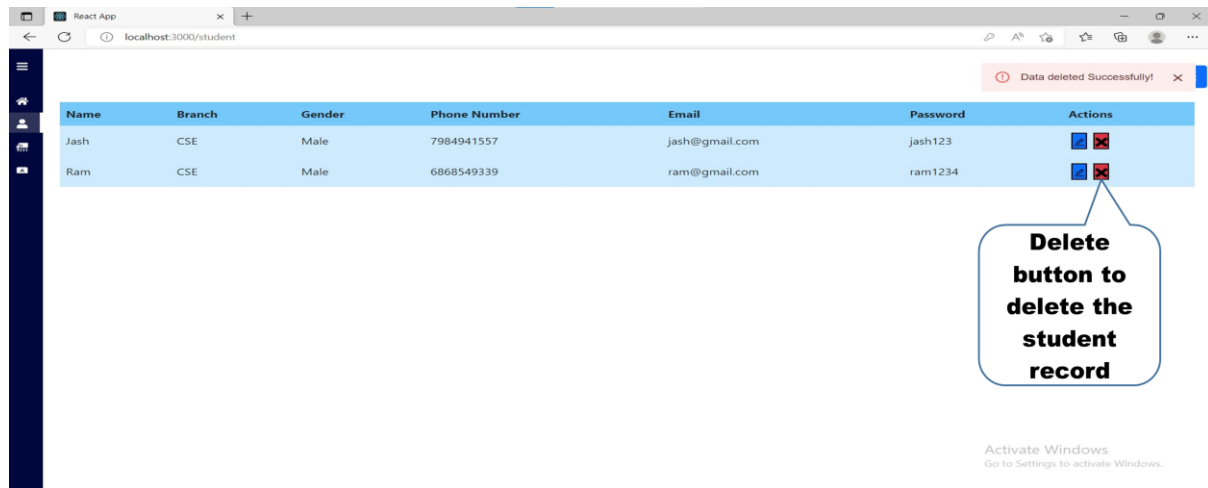


Figure 8. Use of delete button to delete student details

This completes the **DELETE** part of **CRUD** principle.

4. Architectural (Software, Hardware) Details:

User enters data in form. The entered is stored into database. Whenever user sends request to server, server fetches requested data from data and display those results on webpage.

- Frontend Development.
 - **HTML:** HTML is abbreviated as Hyper Text Markup Language. It is standard markup language used for Web Pages. It contains elements which form building blocks of web pages.
 - **CSS:** CSS stands for Cascading Style Sheets. It is used for styling webpage. It describes look and formatting of webpage written using HTML. CSS helps to control text colour, font style, sizing of columns, layout designs and many more.
 - **JavaScript:** It is object – oriented programming language which is used by websites for scripting the web pages. It enables dynamic interactivity on websites when applied to an HTML document. All the actions performed on click of any button on webpage is controlled using JavaScript. For e.g., receiving user input like entering username and password, validation of entered details etc.
 - **Bootstrap:** Bootstrap is most popular HTML, CSS and JavaScript framework used for making responsive websites.
 - **React:** React is JavaScript library. It is created by Facebook. It is User Interface library for building UI components. It supports all the features (i.e. form creation, single page application, error handling etc.) required for modern web framework.
- Backend Development.
 - **Node.js:** It is open-source server environment. It runs on various platforms such as Windows, Linux, Unix, Mac OS etc. It fetches the data from server and return content to the client. It processes client request parallelly thus reducing responsive time. It is faster and more efficient as compared to PHP or ASP.
 - **Express.js:** It is framework which works on top of Node.js web server functionality to simplify its APIs and add new features. It develops Node.js applications easily and quickly and allows defining application routes using HTTP methods and URLs.
- Database
 - **MongoDB:** It is NoSQL database. It provides data storage in JSON format. The data collected from user through React is stored into hashed format (i.e., key-value pairs) into server Database (i.e., MongoDB). Using APIs written with help of Express.js we perform CRUD operations from client-side.

5. Tools Used and Technologies Learned

There are different frontend and backend tools and frameworks used to create University Website. I have learned all of them to implicate in my projects.

1. Below list of technologies have been used in project.
 - React.js
 - Node.js
 - Express.js
 - MongoDB
 - BootStrap5
 - Axions
 - Mongoose

2. Below are few languages used to write frontend and backend code.
 - HTML5(Hyper Text Markup Language)
 - CSS (Cascading Style Sheets)
 - JavaScript

3. Below list of tools have been used in project.
 - Visual studio Code editor
 - Chrome Developer Tools
 - Git and GitHub
 - React-Router-Dom
 - Go Live Server Extension

6. Future Roadmap of your Assigned Work

As part of future scope of this project, I would like to work on styling part of website. This would make website more professional.

I would like to add more feature to existing template of university website like attendance module, report card and dashboard. I would like to add functionality were students can maintain their academic profile and keep updating it on timely basis. This profile could be used to share to companies to showcase skills of an individual. I would like to add alumni section where details of university alumni could be maintained. This is some of the areas which could be worked on to have better user experience.

Also, I would like to build the most optimized code base that would handle most of the edge cases and make website more robust and reliable.

During my internship, I have learned about end-to-end functionality of MERN stack used in web development. I have learned the real time application of frameworks involved in web development using MERN.

I would like to host my website on different hosting platform. The website could be hosted on Heroku. It is cloud-based platform where we can deploy, manage and scale our application. It provides simplest path to get our applications to market recognition.

7. How your work is helping your PS Station

I have developed my project using MERN stack.

It includes the entire features that are required in any university website. It serves the purpose of PaaS (Platform-as-a-Service).

The website has authentication mechanism, this functionality could be used to build attendance module. Whenever students enter respective class, he would have to provide his Id number and name; this would mark his attendance for particular class.

PS station can use this project as basic template of any university website. They could improvise it by adding more features as per the need of the customers. As per the requirement only new APIs need to be written to fulfil the requirement of the customers. This saves lot of time and reduces overhead to create basic template of website.

It could be used to give demo to their customers which would provide them clear vision about the services they would get through this product. They can clearly understand whether their requirement is a better fit with the product.

It could be used to train the interns. As at initial stage they would not be familiar with web development frameworks. They can understand the code base and learn the underlying working of it. These are few ways in which the PS station could be benefited from my work.

8. References

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- MongoDB. Database. Retrieved from <https://www.mongodb.com>