# *GRAPHIC ERA DEEMED TO BE UNIVERSITY*

**Batch 2019-23**

## INTERNSHIP REPORT

## On

## FULL-STACK WEB DEVELOPMENT

***Submitted in partial fulfillment of the requirements for the award of the degree of***

## BACHELOR OF TECHNOLOGY

***In***

## COMPUTER SCIENCE AND ENGINEERING

Under the guidance of

Mr. Ashwin Salgaocar

(DevOps Engineer)


**Submitted To:**

Mr. Prabhdeep Singh
Assistant Professor
Department of Computer Science and Engineering

**Submitted By:**

Gaurangi Tripathi
B. Tech CSE
Section E
2014657(25)
7th Semester

BOLT

Date: 10/10/2022

# INTERNSHIP COMPLETION CERTIFICATE

To Whom-so-ever- It May Concern

This is to certify that Gaurangi Tripathi has successfully completed a Remote Internship at Inventrom Private Limited – Bolt IoT for the duration of six weeks. During this duration, Gaurangi worked as Web App Developer Intern on the project Inventrom Website under the guidance of Senior Software Developer and Mentor Mr. Rahul Kumar Singh.

We take this opportunity to thank Gaurangi and wish them all the best for their future.

For Inventrom Private Limited,

Joyner Fernandes
Human Resources Manager

#79, First Floor, 5th main road, 11th cross road, Binnamangala, Stage 1, Indiranagar, Bengaluru -560038
Ph: 8881197198 E-mail: contactus@boltiot..com, Website: www.boltiot.com

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# CONTACT DETAILS OF HR

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Designation: DevOps Engineer
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Email: ashwin.salgaocar@boltiot.com

# DECLARATION

I Gaurangi Tripathi hereby declare that I have undertaken 6 weeks of internship at "**Inventrom Private Limited – Bolt IoT**" during the period of 10 August 2022 to 30 September 2022 in partial fulfillment for the award of Bachelor of Technology in Computer Science and Engineering from Graphic Era Deemed to be University, Dehradun. The work presented in the report submitted to the Department of Computer Science and Engineering from Graphic Era Deemed to be University Dehradun is an authentic record of training work.

Date: October 15, 2022.

Gaurangi Tripathi

(2014657)

# ACKNOWLEDGEMENT

The adventure began as a student with the goal of learning the practical aspects of life and finished as a great experience that also helped me pass with flying colors. No task can be performed without the assistance or involvement of others. The development and presentation of this humble effort entail the tremendous and limitless assistance and sound advice of several persons.

My special thanks go to ***Mr. Ashwin Salgaocar***, ***DevOps Engineer***, and ***Bolt IoT (Inventrom Private Limited)***, for giving me this opportunity to work with them for my training and internship period. I would also like to express my heartfelt gratitude to them for providing me with the most valuable guidance and affable treatment given to me at every stage to boost my morale and help me in learning developer-related procedures and activities, which helped me to add a feather to my cap.

I would also like to extend my deep and sincere gratitude to Ms. Sarishma, Assistant Professor, Department of Computer Science and Engineering, Graphic Era Deemed to be University for always being the center of motivation to push myself and perform extraordinarily while expanding my horizons.

Further, I would like to thank Mr. Devesh Pratap Singh, Head of Department, Department of Computer Science and Engineering, for always bringing in new opportunities for students like us to engage ourselves in projects and internships that challenge us to change and evolve, day by day while prospering in all the spheres of life.

Last but not least, I'd like to express my heartfelt gratitude to everyone who knowingly or unknowingly helped me with moral support and the internship process.

# INTRODUCTION

As a full-time student at Graphic Era University, I was provided an opportunity to undertake an internship at Inventrom Private Limited - Bolt IoT. The degree I am currently studying is a Bachelor of Engineering in Computer Science and Technology. The training/internship phase dealing with the UI was quite challenging for me for a few reasons: firstly, the programming languages and development tools I was using required thousands of lines of code, hence I had to quickly integrate not only with my new living environment but also academically. This was very beneficial for me as in the end, I could compare what I've learned with what I already knew and find a connection between the two. This report is a description of my 6 weeks internship carried out as a compulsory component of the course at UI. In the following chapter details of the tools and techniques used and an overview is given. Afterward, I explain my role and tasks as a trainee and give specific technical details about my main tasks. Finally, a conclusion is drawn from the experience. Learning and website design the primary goal of this internship was to learn HTML. Several programming languages are used to create a web-based application. Some of them are solely used in the software's frontend and backend design. HTML3, HTML4, HTML5, CSS, Bootstrap, JavaScript, and so on. There are also some additional programming languages that are used to create dynamic functions for software or applications. For instance, PHP, Java, and so forth. There are also some frameworks that are widely used nowadays. Frameworks are essentially structured programming that employs Model, View, and Controller. It is also known as MVC. If we create a web-based application, it will be really handy since we will be able to access it from anywhere in the globe. It is really useful in our daily lives. That is why I chose the topic of my report as "WEB DEVELOPMENT." Training in Universal Informatics provided me with invaluable experience for my future job. Another critical issue was resolving real-world difficulties. This report goes over all of the specifics of WEBSITE DEVELOPMENT knowledge and expertise gained during this internship time.

# OBJECTIVE

Everyone has their own reasons and mission behind opting for every act, and so is the case with me. The objective of web development training was to handle the entire design of a website. I had learned the skills but found myself out of practice. Some major objectives behind the training are listed below:

- **To gain skills and knowledge**

  This internship provided us with the essential skills and knowledge one requires in the field of web designing. The crucial tools used during the tenure helped us in gaining knowledge about programming languages.

- **To get field-work experience**

  By taking this training we enhanced our knowledge in Web designing and got an insight into how websites are designed using HTML, CSS, JavaScript, and ReactJs.

- **To enhance our communication skills**

  By interacting with my trainee and classmates I got to learn a lot. It helped me to enhance my communicative skills and represent my work with confidence. It boosted my confidence to design more web pages and create some great designs just for my own creativity.

- **To link theory with practice**

  First, we learned the theory aspect and then we put that into practice. By doing the practical work, our concept got clearer and it was easy to code into HTML once we got familiar with it. By putting our theoretical knowledge into practice, coding became more fun.

- **To build a network**

  By learning how to code in HTML and CSS it is easy to build and design our own websites with all the changes we want. We also got to know about how websites are designed initially and the logic behind that.

- **To gain exposure to the professional front**

  In our day-to-day life, for getting prepared for the cooperate world, it is necessary to have a strong professional work ethic in order to make a balance between job and personal life. The internship surely helped me to build for the same.

