

An ACL Digital Company

INTERNSHIP REPORT

Ву

Jedidiah Cavin Alvares

2002

# REPORT OF INTERNSHIP DONE AT AFOUR TECHNOLOGIES PVT

Submitted by Jedidiah Cavin Alvares Roll No: 2002

For the partial fulfilment of MCA Degree for Semester VI
Discipline of Computer Science and Technology,
Goa Business School,
Goa University

At
AFour Technologies Pvt. Ltd

Under the guidance of Abhijit Kulkarni



Date: 26 May 2023

# TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. Jedidiah Cavin Alvares, student of Master of Computer Applications (MCA) of Goa University, Goa, is currently undergoing his final semester project (Semester VI) at our organization, AFour Technologies Pvt. Ltd., since March 23 and will complete by August 23.

During his tenure so far, he met the expectations of his team lead/mentor/guide and was regular and sincere.

This certificate is being issued on his request to be submitted with the project report at Goa University.

The final internship completion certificate will be provided on completing his internship.

For AFour Technologies Pvt. Ltd.

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Neha Chaddha

Senior HR - Manager

### **AFour Technologies Private Limited**

Registered Office Address: Office # 501, 5th Floor, Sterling Tower, Wing B, Pan Card Club Road, Baner, Pune- 411045, Maharashtra.

Contact No: +91 9049459620 Email: contact@afourtech.com | Website: www.afourtech.com

GST NO-27AAGCA5712Q1ZA

# **GOA UNIVERSITY**



#### **GOA BUSINESS SCHOOL**

#### CERTIFICATE OF EVALUATION

This is to certify that Mr. Jedidiah Cavin Alvares has successfully completed his internship at AFour Technologies Pvt. Ltd, in partial fulfilment of the award of the degree in Master of Computer Application.

Sulimberlya Examiner 1

Examiner 2

Place: Goa University Date: 14/06/2023

Dean, Goa Business School

# Acknowledgement

I would like to take a moment to express my heartfelt gratitude for the invaluable learning and professional growth I experienced during my internship at AFour. Having the opportunity to work alongside such incredible individuals has made this internship truly fulfilling. I cannot let this opportunity pass without expressing my sincere appreciation to all those who contributed to its success.

My sincerest gratitude to my internship supervisor, Abhijit Kulkarni for their invaluable guidance and support throughout my internship. He provided me with clear direction and expectations, and were always available to answer my questions and provide valuable feedback.

I thank all the faculty and staff at the MCA, Goa University for their constant encouragement and support during the entire course work.

I consider this opportunity to be a significant milestone in my career development. I am committed to utilizing the skills and knowledge I have acquired to the best of my abilities, and I will continue to work towards their enhancement



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# Introduction

This report is a short description of my full-time internship at AFour.

I joined as an Intern at AFour Technologies on 01<sup>st</sup> March 2023 and have been here since then. This report contains necessary information about the organization, the projects I worked on and the other tasks I completed in this internship period.

In the chapters that will follow, I will talk about the company, the work here, the culture, etc. Then, I shall elaborate on the projects I worked on, a brief information about the projects, the modules I built and the tasks I completed in those modules.

This report highlights my learning experience and my contributions to the organization as an intern. This will describe the knowledge that I gained by successfully completing the tasks that were assigned to me.

I'll also discuss the tools and technologies that were used, as well as the timeframe for my internship.

Finally, I'll talk about my experience and how it has helped me grow both personally and professionally

# **Company Profile**

## Company overview

Established in 2007, AFour Technologies (a.k.a AFour) focuses on software Products Engineering Services comprising of UI/UX Design, Architecture Design and Consulting, Software Development, DevOps (CloudOps, SysOps and DBOps), QA (Test Strategy and Implementation, Test Automation, Performance, Security) and Monitoring. With an excellent track record of over 10 years and a focus on software product engineering, AFour is a true example of self-belief, consistency, and transparency.

