INTERNSHIP REPORT GUIDELINE

A report submitted in partial fulfillment of the requirements for the Award of Degree of

BACHELOR OF SCIENCE

BUSINESS INFORMATION TECHNOLOGY

by

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Under Supervision of
Mr. /Dr. MUHSIN MUSTAFA

(Duration: 28- July, 2025 to 19- September, 2025)

DEPARTMENT OF INFORMATION COMMUNICATION TECHNOLOGY

FACULTY OF BUSINESS ADMINISTRATION

ZANZIBAR UNIVERSITY

DEPARTMENT OF INFORMATION COMMUNICATION TECHNOLOGY

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CERTIFICATE

This is to certify that the "**Internship report"** submitted by **OMAR ABDULAZIZI OMAR(Regd. No.: 232010635)** is work done by her/him and submitted during 2024 – 2025 academic year, in partial fulfillment of the requirements for the award of the degree of **BACHELOR OF SCIENCE BUSINESS INFORMATION TECHNOLOGY,** at **ZANZIBAR FISHERIES RESEACH RESOURCE INSTITUTE (ZAFIRI).**

Head of Department

Signature ……

Date: ……

Internship Coordinator/Supervisor

Signature …….

Date: ……

CERTIFICATE OF INTERNSHIP

This is to certify that OMAR ABDULAZIZI OMAR , student of Zanzibar University, having Regd. No.232010635 has successfully completed the internship programme from 07" July 2025 to 19" Sept 2025 in our organization ZANZIBAR FISHERIES RESEACH INSTITUTE (ZAFIRI).

Signature of the Authority

.....
Date:.....

ACKNOWLEDGEMENT

First and foremost, I would like to express my sincere gratitude to **Mr. Zakaria Ali Khamis**, Director General of **ZAFIRI (Zanzibar Fisheries Research Resource Institute)**, for giving me the opportunity to undertake my internship within this esteemed organization. His support and leadership have been instrumental in providing a meaningful and practical learning experience.

I would also like to extend my heartfelt thanks to all the staff and team members at ZAFIRI for their cooperation, patience, and openness. The positive and collaborative working environment they created made my internship both enjoyable and insightful.

It is indeed with a deep sense of gratitude and appreciation that I acknowledge the support of everyone who contributed to my professional development during this internship period. I am especially thankful to **Ms . Intisaar Omar Said**, Head of the Department of **Business Information Technology (BsBIT)** at **Zanzibar University**, for her guidance and encouragement throughout my internship. Her mentorship played a significant role in shaping my understanding and application of the knowledge I have gained.

I also express my sincere appreciation to **Mr. Moh'd Azad Sharif**, Head Officer of the ICT Department, for his technical insights, valuable advice, and consistent support during the course of my internship.

Furthermore, I would like to thank the **Faculty of Business Administration** and the **Department of Business Information Technology** at Zanzibar University for their assistance and for providing the academic foundation that supported my successful internship experience.

Lastly, I am extremely grateful to my friends and department staff members for their continuous help, motivation, and support during this journey.

ABSTRACT

In today's digital landscape, the development and integration of information systems within research-based institutions is essential for improving data accuracy, operational efficiency, and informed decision-making. This report presents a detailed summary of my internship experience at the **Zanzibar Fisheries Research Resource Institute (ZAFIRI)**, carried out as part of my academic program under the **Faculty of Business Administration**, in the **Department of Business Information Technology (BsBIT)** at **Zanzibar University**.

The internship focused on the **design and development of an internal information system** aimed at enhancing ZAFIRI's data management and reporting capabilities. Through this project, I applied core principles of the **System Development Life Cycle (SDLC)** — including requirements gathering, system analysis, interface design, coding, testing, and deployment — to deliver a functional system that addresses the institute's operational challenges.

The system was developed using a combination of technologies, including **HTML, CSS, PYTHON**, and **PROSTIDRESQL** for the database. These tools enabled the creation of a responsive web-based application that supports efficient data entry, retrieval, and reporting functions, aligned with the organization's goals of improving research workflows and internal operations.

By working closely with ICT professionals and end-users, I gained valuable insights into the practical application of business information technology in a government research context. The experience also strengthened my technical skills in **web development**, **database design**, and **user interface development**, while enhancing my problem-solving, teamwork, and project management abilities.

This internship served as a vital bridge between academic learning and professional practice, demonstrating the impactful role of ICT and system development in supporting institutional growth and sustainable fisheries research.

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Learning Objectives/Internship Objectives

The primary objective of this internship was to bridge the gap between academic theory and real-world application in the field of **Business Information Technology**, particularly in the area of **system development**. The internship was conducted at the **Zanzibar Fisheries Research Resource Institute (ZAFIRI)**, and it provided a practical environment to apply the knowledge and skills gained during my coursework at **Zanzibar University**, under the **Faculty of Business Administration**, **Department of Business Information Technology (BsBIT)**.

The specific learning and internship objectives were as follows:

- **To gain practical experience in system development** by engaging in real-world projects that involve designing, coding, testing, and implementing information systems.
- **To understand and apply the System Development Life Cycle (SDLC)** within a professional institutional environment, including the phases of planning, analysis, design, development, implementation, and maintenance.
- **To enhance technical skills** in programming, database management, and front-end development using technologies such as **HTML, CSS, PHP**, and **POSTRIGRESQL**.
- **To improve problem-solving and analytical thinking** by working on actual institutional challenges and proposing digital solutions to improve workflow and data management processes at ZAFIRI.
- **To collaborate with professionals and stakeholders** within the organization to understand user requirements and ensure that the system developed meets operational needs.
- **To develop professional competencies**, including teamwork, communication, time management, and documentation skills necessary for successful project execution in the field of ICT.
- **To build a strong foundation for future career opportunities** by gaining hands-on experience in a public sector research institution and contributing meaningfully to the improvement of its ICT infrastructure.

This internship not only helped in achieving academic goals but also offered an opportunity for professional growth, exposure to institutional operations, and a deeper understanding of the role of information systems in supporting research and sustainable resource management

WEEKLY OVERVIEW OF INTERNSHIP ACTIVITIES

	DATE	DAY	NAME OF THE TOPIC/MODULE COMPLETED
1st WEEK	28/07/2025	Monday	ORIENTATION
	29/07/2025	Tuesday	ORIENTATION
	30/07/2025	Wednesday	ORIENTATION
	31/07/2025	Thursday	Introduction to system and web-development
	01/08/2025	Friday	Continuing lesson for system development

	DATE	DAY	NAME OF THE TOPIC/MODULE COMPLETED
2st WEEK	04/08/2025	Monday	Development frame work lesson in practically
	05/08/2025	Tuesday	Self learning to web-development frame work
	06/08/2025	Wednesday	Installing react frame work via cmd command
	07/08/2025	Thursday	Learning some basics syntax for react development
	08/08/2025	Friday	NANE NANE DAY

	DATE	DAY	NAME OF THE TOPIC/MODULE COMPLETED
3st WEEK	11/07/2025	Monday	Learning general concept of APIs (Application programs interfaces)
	12/07/2025	Tuesday	Learning how to create REST APIs via Django frame work
	13/07/2025	Wednesday	Learning with practices sending and receiving data via APIs
	14/07/2025	Thursday	Learining Django backend framework , general concept
	15/08/2025	Friday	Presentation to director general to system development task feedback