# ABOUT THE COMPANY

Inventrom Pvt. Ltd is the designer and producer of the Award-Winning Bolt IoT Platform, which allows Enterprises and Makers to build and scale their own IoT devices in a seamless manner. The company was founded on July 18, 2016, by Mr. Pranav Kundaikar and Mr. Pranav Pai Verneka. Bolt IoT has its headquarters region in Bengaluru. The Platform consists of a Wi-Fi Hardware Module for Sensor/Actuator Integration, a Cloud Dashboard with product development tools, Data Visualization, and Machine Learning, and a Smartphone Application for Remote Operation and Management. The Bolt IoT platform allows you to control your devices and collect data from IoT devices safely and securely from anywhere. Get meaningful information by quickly implementing machine learning algorithms to detect abnormalities and anticipate sensor values. Bolt also enables you to simply run Machine Learning Algorithms to forecast and detect anomalies in your IoT data. It abstracts all the complicated stuff and provides a simple interface to interact with. The fact that it interacts well with web development. On a whole, Bolt IoT has its industrial span in domains like data visualization, the internet of things, manufacturing, hardware, and machine learning. Bolt has built-in safeguards to secure all user data from unwanted third-party intrusions and hacks. An easy interface to quickly connect your hardware to the cloud over GPIO, UART, and ADC. Also, connects to MODBUS, I2C, and SPI with an additional converter. Bolt is equipped with industry-standard protocols to ensure Secure and fast communication of your device data with the cloud. It Deploys machine learning algorithms with just a few clicks to detect anomalies as well as predict sensor values.

IoT touches every facet of our lives. The Internet of things helps to interconnect physical objects equipped with sensing, actuating, and computing power and thus lends them the capability to collaborate on a task in unison remaining connected to the internet is termed as the “Internet of Things” (IoT).

With Bolt IoT’s flexibility of implementations, be it using a custom website or app, or a virtual private server, or even the editor in bolt cloud, I can link any device to the internet and control it or analyze the data.

# WORK RESPONSIBILITY

The Web Development internship provides hands-on experience and an introduction to developing and improving web-based solutions. This internship assisted with one of the challenging chances, real-world work, and regular interaction with staff.

It's a terrific opportunity to obtain hands-on experience in online and/or app development with an award-winning innovation team. My journey at Bolt IoT started back in the month of July, with its training in web development, in continuation of which I was required to report with projects, as an intern.

The training included tasks associated with Front-End Technologies, which included, HTML, CSS, JS, and ReactJS. My day-to-day work responsibilities included the following:

- Assist in creating website layout/user interface by using standard HTML/CSS practices.
- Assist in integrating data from various back-end services and databases.
- Assist in gathering and refining specifications and requirements based on technical needs.
- Assist in creating and maintaining software documentation.
- Assist in maintaining, expanding, and scaling sites.
- Collaborate with web designers to match the intent of the visual design.

Further, there were some predefined projects that we were required to submit. There are things that make you grow but cannot be described in words or points.

# WORK DETAILS

At the beginning of my tenure, I was required to complete the training first, then design three minor projects/websites. These websites included a movie finder website, an expense tracker website, and an e-commerce website. In addition to these, I also made a draft website for one of the student chapters, GEU – ACM along with one website as the final project for the internship. My day-to-day work responsibilities included writing custom HTML, PHP, CSS, and JavaScript for existing websites and applications designing, recommending, and pitching improvements to new and existing features and creating prototypes, and experimenting with new technologies and features as assigned. The internship assists in writing well-designed, testable, efficient code by using the best software development practices.

**Project 1: Movie Finder Website**

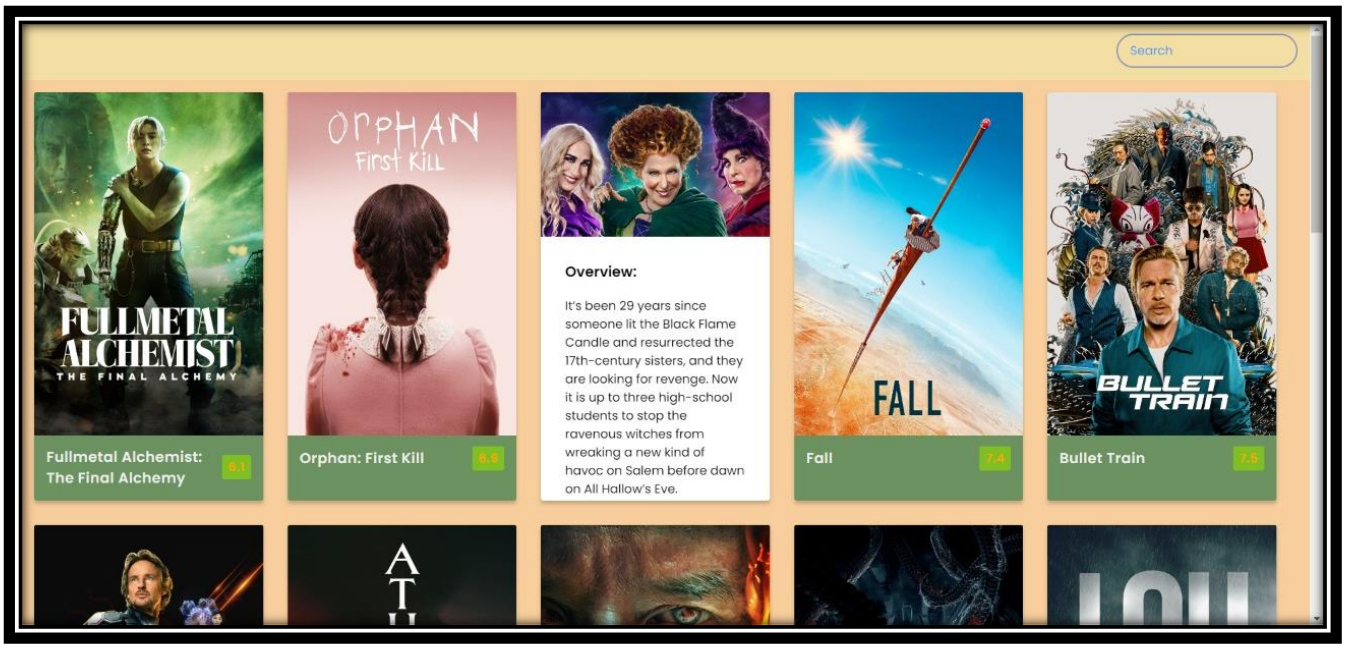
I built a Trending Movies app using HTML, CSS, and JavaScript. The movie's data used in the project are fetched from *themoviedb.org* **API**. It contains the HTML layout which defines the element structure, contains CSS code for styling the different portions to make them more visually appealing, contains JavaScript code to fetch the API data and to represent it on the browser, and, favicon.io for browsers that provide favicon support typically display a page's favicon in the browser's address bar.