AFour is ideation and technology house. Product companies associate with AFour for its product conceptualisation and technology skills in wide range of technologies like Java, Python, .NET, JavaScript (MEAN), LAMP (Perl and PHP), Angular, React and C++.

The company is a hub of every cutting-edge technology in software product engineering services: Hyper-convergence, SDN, Virtualisation, Next Generation Data Center Technologies, Networking, and Enterprise Mobility.

Till date, AFour Technologies has been able to bring together some of the best and brightest minds in software engineering.

#### Mission

"Our mission is to assist our customers in building and maintaining high quality, scalable, and secure software systems using agile methodologies".

### **Focus Area**

- Architectural Design & Development
- UX Design and Development
- Front-end Development Services
- DevOps Services
- Performance and Security
- Test Automation Services

### **Technologies**

- Proprietary Technology Platforms (Microsoft, Apple)
- Open Source Technologies (Java, J2EE, PHP, Frontend MVC, NodeJS, Android, Ruby, Python, LAMP Stack)
- SaaS, WebApps & Business Apps.
- DevOps (Jenkins, Bamboo, Chef, Puppet, Ansible)
- Big Data & Analytics (NoSQL Hadoop, Cassandra, Redis. Other Spark, Kafka, Machine Learning)

# **Problem Statement**

Create Expense Management System with requirements stated below:

# **User Requirements**

- User should be able to login using his credentials.
- Users should be able to select date and categories (Food, Rent, Fuel) for adding expense.
- User should be able to add new Category.
- Users should be able to see weekly, monthly expense category wise.
- Users should be able to set a category-wise budget for the month and if it exceeds budget users should get notification.

### **GitHub Guidelines**

- Create separate repositories for Frontend and backend
- Create branches dev, master and production
- You can point the production branch to deployment sites if you are using.(Optional)
- Create branches based on a feature for example feature/registration, feature/dashboard
- Raise PR from feature branch to dev branch and add us as reviewer

#### Front-End Guidelines:

- Use React for Front end.
- Use a CSS framework like Bootstrap or Material UI or equivalent.
- Create reusable components.
- Create a combination of Class based and Functional components.
- Use React Router for Routing.
- Create protected routes using HOC.
- Implement global state management using Redux and middleware (Thunk/Saga). / Context API
- Use ESLint in IDE.

#### **Back-End Guidelines:**

- Use NestJS/Express.JS or equivalent for the backend.
- Use MongoDB for databases. Use Mongoose ORM.
- Implement Swagger documentation.
- Use proper http verbs for endpoints. For ex GET,PUT,POST
- Use ESLint/TSLint in IDE
- Add Role based guards (Nest JS)/validation on the API endpoints

# Overview

We had to demonstrate all the tools and skills we learnt during our training in the project by doing an assignment on the topic Expense Management System, where users can add and view their expenses for a category.

After logging in customers would be taken to the view daily expense page which contains the expenses grouped in a daily format. The page also contains an add expense button from which we can add our details in the form

The next tabs is the filtered tab were there are 2 sub tabs. The first tab is where user can filter the expenses as per the category and also by Weekly/Monthly. The other tab is where the user can filter expenses as between 2 dates

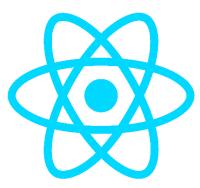
The last tab is where the expense and budget of the category for the month can be viewed. The page also contains a form where the user can add new category and also another button where the user can edit budget

# **Tools and Technologies Used**

#### React

React (also known as React.js or ReactJS) is a free and open-source front-end JavaScript library for building user interfaces based on components. It is maintained by Meta (formerly Facebook) and a community of individual developers and companies.

React can be used to develop single-page, mobile, or server-rendered applications with frameworks like Next.js. Because React is only concerned with the user interface and rendering components to the DOM,



React applications often rely on libraries for routing and other client-side functionality.