	DATE	DAY	NAME OF THE TOPIC/MODULE COMPLETED
4st WEEK	18/08/2025	Monday	Website creations starting to home pages
	19/08/2025	Tuesday	Navbar and header with slide images development
	20/08/2025	Wednesday	Events, news, footer developments and finishing home pages
	21/08/2025	Thursday	Online presentations for websites and systems to D.G
	22/08/2025	Friday	Error corrections for websites

	DATE	DAY	NAME OF THE TOPIC/MODULE COMPLETED
5st WEEK	25/08/2025	Monday	Small meeting for comments for our development projects
	26/08/2025	Tuesday	Working with all comments and correction
	27/08/2025	Wednesday	Continuing web development , especially in navmenus such as about us
	28/08/2025	Thursday	Team mates discussion for motivation and improvements
	29/08/2025	Friday	Self learning and working with projects

	DATE	DAY	NAME OF THE TOPIC/MODULE COMPLETED
6st WEEK	01/09/2025	Monday	Creating conetent management system for websites
	02/09/2025	Tuesday	Creating login page for admin to login to the CMS
	03/09/2025	Wednesday	Creating backend for CMS using Django frame work
	04/09/2025	Thursday	Creating Django login logic for user access login with full authentications
	05/09/2025	Friday	Testing the APIs with JWT(Web token) via Postman for login

	DATE	DAY	NAME OF THE TOPIC/MODULE COMPLETED
7st WE	08/09/2025	Monday	Self learning with POSTMAN

	09/09/2025	Tuesday	How to download postman for window
	10/09/2025	Wednesday	Self learning with testing APIs with Postman
	11/09/2025	Thursday	Leaning to github or gitlub and how are used
	12/09/2025	Friday	Repository creation from github account then pushing my project to github via VS code .

	DATE	**DAY**	**NAME OF THE TOPIC/MODULE COMPLETED**
8st WEEK	15/09/2025	Monday	Website creations starting to home pages
	16/09/2025	Tuesday	Navbar and header with slide images development
	17/09/2025	Wednesday	Events, news, footer developments and finishing home pages
	18/09/2025	Thursday	Online presentations for websites and systems to D.G
	19/09/2025	Friday	Error corrections for websites

1. INTRODUCTION

As part of my Bachelor of Science in Business Information Technology at Zanzibar University, I undertook a 08-week internship from 7th July 2025 to 19th September 2025 at the Zanzibar Fisheries Research Resource Institute (ZAFIRI). ZAFIRI was established as a government research institute dedicated to supporting sustainable fisheries and aquaculture development in Zanzibar through research, data management, and resource monitoring.

The institute comprises several departments, including Research and Development, Fisheries Monitoring, Administration, and the Information and Communication Technology (ICT) Department. Each department has specialized roles aimed at enhancing research productivity, data accuracy, and operational efficiency across the organization.

During my internship, I was assigned to the ICT Department, where my primary role was to assist in the development and implementation of an internal information system designed to improve data management and reporting processes. My daily activities included collaborating with ICT staff to gather user requirements, designing system interfaces, coding, testing, and deploying functional modules of the system. In addition, I provided support in troubleshooting technical issues and participated in team meetings to understand the operational needs of other departments.

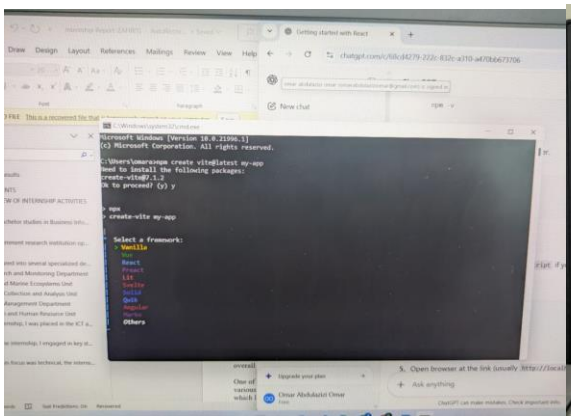
The main area of specialization during my internship was the design and development of a web-based information system that integrates database management, front-end user interfaces, and reporting functionalities. This opportunity allowed me to apply theoretical knowledge from my coursework in a practical setting, develop technical and professional skills, and contribute meaningfully to the efficiency and effectiveness of ZAFIRI's operations.

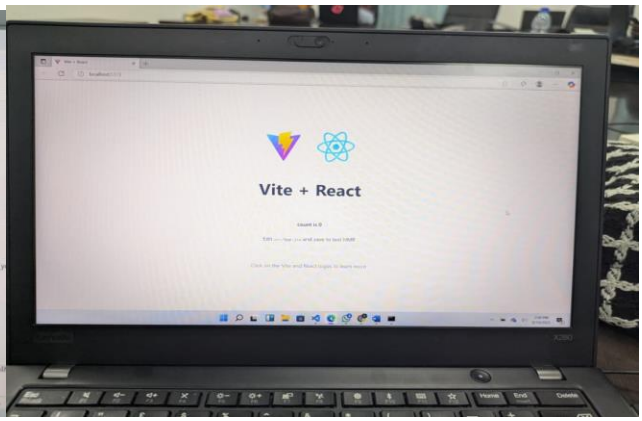
1.1 ACTIVITES ASSIGNED IN ZAFIRI

WEEK 1: Orientation & Introduction to Web and System Development

The first week of the internship focused on orientation and familiarization with the workplace environment, development teams, and project expectations. For the first three days, the sessions covered internal company policies, roles of different departments, communication procedures, and overall internship goals. We were introduced to our mentors, supervisors, and support staff, and given access to the tools and systems we would use during the internship period.

By the end of the week, the technical journey began. On Thursday, we were introduced to the basic concepts of system and web development. This included understanding how digital systems are structured — focusing on the relationship between users, web interfaces, and back-end processes.