On the HTML page, we have given the title 'Movie App'. we have linked style.css and script.js to the created HTML file. Inside the body, we will have a header tag that contains an *h1 tag* to display the title of the app, and a *form tag* that holds the search bar used for searching the movies. we have a *div tag* with the id content where our API-fetched data will be presented dynamically.

On the CSS page, I explained only the important parts here and the rest of the CSS code mostly deals with positioning, size, and color of the elements. Here we arrange the list of the movies obtained from the API using flex. The *img tag* which holds an image of the movie, the movie-info div class which holds information about the movie like movie name and rating, the div class overview which has an overview of the movie is inserted in the JavaScript code dynamically and not defined in the HTML file. Just hovering on the movie banner should actually show the overview. For, that we are using *transform: translateY(0);*.

On the JS Page, I used *getMovies()* function to fetch movies from API and return the results using the fetch function. The results will be passed to *showMovies()* function, the *showMovies()* function to showcase the results in the browser which basically inserts the

HTML code dynamically. The data to this function is passed from the *getMovies()* function, *getClassByRate()* function that returns the color based on the movie rating obtained from API. This color is used in CSS to choose the color of the movie rating text. An *EventListener* for the search of movies. Once you enter the movie name in the search bar and by clicking on entering will actually submit the form and this event listener will be triggered. The movie matching the name entered in the search bar will be fetched from the API and it will automatically display all the related titles on the list.



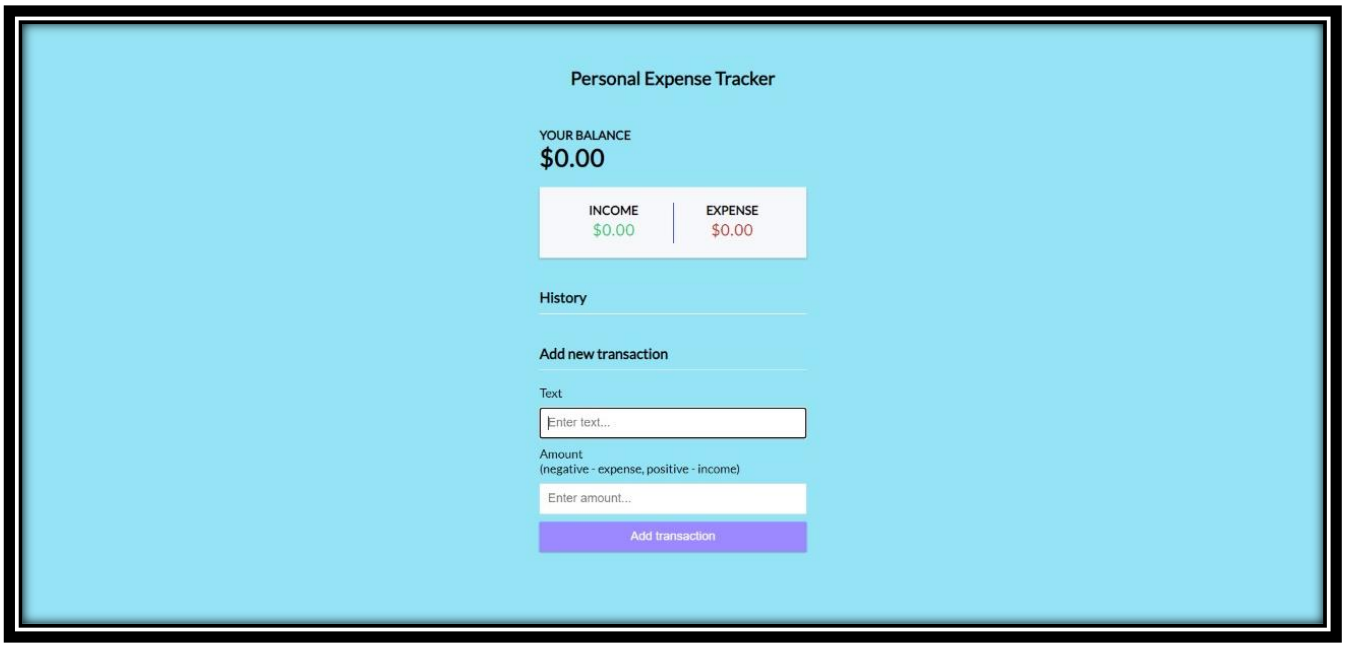

## Project 2: Expense Tracker Website

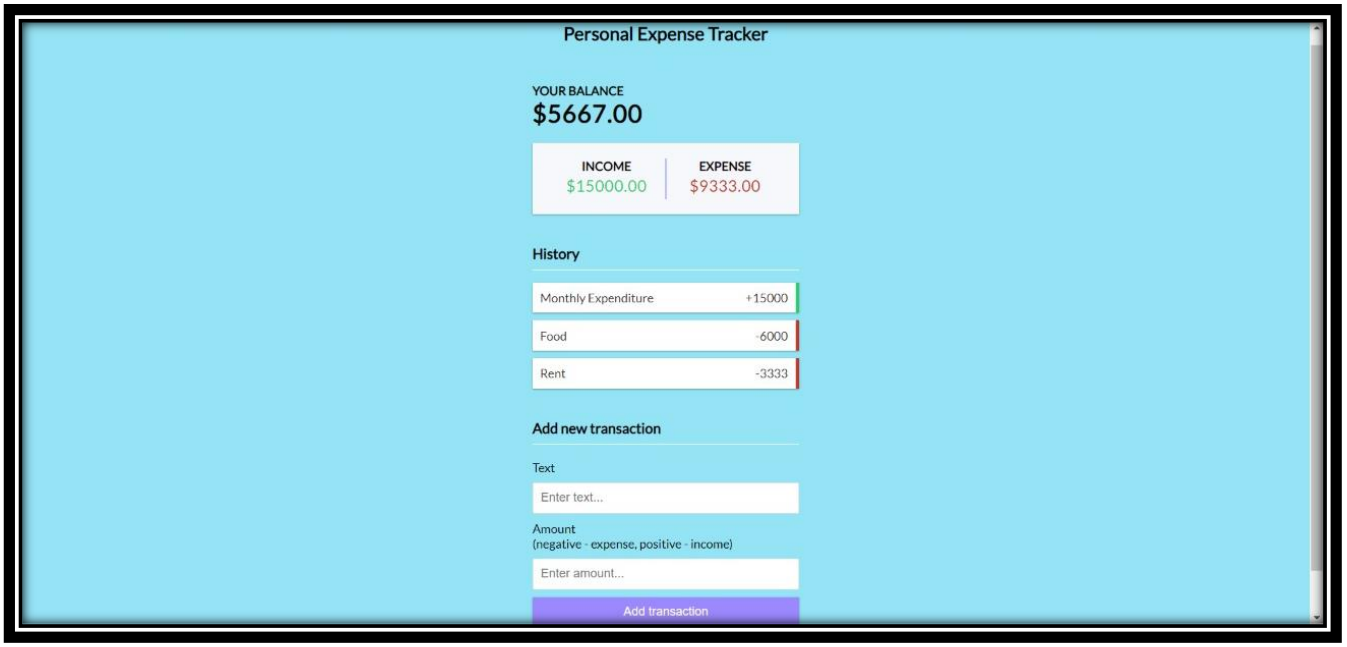
The Expense Tracker in JavaScript is a simple project created in JavaScript language using HTML and CSS framework. This project will allow users to better track their expenses and revenue. The Expense tracker will show you the homepage where you can see your balance, revenue, expenses, and the history of expenses. It contains the HTML layout which defines the element structure, contains CSS code for styling the different portions to make them more visually appealing, and contains *JavaScript* code to fetch the data, calculate the value, and represent it on the browser. Tracking our expenses is essential to developing a financial plan for your small business. The financial well-being of our budget can be improved by maintaining a daily record of our expenditures and tracking receipts, invoices, and other types of outgoing financial obligations.