#### **NestJS**

Nest (NestJS) is a framework for building efficient, scalable Node.js server-side applications. It uses progressive JavaScript, is built with and fully supports TypeScript (yet still enables developers to code in pure JavaScript) and combines elements of OOP (Object Oriented Programming), FP (Functional Programming), and FRP (Functional Reactive Programming).



Under the hood, Nest makes use of robust HTTP

Server frameworks like Express (the default) and optionally can be configured to use Fastify as well!

Nest provides an out-of-the-box application architecture which allows developers and teams to create highly testable, scalable, loosely coupled, and easily maintainable applications. The architecture is heavily inspired by Angular.

#### Swagger

Swagger is an open source set of rules, specifications and tools for developing and describing RESTful APIs. The Swagger framework allows developers to create interactive, machine and human-readable API documentation.

Swagger helps users build, document, test and consume RESTful web services. It can be used with both a top-down and bottom-up API development approach. In the top-down, or design-first, method, Swagger can be used to design an API before any code



is written. In the bottom-up, or code-first method, Swagger takes the code written for an API and generates the documentation.

#### Git

Git is a distributed version control system that tracks changes in any set of computer files, usually used for coordinating work among programmers collaboratively developing source code during software development. Its goals include speed, data integrity, and support for distributed, non-linear workflows



#### **GitHub**

GitHub is an Internet hosting service for software development and version control using Git. It provides the distributed version control of Git plus access control, bug tracking, software feature requests, task management, continuous integration, and wikis for every project



#### **Visual Studio**

The Visual Studio IDE is a creative launching pad that you can use to edit, debug, and build code, and then publish an app. Over and above the standard editor and debugger that most IDEs provide, Visual Studio includes compilers, code completion tools, graphical designers, and many more features to enhance the software development process.



# MongoDB

MongoDB is an open-source document database and leading NoSQL database. It is written in C++. It is a cross-platform, document oriented database that provides, high performance, high availability, and easy scalability. MongoDB works on concept of collection and document.



### MongoDB Atlas

Database-as-a-Service (DBaaS) is a service that allows you to set up, deploy, and scale a database without worrying about on premise physical hardware, software updates, and the details of configuring for performance. With DBaaS, a cloud provider does all that for you—and gets you up and running right away.



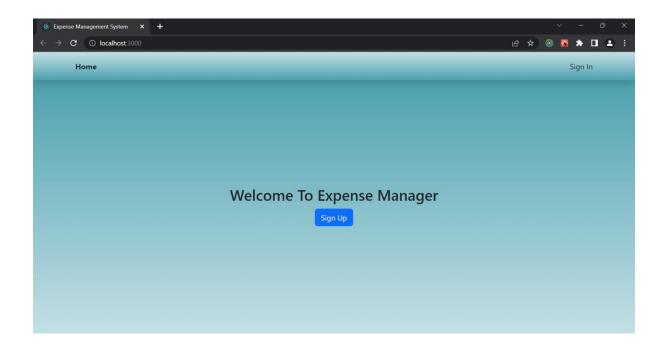
MongoDB Atlas is a fully-managed cloud database that handles all the complexity of deploying, managing, and healing your deployments on the cloud service provider of your choice (AWS, Azure, and GCP). MongoDB Atlas is the best way to deploy, run, and scale MongoDB in the cloud. With Atlas, you'll have a MongoDB database running with just a few clicks, and in just a few minutes.

# Screenshots

# **Home Page**

The Home Page only has the message "Welcome to Expense Manger" with the Sign Up button.

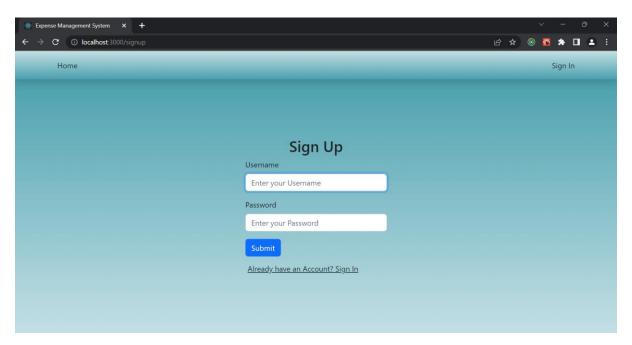
After Logging in the username of the user could be visible on the homepage instead of Sign Up button