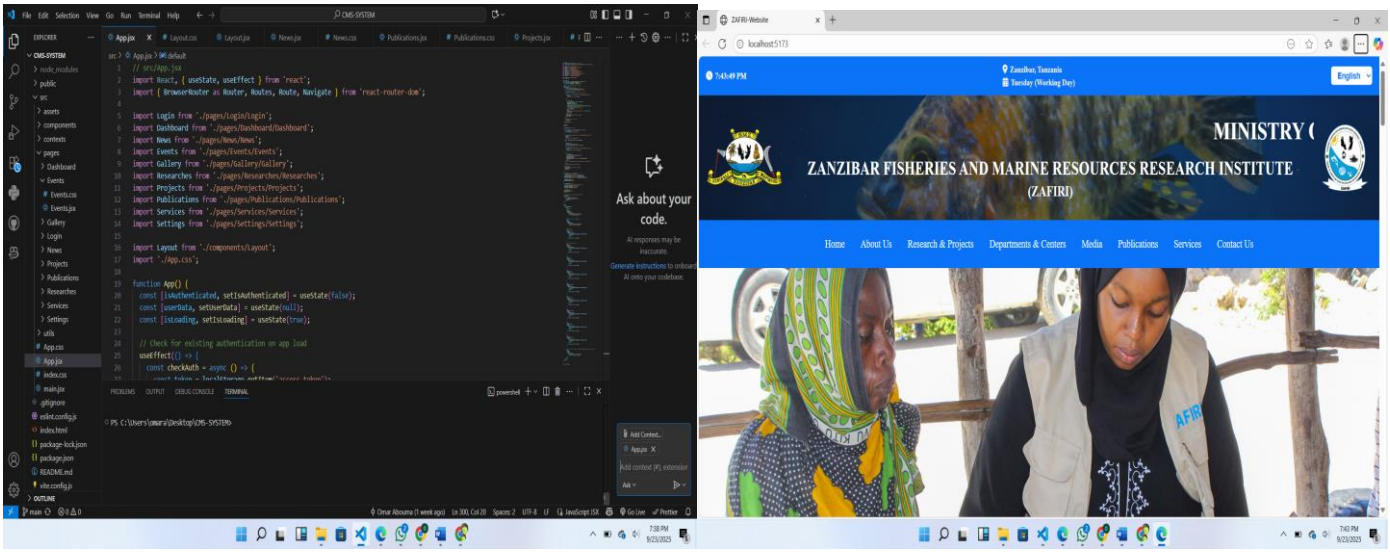




WEEK 2: Introduction to Web Frameworks – Learning React JS

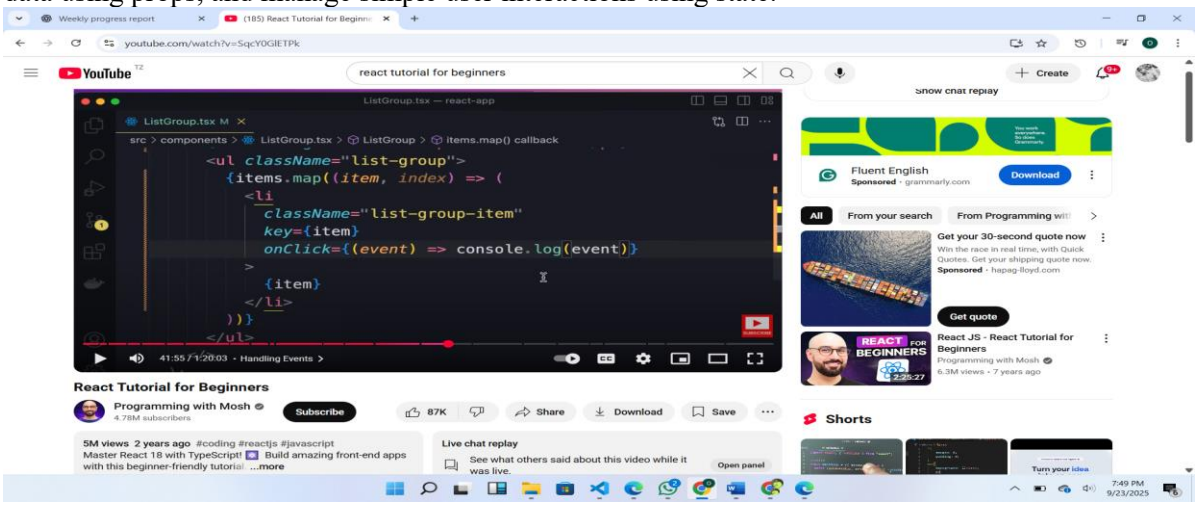
The second week marked the transition from theory to practical learning. We began exploring modern frontend development frameworks, starting with an introduction to React JS. The week started with a practical session on the

purpose and structure of web development frameworks. These frameworks help developers build scalable and maintainable websites by offering reusable components and efficient data handling tools.



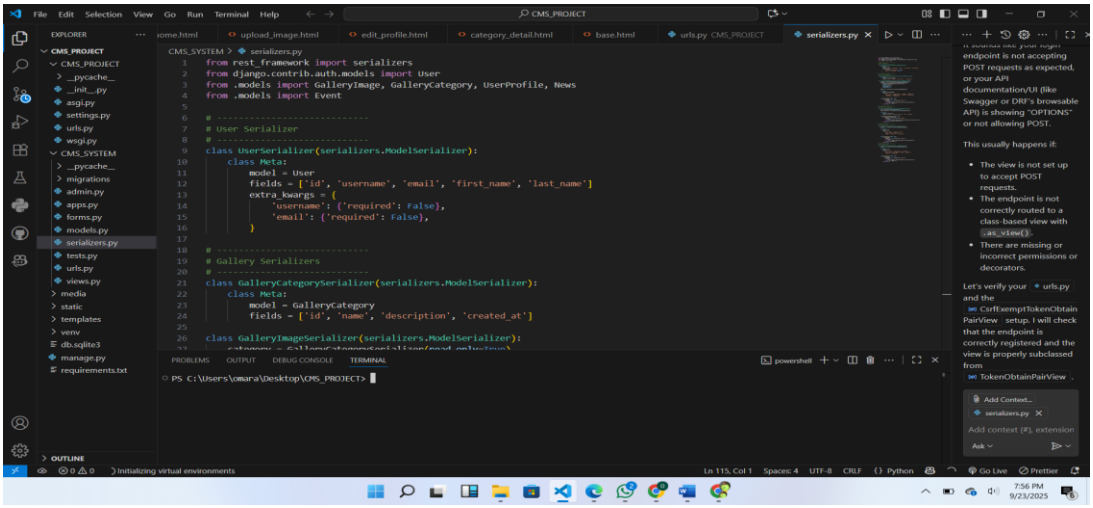
After the group session, we spent time on self-learning through online tutorials, documentation, and instructor guidance. On Wednesday, we performed a hands-on installation of the React environment using the command prompt. We used the `npx create-react-app` command to set up a new React project, giving us a ready-to-use development environment.

Following the setup, we began learning the syntax of React. We were introduced to JSX (JavaScript XML), which allows us to write HTML-like structures inside JavaScript. We also learned how to build functional components, pass data using props, and manage simple user interactions using state.



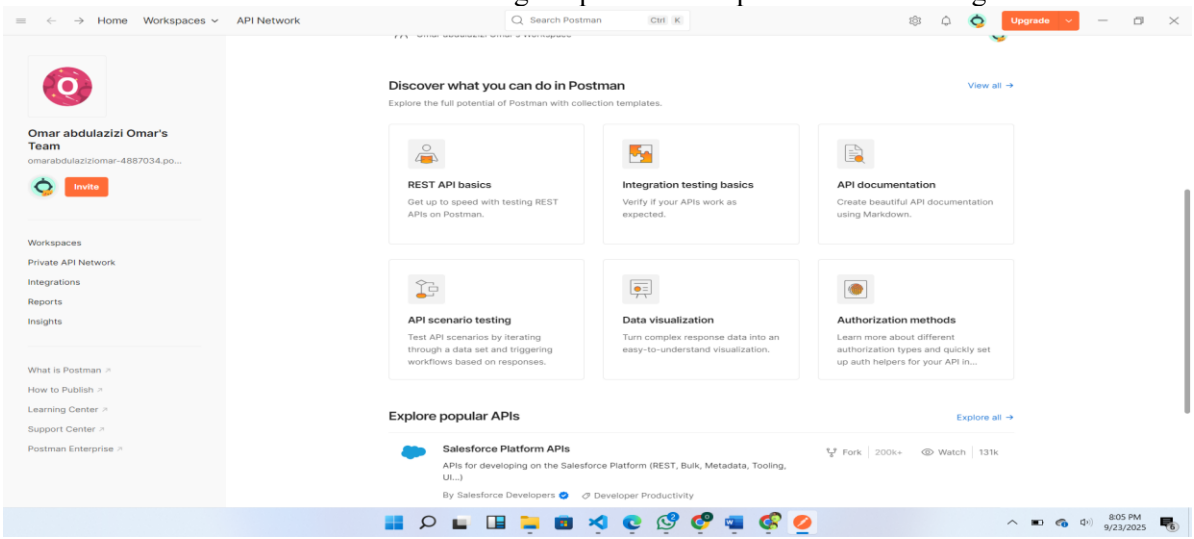
WEEK 3: Understanding APIs and Backend Development Using Django

In the third week, the focus shifted toward backend development and learning about APIs (Application Programming Interfaces). We started the week by understanding what APIs are and how they act as bridges between frontend applications and server-side data. The instructors explained the importance of RESTful APIs in modern web applications and how they allow seamless data transfer between different software components.