On the HTML page, we have given the title 'Expense Tracker'. we have linked style.css and script.js to the created HTML file. Inside the body, we will have a header tag that contains an h1 tag to display the title of the app, and a form tag that holds the search bar used for searching the movies. we have a div tag with the id content where our data fetched from the user will be presented dynamically.

On the CSS page, I explained only the important parts here and the rest of the CSS code mostly deals with positioning, size, and color of the elements. The *img* tag holds an image of the Logo of Expense Tracker, the div class overview which has an overview of the data inserted in the JavaScript code dynamically and not defined in the HTML file.

On the JS Page, we have written different functions, functions that are solely responsible to handle the UI, and the logic to calculate the month's budget. This project contains 3 controllers. The main controller Controls the init and overall interactions of the expense manager, A UI controller Controls the UI such as changing font colors and creating list entries, etc., and an expense controller Controls the calculation part, takes in user values, and calculates the budget for the current month. The expense controller has a simple task. It maintains four values i.e., savings, investments, expenses, and the total monthly budget.



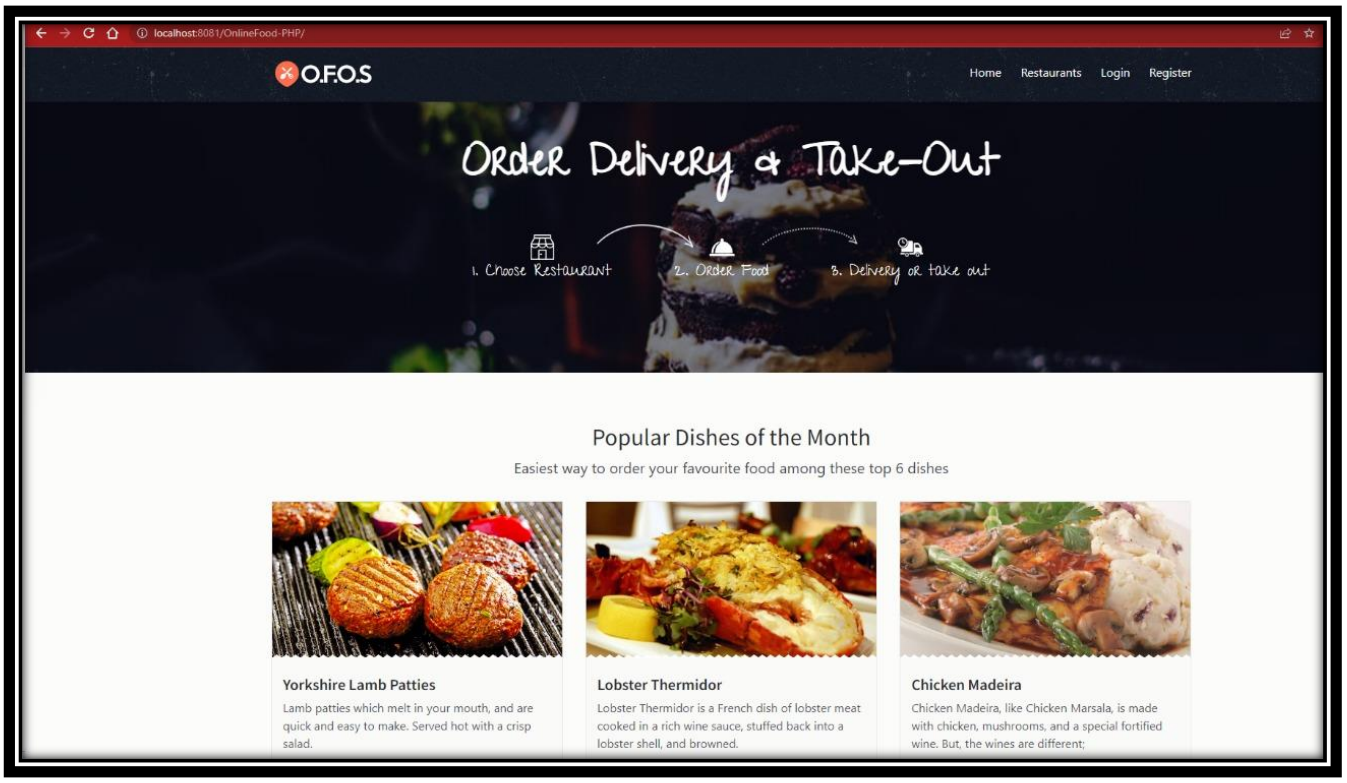

**Project 3: e-Commerce Website**

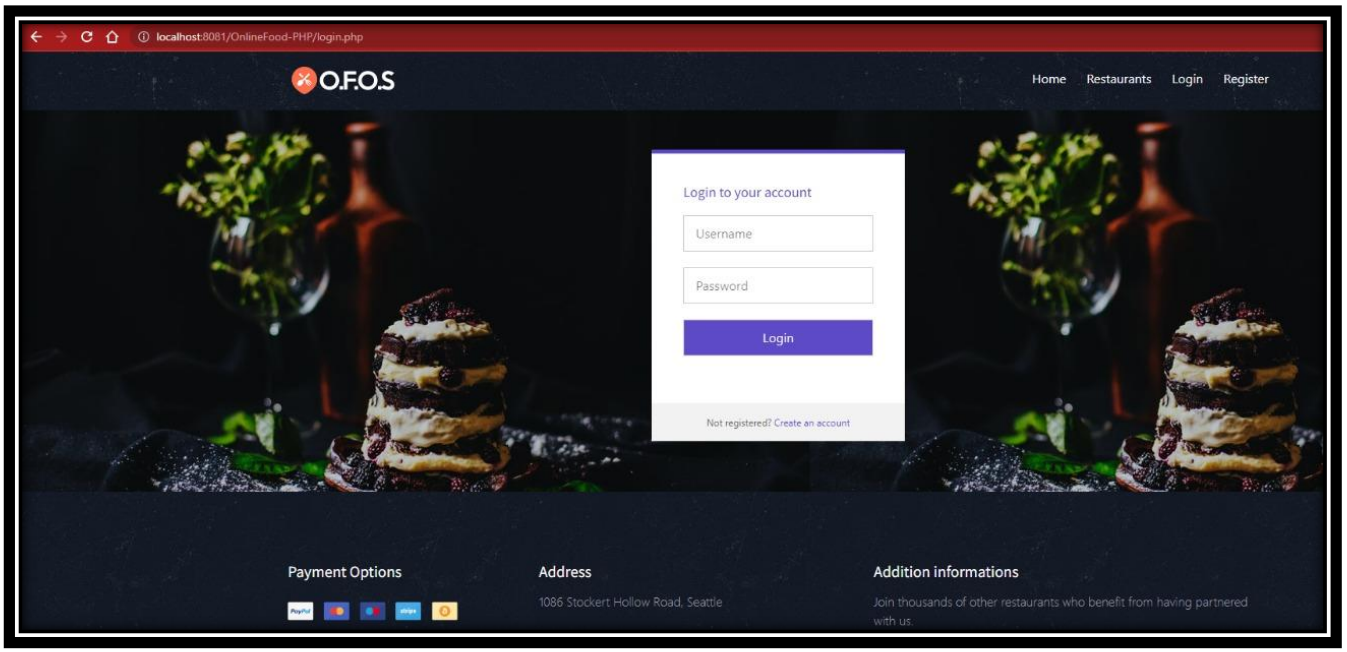
I built the E-Commerce Website using React. ReactJS makes it painless to create interactive UIs. Design simple views for each state in our *application and,* React, will efficiently update and render just the right components when ***o***ur data changes. Declarative views make our code more predictable, simpler to understand, and easier to *debug the* web application, that is E-Commerce Website, has been developed with *the* purpose of making the masses able to order food products online. The website has been developed in such a manner that it is user-friendly and easy to use. React JavaScript has been used to create the different components of the web application.

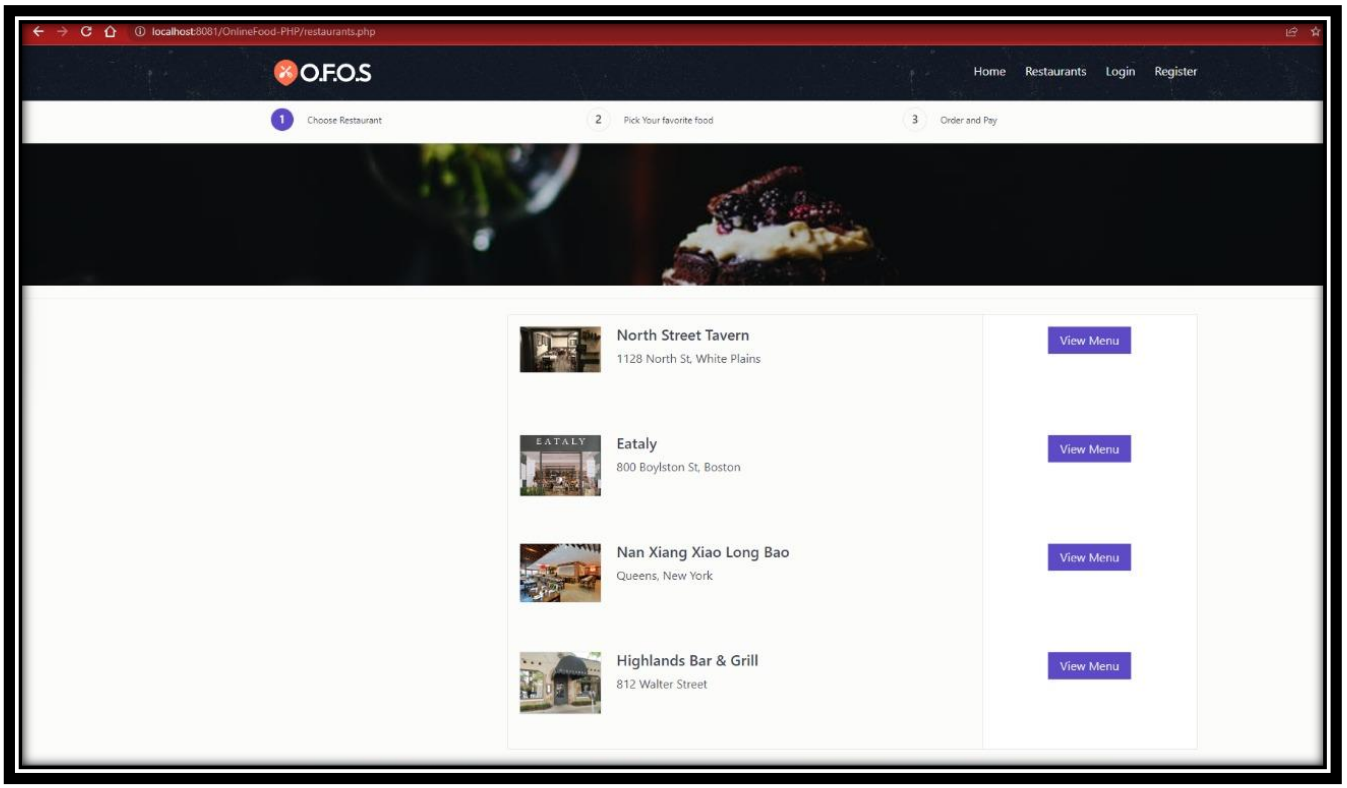
It States management with Context API and Reacts reducers. It Usage of some built-in hooks like *useContext()*, *useEffect()*, *useRef()*.