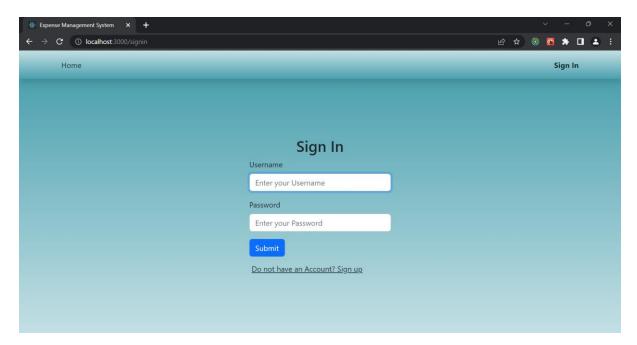
# Registration and Sign In

The Registration and Sign In only requires username and password were the username is unique

After signing in the Sign In button becomes a dropdown button which shows the user name at the front and when it is clicked the sign out option is visible



Sign Up Page



Sign In Page

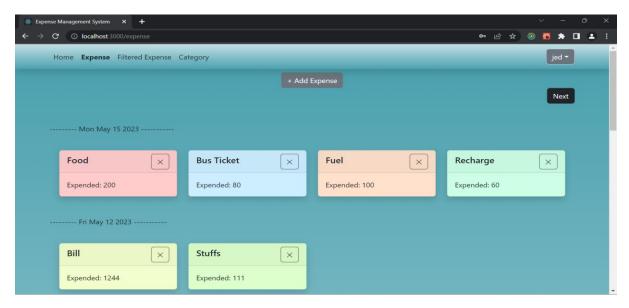
## **View Daily Expenses**

This page is where the expenses can be seen at daily basis. On this page we can also add the expense.

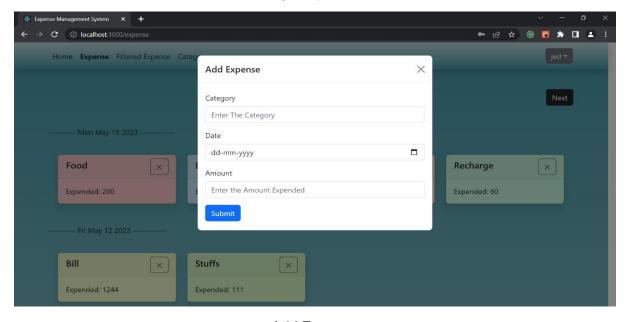
When adding the expenses the category, date and expense is needed where the date cannot exceed todays date.

If the expense exceeds the monthly budget allotted to that category for that month than a alert will pop saying the expense has been exceeded.

Pagination has also been added where each page has expense of 7 days.