Midweek, we installed Django and explored its powerful backend features. Using Django REST Framework (DRF), we created simple API endpoints that could receive and return JSON data. We learned how to define Django models to create database structures and used serializers to convert Python objects into data that APIs could handle.

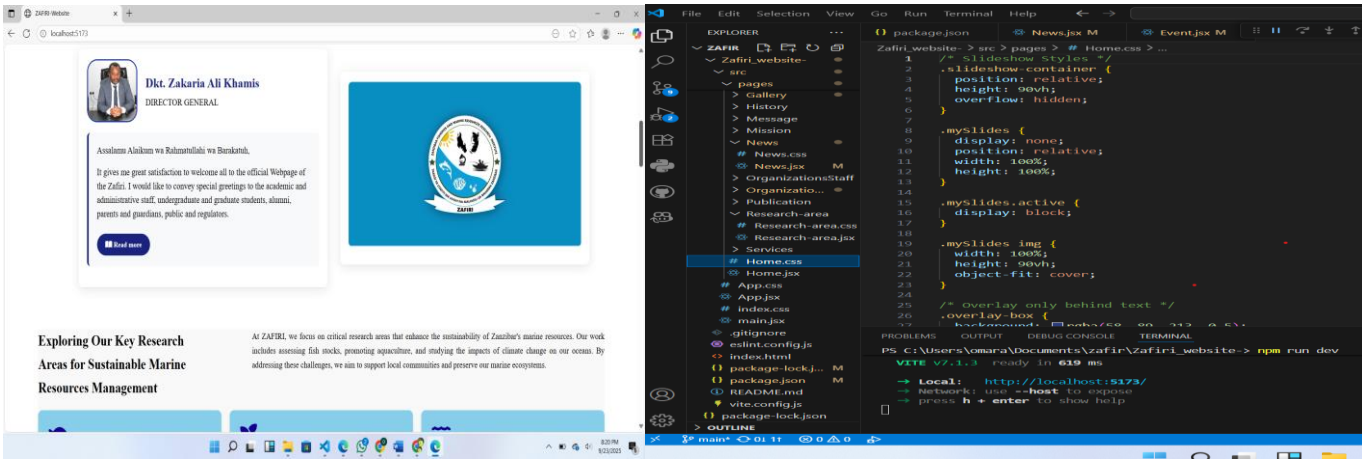
We used **Postman**, a popular API testing tool, to send GET and POST requests to the API endpoints we created. This helped us understand the process of sending data from a user interface, storing it in a database, and returning it in structured formats like JSON. The following are picture show postman APIs testing



Toward the end of the week, we learned how Django handles backend logic, such as routing, views, and database interaction. We also prepared a progress presentation and presented our work to the **Director General**, showcasing the API we built, our React interface, and how the two components communicated.

WEEK 4: Website UI Development and Presentation

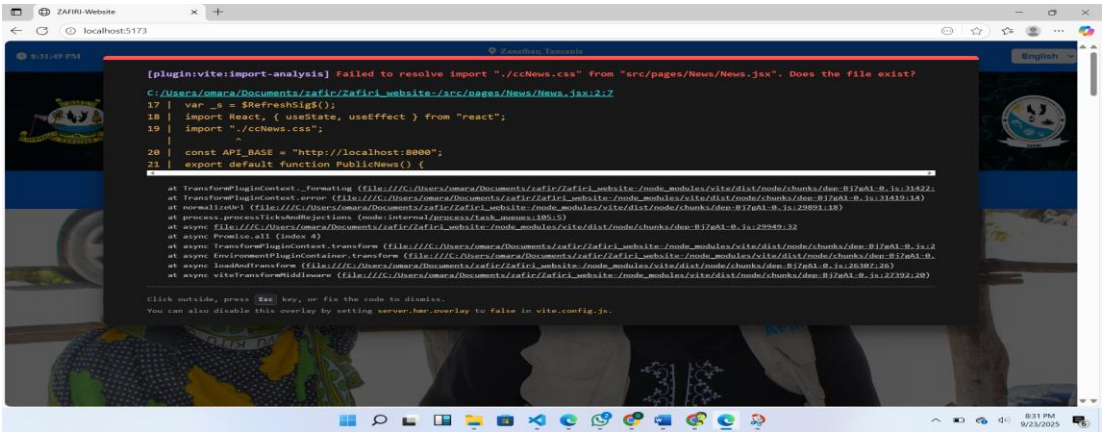
Week 4 marked the transition into full-stack development, starting with hands-on design and development of the actual website's **homepage and user interface (UI)** components. On Monday, the team began building the homepage layout using HTML, CSS, and JavaScript. This included structuring the page, adding welcome text, and ensuring mobile responsiveness.



On Tuesday, we focused on developing the **navigation bar and header section**, including dynamic image sliders using Bootstrap or JavaScript libraries. The navbar included links to other pages like "About Us," "Services," "Contact Us," and "News."

By Wednesday, we moved on to finishing touches for the homepage — including the development of **Events and News sections**, and designing a **footer** with contact information and useful links. We ensured consistency in design, responsive layout, and semantic HTML usage.

On Thursday, we prepared for and conducted an **online presentation** of the website and system development progress to the Director General. Each team member presented the part they contributed to, followed by feedback and suggestions for improvements. On Friday, we spent time **correcting errors** found during the presentation and peer testing. These included layout bugs, color inconsistencies, broken links, and responsive design issues.