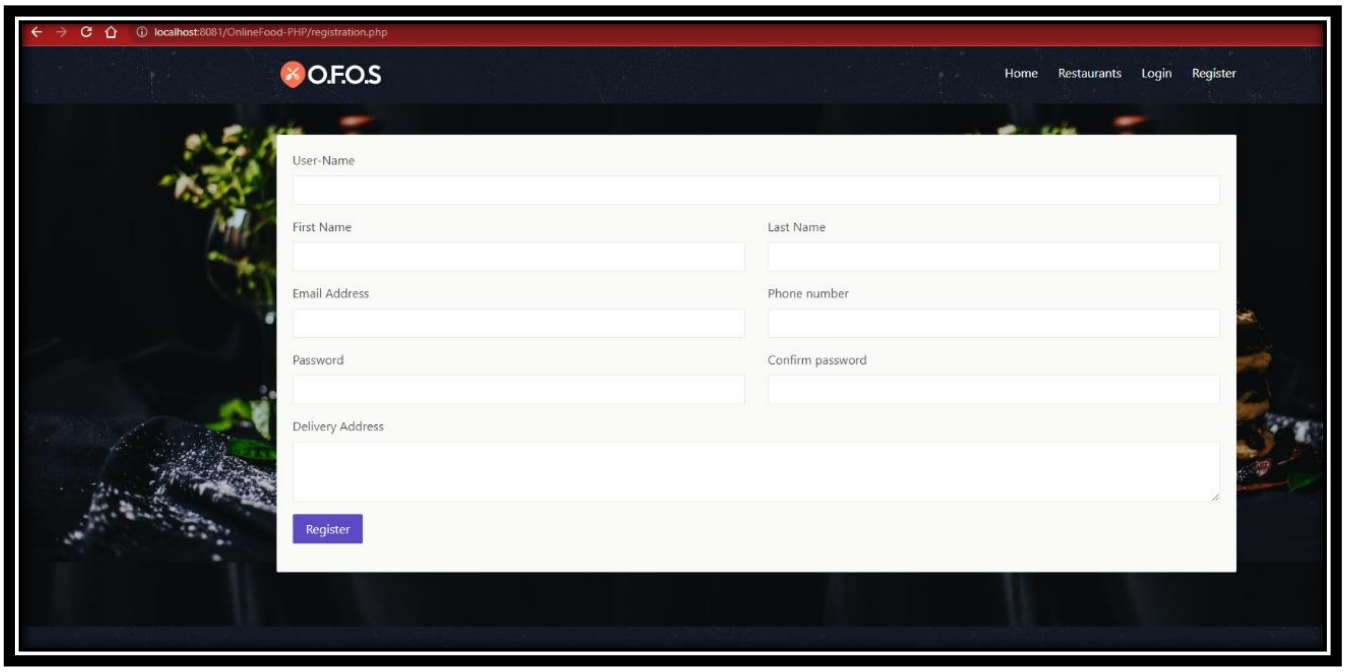
In the backend, to store the input of any individual who wants to communicate with us via the Contact Us page developed, as the database we have used MySQL and the server-side scripting language PHP. The entire website is perfectly responsive in all aspects as it has been developed keeping in mind users of both the PC and Mobile platforms.

The concept of the website is that users can buy food closer to the expiry date for a cheaper price as well as to help reduce the waste of food. The site is built from scratch. I used Bootstrap, JavaScript, React, firebase firestore, authentication, and google login API.




localhost:8081/OnlineFood-PHP/login.php
O.F.O.S
Home
Restaurants
Login
Register
Login to your account
Username
Password
Login
Not registered? Create an account
Payment Options
Address
1086 Stockert Hollow Road, Seattle
Addition informations
Join thousands of other restaurants who benefit from having partnered with us.

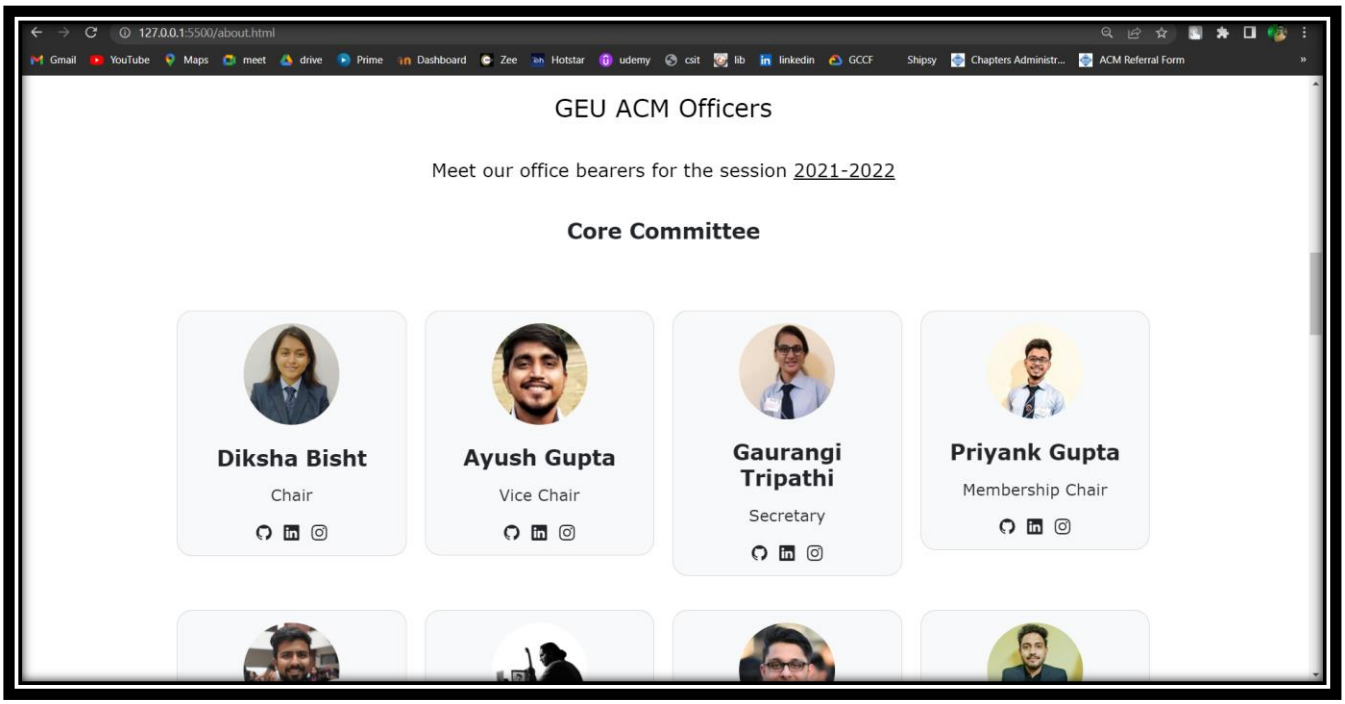

localhost:8081/OnlineFood-PHP/restaurants.php
O.F.O.S
Home
Restaurants
Login
Register
1 Choose Restaurant
2 Pick Your favorite food
3 Order and Pay
North Street Tavern
1128 North St, White Plains
View Menu
Eataly
800 Boylston St, Boston
View Menu
Nan Xiang Xiao Long Bao
Queens, New York
View Menu
Highlands Bar & Grill
812 Walter Street
View Menu