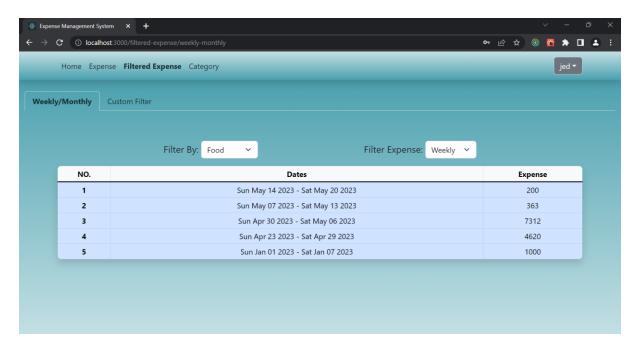
Viewing Daily Expenses



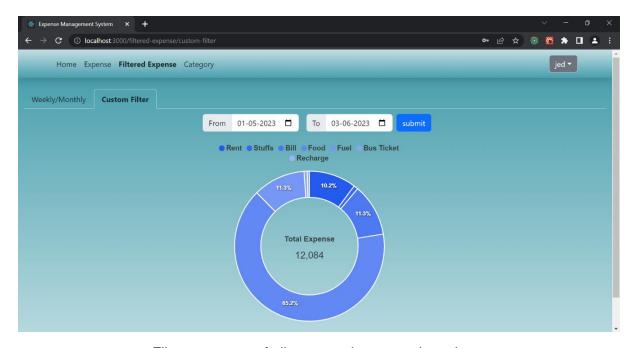
Add Expense

## **Filtered Expense**

This page has to additional sub tabs. The first tab is Weekly/Monthly where the user can view expenses category and Weekly/Monthly wise. The second tab contains a from and to date where the user can enter date between 2 dates and view the expenses of all categories in donut chart



Filter Expense Category on a Weekly or Monthly basis



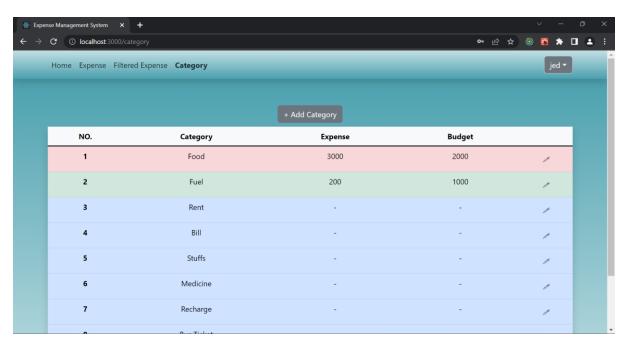
Filter expenses of all category between given dates

## **Category Page**

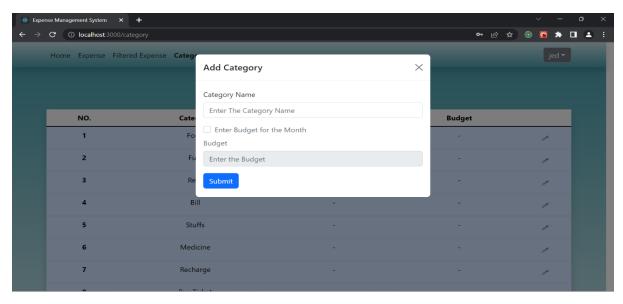
On this page we can view expense and budget of each category for the current month.

This also contains the add category button from which we can add the new category that comes when clicking the button. While adding the category the user has to enter the category name and may choose to set a budget for the current

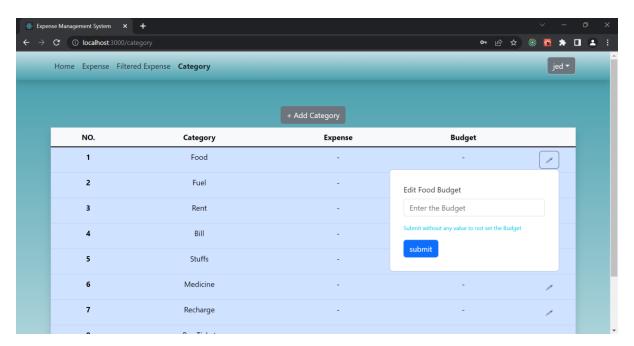
At the end of each row there is a edit button where the user can edit the budget amount



View the Monthly Category Budget



Add a new Category



Edit budget for a particular category

# Other Additional Tasks

# Additional functionalities added are as follows

- Expenses are grouped and viewed at the daily basis.
- Pagination added with viewing 7 days expenses per page.
- Expenses can be deleted.
- Custom filter to view expenses between 2 dates.
- When adding category users can choose to add budge.
- Users can edit budget amount if they wish to.

# Conclusion

In conclusion, the completion of Expense Management system website project marks the successful demonstration of the skills and knowledge acquired during the training program. The primary objective was to develop a functional website that seamlessly integrates various technologies, showcasing our proficiency in web development.