WEEK 5: Feedback Review and Content Expansion

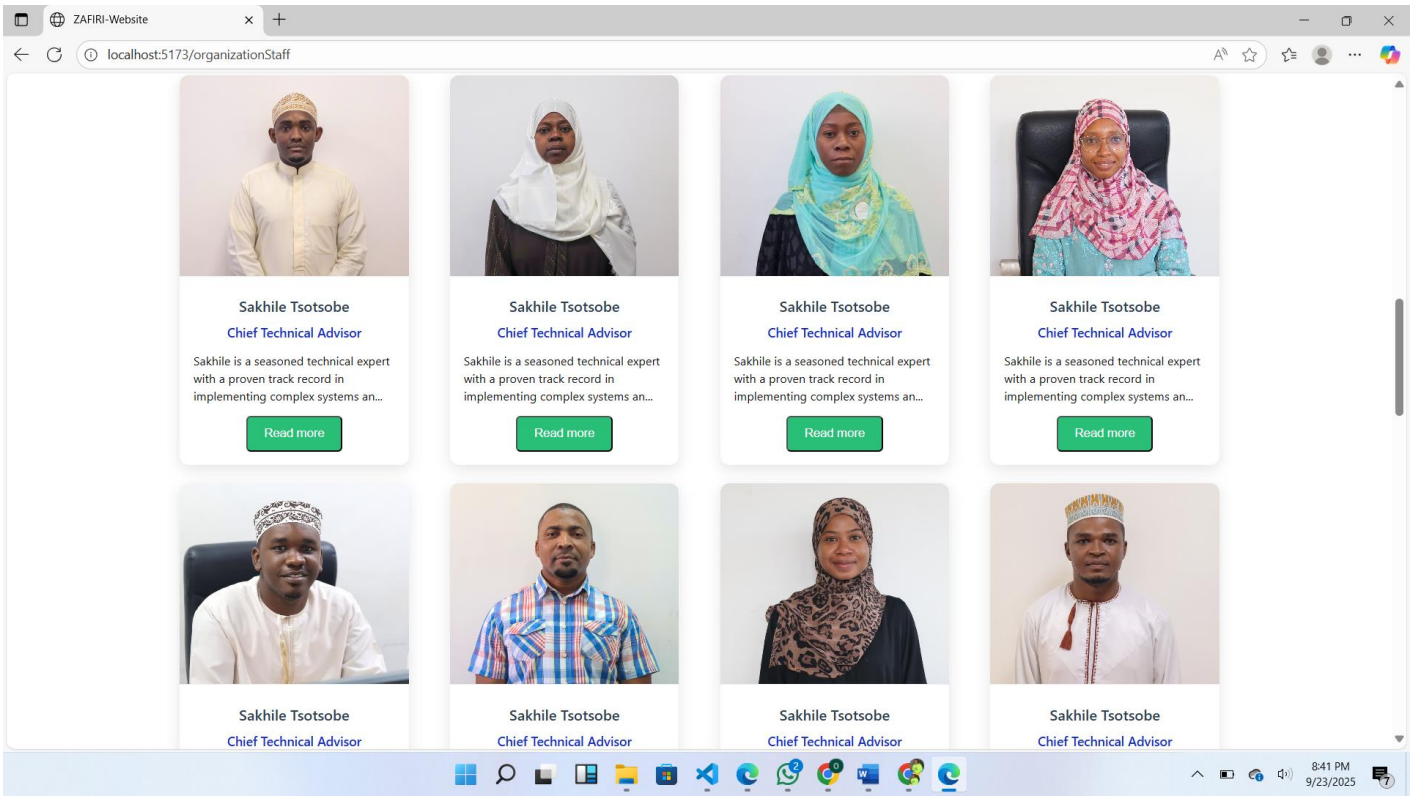
In Week 5, we focused on **reviewing and implementing feedback** received during the previous presentation. On Monday, we conducted a team meeting to discuss suggestions and comments provided by supervisors and the Director General.

On Tuesday, we began applying corrections to the project based on that feedback. These included UI adjustments, text content updates, and fixing responsiveness issues across screen sizes.

Midweek, we focused on **expanding the website** by building more internal pages — particularly the **"About Us" page**. We designed new sections, added profile information, and structured the navigation menu for smooth access to each page.

On Thursday, the team held a **peer motivation and improvement discussion**, where we shared personal experiences, resolved development issues collaboratively, and encouraged each other to continue learning and contributing actively.

On Friday, we dedicated time to **self-learning and applying new skills** to the project. Each intern picked a topic they needed to strengthen (e.g., form handling, responsive design, or CSS animations) and applied what they learned directly to the project.



WEEK 6: CMS Development with Django

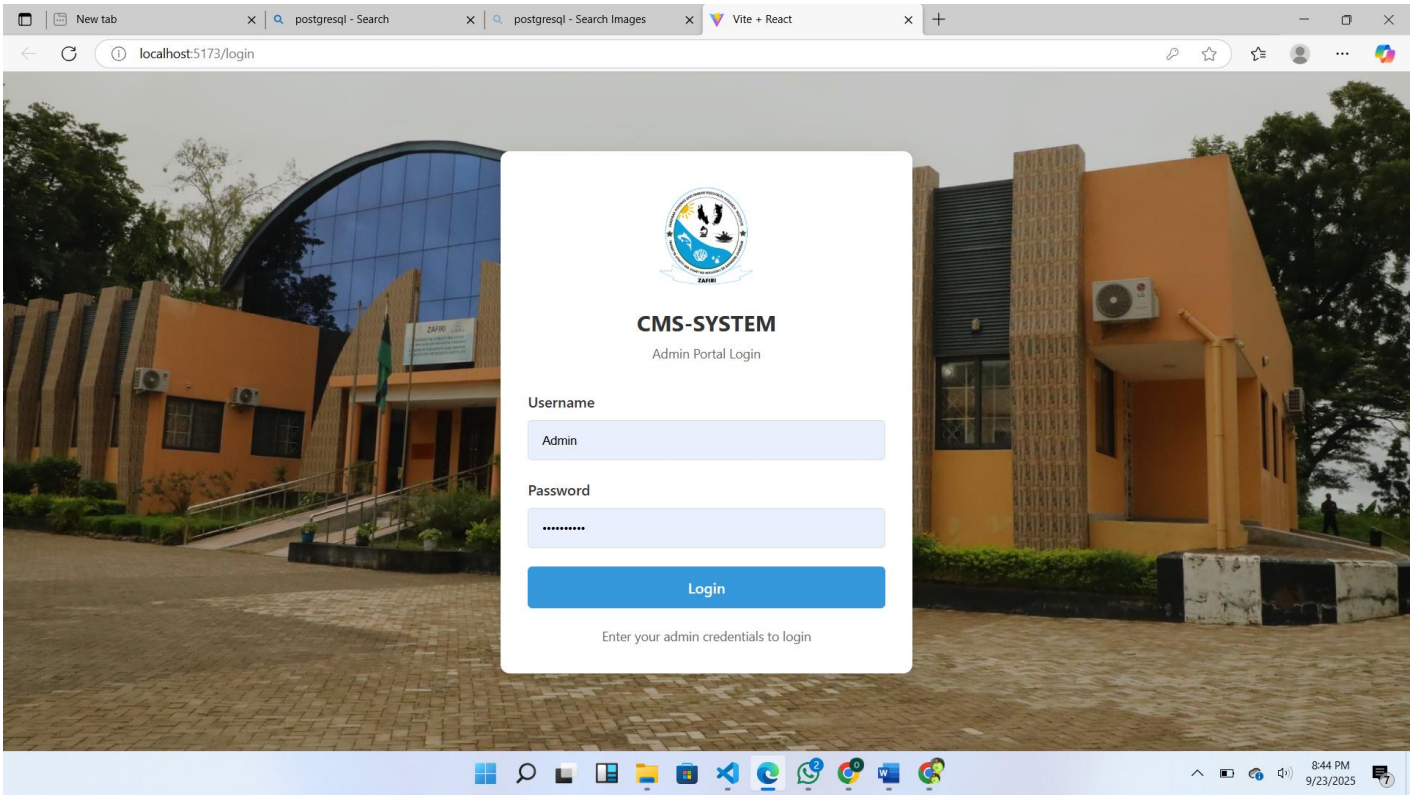
Week 6 marked the start of building a **Content Management System (CMS)** for the website using Django. On Monday, we designed the basic structure of the CMS — identifying the content types we wanted to manage dynamically, such as news, events, and admin updates.