**Project 4(voluntary): GEU ACM Student Chapter Website**

Graphic Era University – Association for Computing Machinery Student Chapter strives to provide a platform for young students to showcase their talents while getting to learn and grow, through various events. While serving in the same student chapter for about a year, I decided to build a website for the chapter so that I can also practice my development skills. The website for our club, GEU ACM, has been developed with the purpose of making the masses aware of various technological advancements through the ACM Organization and the student chapter as well. The website has been developed in such a manner that it portrays the ideology and objectives of our club. Various technologies such as HTML, CSS, and JS have been used in developing the interface of the website. Basic HTML has been used in creating components such as headers, titles, footers, input boxes, etc., and to enhance the user interface, CSS has been used to style these components. In order to make the buttons and text links interactive, client-side JavaScript has been implemented. For the backend, in order to store the input of any individual who wants to communicate with us via the Contact Us page developed, as the database we have used MySQL and the server-side scripting language PHP. The entire website is perfectly responsive in all aspects as it has been developed keeping in mind users of both the PC and Mobile platforms. The website has a number of linked pages such as *Home*, *About*, *Events*, and *Contact Us*, where each page has a set of different aspects of a chapter to depict.


acm
HOME
ABOUT
EVENTS
JOIN US
GEU ACM
Student Chapter
GEU ACM is a student-run organization that aims to promote the development of students in the field of computer science. We aim to provide a platform for students to learn and grow in their field of interest. We also aim to provide a platform for students to interact with each other and share their knowledge.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Prime
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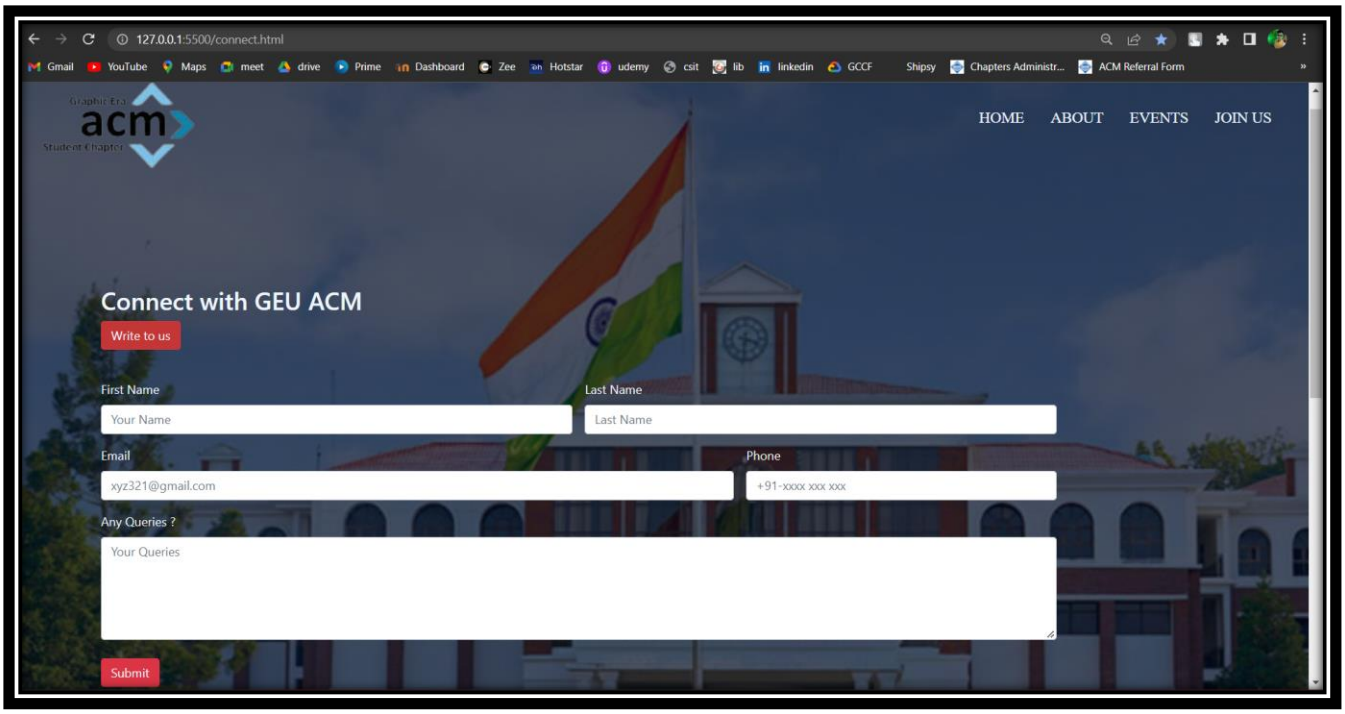
Hotstar
udemy
csit
lib
linkedin
GCCF
Shipsy
Chapters Administr...
ACM Referral Form
GEU ACM Officers
Meet our office bearers for the session 2021-2022
Core Committee
Diksha Bisht
Chair
Ayush Gupta
Vice Chair
Gaurangi Tripathi
Secretary
Priyank Gupta
Membership Chair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HOME
ABOUT
EVENTS
JOIN US
Connect with GEU ACM
Write to us
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Email
xyz321@gmail.com
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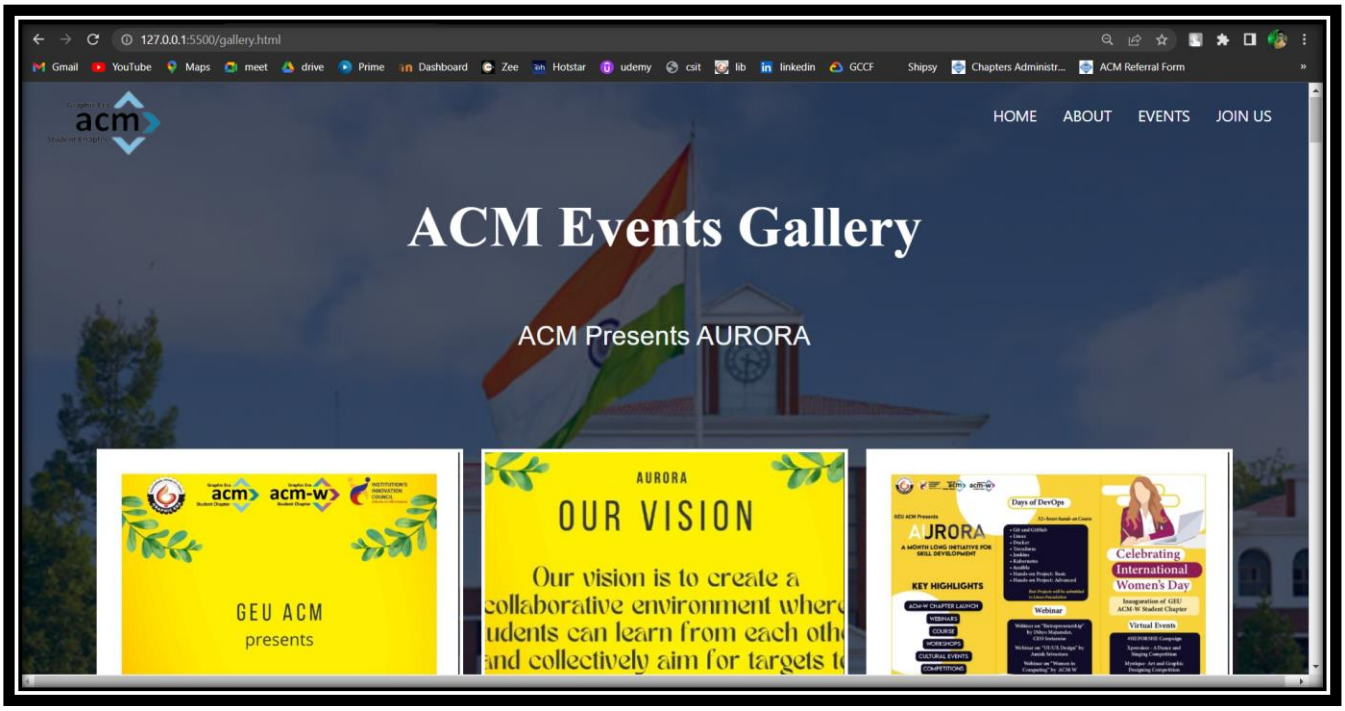
Any Queries ?
Your Queries
Submit