Throughout the project, I achieved the following key capabilities:

- ➤ Database Integration: A well-designed and implemented database was created to store game-related information. The database was successfully populated with a comprehensive collection of expenses, users and their categories, ensuring a robust foundation for the website.
- ➤ Dynamic Web Content: The website effectively retrieves expense and category details from the database and dynamically displays them to users. The implementation of login validations, modal popups, and image linking enhanced the overall user experience and added interactive elements to the website.
- > User Roles and Functionality: A secure user login system was implemented.
- Customer Experience: Customers were provided with a seamless experience upon logging in, where they can view the expenses, add them, view the filtered expense on weekly/monthly or as per the users date and also view and edit budget. The choice of giving a budget to a category is not compulsory as some category expense are not predictable (e.g., medical bills)

The project adhered to the designated timeline, with all deliverables successfully achieved. A fully functional Expense Management system website was developed, accompanied by a robust database. The website's responsive design and user-friendly interface ensure a seamless experience for all users.

By successfully completing this project, I have not only demonstrated my proficiency in web development but also showcased my ability to apply the skills acquired during the training program in a practical setting. The project served as a valuable opportunity to apply theoretical knowledge, overcome challenges, and gain hands-on experience in developing a complex web application.

Overall, this project has significantly contributed to my personal and professional growth, providing me with the confidence and skills necessary to excel in future endeavours within the field of web development.

# Internship Timeline

The Internship started in March 2023 and will end in August 2023. The timeline of tasks undertaken from March till date is as follows:

### March

# ❖ Week 1

On boarding process

# ❖ Week 2

## **Business Communication and time Management**

Business Communication and time Management

## Git

> Introduction to concept of git and git commands

#### ❖ Week 3

## **OOPS Concepts**

- Object classes
- > Inheritance
- > Polymorphism
- Abstraction
- Encapsulation
- Association
- Composition
- Aggregation

## **Clean Code practices**

- > SOLID Principles
- > DRY principle
- > YAGNI Principle
- > TDD

## **Database Management System**

- > RDBMS
- > Data manipulation
- Data retrieval
- > ACID properties
- > NO SQL Db

### ❖ Week 4

Normalization

#### Linux

- > Introduction to Linus and Basic commands
- Linux Architecture
- Linux Booting process step by step
- Linux File System and directories
- Process Management
- Create / Delete User ID

## **JavaScript**

- > Running JavaScript script console external
- > Variable declaration var, let, const
- Scope local, global and block hoisting
- Operators

### ❖ Week 5

- Loops
- Control flow
- Data types
- > Functions
- > Timer Functions
- > this keyword
- > Arrow functions
- > DOM
- > Closure
- Currying
- Prototype
- Class

# April

### ❖ Week 6

- Linters
- Code formatter
- > Bundler
- Multi-line strings
- > Template literals
- > Destructuring assignment
- > Enhanced object literals
- Promises
- Modules
- Async

#### React

- Add React to the webpage using CDN
- Benefits/Feature of React
- Limitations in React
- React versions
- React application using create-react-app
- The folder structure of the app created using CRA

#### ❖ Week 7

- > ES6 features in React
- React JSX, JSX Transpilation process
- > Functional and class components
- > State and props with props validation
- State vs props
- Constructor
- > Forms and events
- Component Lifecycle
- Keys and lists
- React fragments
- > Higher Order components
- Conditional rendering
- Refs and forward refs
- React router
- React context
- React code splitting

### ❖ Week 8

- React Hooks
- React Portals
- React Redux
- React error boundaries
- React flux concept
- React Profiler
- > React Server Side rendering
- > Deployment of React Application
- React with Typescript

## ❖ Week 9

## Assignment 1 - Expense Management System

- > Feature to sign up and sign in.
- > Feature to add and view Expenses
- > Feature to filter weekly/monthly expense category wise

## May

### ❖ Week 10

> Feature to Add and receive category budget for that month.