On Tuesday, we created a **login page for admin users**, allowing secure access to the CMS. We used Django's authentication system to restrict access to backend pages.

By Wednesday, we started working on the **backend logic** of the CMS. Using Django's Model-View-Template (MVT) architecture, we created models for storing news and event data, views to handle logic, and templates for rendering the backend pages.

On Thursday, we implemented full **user authentication** using Django's built-in login system. This included password hashing, login sessions, and access restriction to authorized users only.

On Friday, we tested our CMS authentication by sending API requests using **JWT (JSON Web Tokens)** through Postman. This ensured the API could securely validate users before giving access to protected data.



WEEK 7: API Testing and Version Control

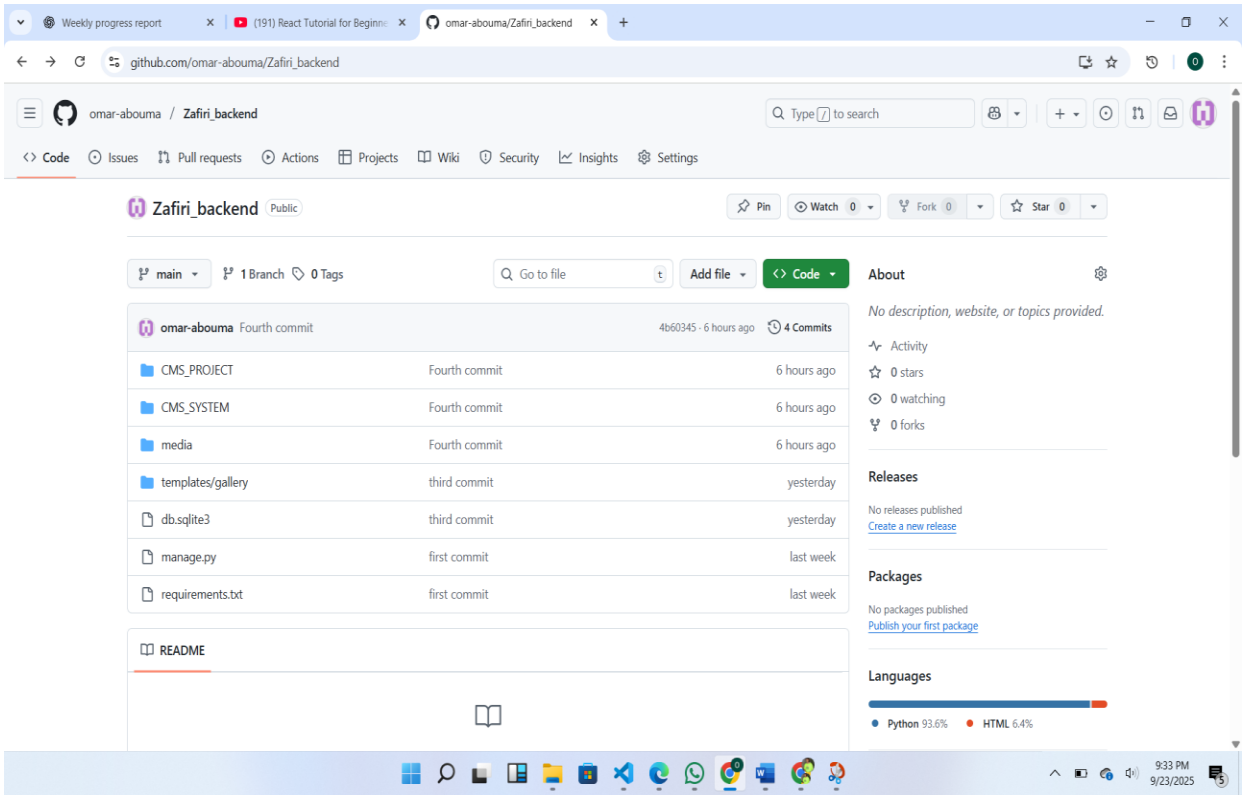
In Week 7, we focused on **testing our APIs and learning version control tools**. On Monday, we continued with **self-learning using Postman**, exploring how to test different types of HTTP requests and handling authorization headers.

On Tuesday, we learned how to **download and install Postman** on Windows and set up our local APIs for testing. We created collections for testing multiple endpoints and documented request structures.

On Wednesday, we practiced testing APIs thoroughly — including GET, POST, PUT, and DELETE methods — while observing how data flows between frontend and backend components.

On Thursday, we shifted focus to **version control systems**, specifically **GitHub**. We learned the difference between Git and GitHub/GitLab and explored why version control is essential for collaborative coding.

On Friday, we practiced creating a **GitHub repository**, connecting it to our local project via **Visual Studio Code**, and successfully pushing our code to the remote repository using Git commands. This process allowed us to back up our work and collaborate on the same codebase without conflict.



WEEK 8: Website Finalization and Review

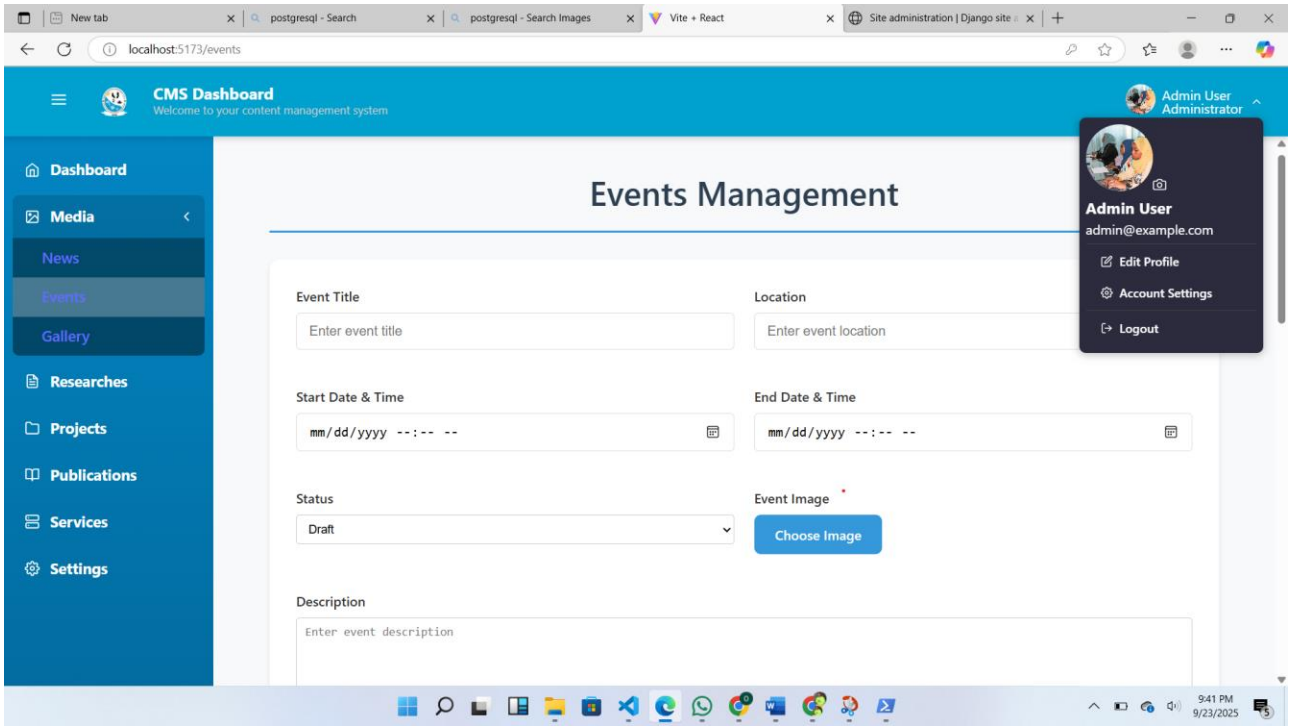
In Week 8, we returned to **polishing the website** and preparing for the final evaluation. On Monday, we restructured the homepage to improve content alignment and fixed minor design issues based on new feedback.