127.0.0.1:5500/gallery.html
HOME
ABOUT
EVENTS
JOIN US
ACM Events Gallery
ACM Presents AURORA
GEU ACM
presents
AURORA
OUR VISION
Our vision is to create a
collaborative environment where
udents can learn from each oth
and collectively aim for targets t
Days of DevOps
AURORA
KEY HIGHLIGHTS
Webinar
Celebrating
International
Women's Day
Virtual Events

# SKILLS LEARNED

A particular area of technological evolution that impacts our everyday lives is web development. Web development has been around for decades but continues to improve and adapt over time, providing fast and enjoyable internet experiences for users on a plethora of devices. Web developers have career benefits such as high-paying salaries and flexible schedules with interesting and demanding work. The various benefits linked with employment in development have produced a lot of interest in this profession. However, determining how to progress from zero to a skilled developer can be a challenging and perplexing task. While there are other methods to study and advance, a web development internship is an excellent work environment because it provides real-world training and experience (technical and cultural). As an intern, you have the advantage of learning industry standards on a professional team without the expectations or pressures that come with being a seasoned developer. As a trainee, I learned HTML, CSS, JavaScript, and ReactJS, with rigorous hands-on work on them.

- HTML stands for *HyperText Markup Language*. It is used to create web pages and web applications. Technically, HTML is a Markup language rather than a programming language. HTML elements are the building blocks of HTML pages. HTML provides a means to create structured documents by denoting structural semantics for text. Browsers do not display the HTML tags but use them to interpret the content of the page.
- CSS is an acronym for *Cascading Style Sheet*, it is a style sheet language used to shape the HTML elements that will be displayed in the browsers as a web page. Without using CSS, the website which has been created by using HTML will look dull. Basically, CSS gives the outer cover to any HTML elements. If you consider HTML as a skeleton of the web page then the CSS will be the skin of the skeleton. The Internet media type (MIME type) of CSS is text/CSS. These can be implemented in three forms, inline, internal, or external.
- JavaScript is a lightweight, cross-platform, and interpreted scripting language. It is well-known for the development of web pages, and many non-browser environments also use it. JavaScript can be used for *Client-side* developments as well as *Server-side* developments. JavaScript contains a standard library of objects, like Array, Date, and Math, and a core set of language elements like operators, control structures, and statements. JavaScript can be used as Client-Side as well as Server-Side. It can also be implemented in two forms, internal and external.
- ReactJS makes it painless to create interactive UIs. Design simple views for each state in our application and React will efficiently update and render just the right components when our data changes. Declarative views make your

code more predictable, simpler to understand, and easier to debug.

- Bootstrap is an open-source JavaScript framework and software training center created by the Twitter team. It is a set of free tools for developing web applications and web portals. Bootstrap is a code design framework that combines CSS, HTML, and JavaScript to create user interface components. To create the most recent versions of all major browsers.

Further, I had a great experience while working on time-bounded projects, which enabled me to deal with different situations at a time and made me ready for my professional life as well. The balance between teamwork and leading innovation is one of the many things that made me the person I am. Many experiences were dealt with and learned from.

# CONCLUSION

Overall, looking back at the internship experience, I feel that during the entire training session, it was a great learning experience, not just dealing with theoretical knowledge but also the practical aspects of the development environment. The projects done during the internship made me learn where to depict what information as a developer, and what must be abstracted. I acquired deeper knowledge concerning my technical skills, but I also personally benefited. When we browse the internet, we can see millions of websites that use HTML and CSS. I learned to live in a different atmosphere than I am accustomed to. Indeed, I became more self-sufficient at work and in my daily life. I found I could do more than I imagined, such as learning new things on my own. There are numerous chances available for students who desire to work in this profession. Many private and public organizations use web designers to do online work and construct websites. With the rapid growth of the online business, the demand for web development professionals is expanding, creating a large career opportunity for hopefuls in the coming days. An experienced person in this profession can also work as a freelancer; there are many internet organizations that offer individuals online projects.