- Feature to edit category budget.
- Feature to notify user when the expense is more than the budget when adding the expense.
- Added Protected Routes in Frontend

#### ❖ Week 11

- Loading functionality
- Pagination functionality
- > Added expense column to category table
- Added the username onto the UI
- Changed expense viewing to fit the whole width of the screen.
- Custom filter to get expense between 2 dates

#### ❖ Week 12

- Feature to delete expenses
- Viewing of expense is now daily and each page has 7 days

#### ❖ Week 13

## Assignment 2 - Social Media

- Functionality Sign Up and Sign In.
- > Feature to recover forgotten password.
- Created a profile page which has personal info of user, button to edit personal info of user and sign out button.
- > Feature to edit personal info.
- > Feature to change Password.

#### June

#### ❖ Week 14

- > Feature to post text, images and videos.
- > Feature to view the post on profile page.
- > Feature to Search other users.
- Feature to add friends
- Feature to view all post in the post page with latest first.
- > Feature to like post
- Feature to comment on posts
- > Admin feature to delete posts and accounts

#### ❖ Week 15

- > Added endpoint validations in Backend
- Added Role based guard to Admin user
- > Added JWT token guard to all Users
- > Feature to view trending posts on post page.
- Infinite pagination of the post page

# My Experience on Internship

I gained valuable work experience at AFour during my tenure, my primary focus was to acquire the necessary skills for the job. I underwent comprehensive training in technologies such as JavaScript and React. The training program encompassed various aspects, including product knowledge and technical proficiency. At each weekly meeting we had to demonstrate the skills that we have learned throughout the week by doing small feature program (e.g. counters, to-do list, etc.)

Throughout the training period I encountered challenges that required time and effort to overcome. However, I was fortunate to have exceptional instructors and mentors who patiently guided and ensured our understanding of the subject matter. To maximize my learning.

The skills I acquired proved invaluable during the development of a website project. The collaborative environment fostered a continuous learning experience, as I interacted and learned from my peers. Moreover, it significantly enhanced my problem-solving abilities and equipped me with expertise in UI design, debugging, writing clean code, and acquiring proficiency in new technologies.

I am immensely grateful to my mentors at AFour for providing me with this opportunity and their unwavering support throughout my internship. I am eagerly looking forward to utilizing the skills and knowledge I have gained to contribute to the success of the company and to further my personal and professional growth.

# References

Git:

https://git-scm.com/videos

https://www.youtube.com/watch?v=SWYqp7iY\_Tc

https://www.youtube.com/watch?v=RGOj5yH7evk

## OOPS concepts:

Java OOPs Concepts - Javatpoint

https://www.youtube.com/watch?v=7GwptabrYyk

# Clean code Practices:

**Design Principles** 

**SOLID** principles

https://www.youtube.com/watch?v=yxf2spbpTSw

https://www.youtube.com/watch?v=-P-jMG6zVPA

https://deviq.com/principles/yagni

https://semaphoreci.com/blog/test-driven-development

DRY principle

## Database Management System:

https://www.tutorialspoint.com/sql/sql-rdbms-concepts.htm

https://www.youtube.com/watch?v=3md8qYCGmvk

https://www.youtube.com/watch?v=yaQ5YMWkxq4

https://www.youtube.com/watch?v=ABwD8IYByfk

https://www.guru99.com/nosql-tutorial.html

https://www.youtube.com/watch?v=uD3p\_rZPBUQ

### Business communication and time Management:

https://www.youtube.com/watch?v=h1fCJM1LMaY

## JavaScript:

https://www.w3schools.com/js/

#### React:

https://www.youtube.com/playlist?list=PLC3y8-rFHvwgg3vaYJgHGnModB54rxOk3 https://www.youtube.com/playlist?list=PLC3y8-rFHvwiaOAuTtVXittwybYlorRB3 https://www.youtube.com/playlist?list=PLC3y8-rFHvwjkxt8TOteFdT YmzwpBlrG

## NestJS:

https://docs.nestjs.com/

#### MongoDB

https://www.mongodb.com/docs/manual/