Tuesday involved refining the **navigation bar**, header section, and slider images to improve visual consistency and accessibility. We also replaced low-quality images with better alternatives and optimized page loading speed.

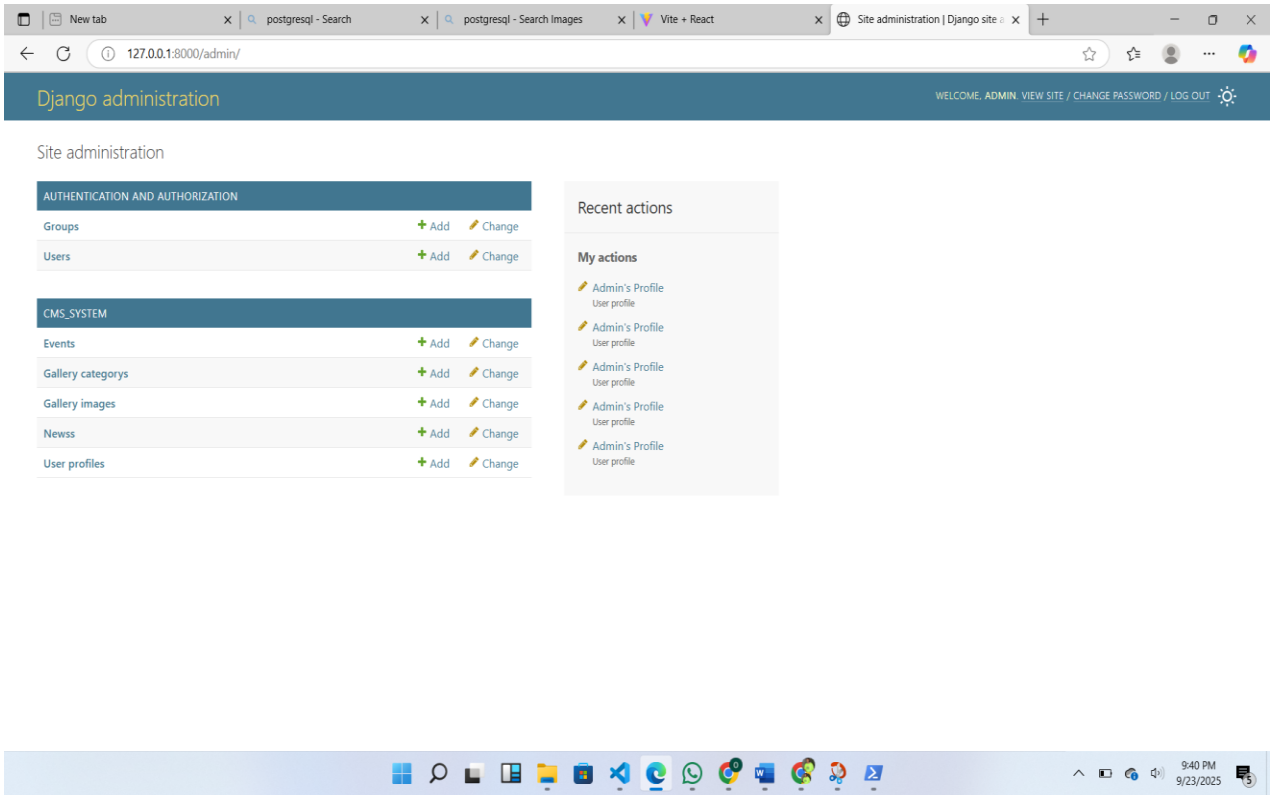
On Wednesday, we worked on finishing the **footer, events, and news sections**, ensuring that the dynamic content from the CMS appeared correctly on the frontend.

Thursday was spent on the **final presentation** to the Director General and internal stakeholders. The team demonstrated the working website, CMS functionality, API connections, and version control setup.

Finally, Friday was used for **error correction and documentation**. We cleaned up unused code, fixed broken links, and wrote developer documentation for the system to help future developers understand how it work



During my internship, while developing the **Content Management System (CMS)** using the Django framework, one of the key tools I used was the **Django Admin interface**. This powerful built-in feature of Django played a critical role in managing the backend of the website efficiently.



2. SUPERVISION ANALYSIS

During my internship at the Zanzibar Fisheries Research Resource Institute (ZAFIRI), I had the privilege of being supervised by Mr. Moh'd Azad Sharif, Head Officer of the ICT Department. Mr. moh'd has extensive experience in ICT management and system development within government institutions, which made his guidance highly valuable throughout my internship.

I consider myself fortunate to have had him as my supervisor, as he was always approachable, patient, and willing to address any questions or challenges I encountered. He provided clear instructions, offered constructive feedback on my work, and encouraged me to think critically and propose solutions to technical and operational problems.

In addition to Mr. moh'd, I received guidance and support from other ICT staff members who played significant roles in my learning experience. They assisted me in understanding the internal workflows of ZAFIRI, taught me practical aspects of system development, and ensured I was able to apply theoretical knowledge from my coursework effectively.

Overall, the supervision and mentorship I received were instrumental in enhancing my technical skills, improving my problem-solving abilities, and giving me confidence to work independently while contributing meaningfully to the ICT projects at ZAFIRI.

INTERNSHIP DETAILED

During my internship at the Zanzibar Fisheries Research Resource Institute (ZAFIRI), I was assigned to the ICT Department, where I was directly involved in the **design and development of an internal information system**. This system was created from scratch to improve the institute's data management, reporting, and operational efficiency. The internship provided an opportunity to apply theoretical knowledge from my coursework to a real-world government research environment.

System Overview
Prior to my internship, ZAFIRI did not have a dedicated information system for managing research data or administrative processes. My work focused on creating a **web-based internal system** that would support staff in recording, managing, and retrieving data related to fisheries research, as well as generating reports to facilitate decision-making.

System Specifications
- **Operating System:** Windows 11
- **Front-End Framework:** React.js
- **Back-End Framework:** Django (Python)
- **Database Management System:** PostgreSQL
- **API Testing Tool:** Postman
- **Development Tools:** Visual Studio Code, Chrome Developer Tools

Hardware Requirements
- **Processor:** Pentium IV 2.4 GHz or higher
- **RAM:** 4 GB minimum (8 GB recommended for optimal performance)
- **Hard Disk:** 1 TB or higher
- **Network:** Stable internet connection for API testing and cloud access

System Functionality
The system I developed included the following key features:
- **Data Entry and Management:** Users can efficiently input, edit, and manage fisheries research data.
- **User Authentication:** Secure login and registration with role-based access control.
- **Reporting:** Automated generation of operational and research reports to aid decision-making.
- **Communication Modules:** Staff contact functions and notifications for internal coordination.
- **API Integration and Testing:** Ensured accurate data flow between front-end and back-end using Postman.

My Contributions
During the internship, I contributed to all stages of system development, including:
- Gathering user requirements and understanding workflow needs within the ICT Department.
- Designing and developing interactive front-end components using React.js.
- Implementing back-end functionalities in Django, including models, views, and APIs.

- Creating PostgreSQL database schemas and establishing proper relationships between data tables.
- Testing system modules using Postman to validate API endpoints and ensure data integrity.
- Troubleshooting and refining the system based on feedback from staff and supervisors.

Impact of the System

The system introduced at ZAFIRI now provides a **centralized platform** for managing research data, automating reporting, and improving operational efficiency. It allows staff to access accurate data quickly, enhances coordination across departments, and lays a foundation for future ICT advancements within the institute.

3. TECHNOLOGY

During my internship at the Zanzibar Fisheries Research Resource Institute (ZAFIRI), I utilized and became familiar with various modern technologies to develop a web-based internal information system. These technologies facilitated front-end development, back-end processing, database management, and API testing. The main technologies used include React, Django, PostgreSQL, and Postman.

4.1 React.js

React.js is a popular **JavaScript library** used for building dynamic and responsive user interfaces for web applications. It allows developers to create reusable components, which improves efficiency and maintainability of code. React works by updating only the parts of the user interface that change, instead of reloading the entire page, which enhances the performance of web applications.

React uses a **virtual DOM (Document Object Model)**, which enables efficient comparison of UI changes and updates the actual DOM only where necessary. This approach ensures faster rendering and smooth user interactions.

In my internship, I used React.js to develop the **front-end interface** of the ZAFIRI system, including:

- User login and registration forms
- Dashboard for data visualization and report access
- Data entry and management modules
- Navigation components for different system sections

4.2 Django (Python)

Django is a **high-level Python web framework** that encourages rapid development and clean, pragmatic design. It follows the **Model-View-Template (MVT)** architectural pattern, which separates data models, business logic, and presentation layers. Django provides built-in tools for authentication, database management, and routing, which simplifies the development of secure and scalable web applications.

Key features of Django include:

- **ORM (Object-Relational Mapping):** Allows interaction with the database using Python objects instead of SQL queries.
- **Built-in Security:** Provides protection against common web attacks like SQL injection, cross-site scripting, and CSRF.
- **Admin Interface:** Automatically generates an admin dashboard for managing database records.

During my internship, I implemented the **back-end functionality** of the system using Django, which included:

- User authentication and role-based access
- CRUD operations (Create, Read, Update, Delete) for fisheries research data
- API endpoints to connect front-end React components with the PostgreSQL database

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4.3 PostgreSQL

PostgreSQL is a **powerful open-source relational database management system (RDBMS)** used for storing and managing structured data. It supports advanced data types, indexing, transactions, and query optimization, making it suitable for applications that require reliable and scalable data storage.

In the ZAFIRI system, PostgreSQL was used to:

- Store fisheries and research data in structured tables
- Maintain relationships between different data entities (e.g., users, research projects, reports)
- Support queries for generating real-time and automated reports
- Ensure data integrity and consistency through transactional operations

4.4 Postman

Postman is an **API development and testing tool** that allows developers to send HTTP requests to web servers and analyze responses. It is widely used to test the communication between front-end and back-end systems, ensuring that data is correctly sent and received.

During the internship, I used Postman to:

- Test API endpoints developed in Django
- Verify data retrieval and submission between React front-end and PostgreSQL database
- Identify and debug errors in data handling
- Ensure the reliability and security of the system's data flow

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This combination of **React, Django, PostgreSQL, and Postman** allowed me to develop a complete web-based system for ZAFIRI, from front-end user interfaces to back-end data management and testing. These technologies ensured a **robust, scalable, and user-friendly application** that addressed the institute's operational needs.

4.CHALLENGES AND THOUGHT OF IMPROVEMENT

Developing the System from Scratch

- Since ZAFIRI had no pre-existing information system, I had to design and implement the entire system from the ground up. This required thorough planning of system architecture, defining modules, and designing workflows that would meet the institute's operational needs. Developing a complete system without prior templates or references demanded careful attention to detail and iterative testing to ensure functionality.

Data Collection and Standardization

- Much of the research and administrative data at ZAFIRI was stored in paper records or scattered spreadsheets. Consolidating this data into a structured PostgreSQL database was challenging, as it required validating information, correcting inconsistencies, and ensuring proper relationships between tables. This process was critical to ensure that the system would provide accurate reports and reliable data for decision-making.

Front-End and Back-End Integration

- Integrating the React front-end with the Django back-end posed technical challenges, especially in handling API requests, data validation, and ensuring real-time updates. Debugging issues such as incorrect data retrieval, formatting errors, and communication delays between the front-end and database required careful testing using Postman and iterative adjustments to both client-side and server-side code.

Time and Resource Constraints

- Completing the system within the 8-week internship required prioritization of essential modules and efficient time management. Limited ICT infrastructure, such as slower computers and intermittent network connectivity, sometimes delayed development and testing. This challenge taught me to optimize code, manage resources effectively, and focus on delivering core functionalities before adding additional features.

5. INTERNSHIP EVALUATION (LESSON LEARNED)

Before starting my internship at the Zanzibar Fisheries Research Resource Institute (ZAFIRI), my knowledge of applying theoretical ICT concepts in a real organizational context was limited. Although I had studied system development, database management, and programming during my coursework, I had not yet experienced the practical challenges of developing a fully functional information system for an organization.

During my internship, I was actively involved in the design and development of ZAFIRI's first internal information system. This experience provided a comprehensive understanding of the **System Development Life Cycle (SDLC)**, from requirement gathering and system analysis to front-end and back-end development, database design, testing, and deployment. By working closely with ICT staff and end-users, I learned how to translate organizational needs into functional system features, ensuring that the system was both user-friendly and operationally effective.

The process of building the system from scratch exposed me to several practical challenges, including consolidating scattered data, integrating the React front-end with the Django back-end, and ensuring smooth communication with the PostgreSQL database. Addressing these challenges improved my **problem-solving skills, critical thinking, and technical proficiency**. I gained hands-on experience with technologies such as React.js, Django, PostgreSQL, and Postman, which strengthened my ability to develop, test, and deploy web-based applications effectively.

Beyond technical skills, the internship also enhanced my **professional competencies**. I learned the importance of time management, teamwork, and clear communication, as collaboration with supervisors and staff was essential to understand requirements, gather feedback, and refine the system. Furthermore, the internship provided insights into project management, including task prioritization, resource optimization, and delivering functional solutions within a constrained timeframe.

Overall, the internship at ZAFIRI was a transformative experience. It bridged the gap between academic theory and professional practice, allowing me to develop both technical and professional skills. I gained a deeper appreciation of how information systems can improve operational efficiency in research institutions, and I now feel more confident and prepared to contribute effectively to ICT projects in my future career.

6. CONCLUSION

My internship at the Zanzibar Fisheries Research Resource Institute (ZAFIRI) provided a valuable opportunity to apply academic knowledge to real-world ICT challenges. Developing the institute's first internal information system allowed me to enhance my technical skills in React, Django, and PostgreSQL, while also improving my problem-solving, teamwork, and project management abilities.

This experience gave me practical insights into how information systems can improve organizational efficiency and decision-making. Overall, the internship strengthened my professional competencies and prepared me to contribute effectively to future ICT projects.

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