SERVICE WITH A SMILE

SUI SOUTHERN GAS COMPANY LIMITED

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SSGC SUI SOUTHERN GAS COMPANY LIMITED

Date:26-June-2025

Internship Report

This is to certify that the internship report has been submitted by Ms. Payal Kumari in fulfillment of the departmental requirements for the award of her degree. She has successfully completed her internship program and fulfilled all assigned tasks and responsibilities in accordance with the guidelines set by the department.

During the internship, Ms. Payal Kumari worked in the **VAS-IT** under the supervision of **Muhammad Zeeshan**. Her report reflects the knowledge, skills, and professional conduct expected during the internship

Zeeshan
01-July-2025

Muhammad Zeeshan
Deputy Manager IT

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Acknowledgement

I am profoundly honoured and deeply grateful to Sui Southern Gas Company (SSGC) for granting me the remarkable opportunity to intern in its prestigious **VAS-IT** This internship has been an extraordinary journey that has not only enriched my technical acumen but also offered a front-row seat to the sophisticated workings of a leading corporate entity.

I owe a special debt of gratitude to the esteemed **Sir Muhammad Zeeshan**, whose mentorship and insightful guidance were the cornerstone of my learning experience. His mastery of web systems and generous sharing of knowledge turned every interaction into a masterclass. His practical demonstrations and strategic approach illuminated complex concepts with inspiring clarity.

I would also like to extend my heartfelt thanks to the entire VAS team, whose professionalism, patience, and camaraderie created a truly supportive and intellectually stimulating environment. Their encouragement and readiness to assist made my time at SSGC both seamless and immensely rewarding.

Above all, I am eternally thankful to my **beloved family**, whose constant belief in my potential and unwavering support have been the driving force behind every achievement. Their encouragement has been the bedrock of my journey, empowering me to embrace challenges and grow with confidence.

This internship has left an indelible mark on my professional path, and I will carry forward the lessons learned here with great pride and appreciation.

Executive Summary

This report presents a detailed overview of my internship at **Sui Southern Gas Company (SSGC)** within the **IT Department's VAS Section**, where I primarily worked on the company's digital platforms, including the official website and the SSGC Customer Connect mobile application.

The internship focused on understanding how digital infrastructure is managed in a large utility organization. It included hands-on exposure to technologies such as **WordPress, PHP, MySQL, Laravel, Swift, Kotlin**, and covered development practices related to content management systems (CMS), admin dashboards, server communication, and database workflows.

As a part of my final task, I was assigned to redesign the SSGC website interface. Based on detailed analysis and modern UI/UX principles, I rebuilt the site using **React.js**, **Tailwind CSS**, and **Node.js**, offering improved responsiveness, structure, and performance. The outcome reflects a professional, accessible, and scalable solution aligned with corporate requirements.

Throughout the internship, I had the opportunity to collaborate closely with a skilled and supportive team of developers and IT professionals. This collaborative environment not only enhanced my technical understanding but also helped me develop key soft skills such as teamwork, problem-solving, and effective communication. Regular feedback sessions and real-time project involvement provided valuable insights into project management and agile development workflows, significantly contributing to my overall professional growth.

Chapter 1: Area of Interest

My internship was conducted in the **IT** department of Sui Southern Gas Company, particularly within the **VAS (Value Added Services)** section. This section is responsible for the **management of SSGC's official website and mobile application**.

Since I already possessed a background in **web development**, I was assigned to this area to align my practical training with my existing skills. The experience provided me with the opportunity to understand how websites and apps are handled on a **corporate and enterprise level**, with specific emphasis on live content management, system structure, and workflow.

Throughout my internship, I was exposed to the technical foundations and operational workflows behind SSGC's digital services. I gained valuable insights into live content management systems, site architecture, performance optimization, and user experience design. I also had the opportunity to interact with the backend processes that ensure the platforms remain secure, responsive, and up to date. Observing and working alongside experienced developers, I was able to explore the practical implementation of technologies such as PHP, MySQL, Laravel, and WordPress, while also learning about deployment protocols, API integration, and security practices.

This exposure not only deepened my technical understanding but also gave me a broader perspective on how cross-functional teams collaborate to support and enhance digital services in a mission-critical industry like natural gas distribution.

Chapter 2: Overview of the Organization

Sui Southern Gas Company (SSGC) is Pakistan's premier large-scale integrated natural gas utility, operating as a public limited company. The Government of Pakistan holds a majority stake in the company, both directly and indirectly. Since its inception in 1954, SSGC has been responsible for the transmission—spanning over 4,200 kilometres with pipelines up to 42 inches in diameter—and distribution—covering approximately 50,000 kilo meters—of natural gas. The company operates in the provinces of Sindh and Balochistan, where it also undertakes the development of high-pressure transmission and low-pressure distribution networks. SSGC sources natural gas from domestic fields and re-gasifier liquefied natural gas (RLNG) terminals to supply over 3.5 million customers across its operational regions.

The governance of SSGC is overseen by an autonomous Board of Directors, comprising 11 members. The Managing Director/Chief Executive, appointed by the Government of Pakistan, is empowered by the Board to effectively manage the company's operations.

SSGC also distinguishes itself as the operator of South Asia's only gas meter manufacturing facility. This plant, which adheres to European quality standards, assembles G-4 and G-16 domestic gas meters and has an annual production capacity exceeding 1.5 million units, playing a key role in meeting national demand.

With a strong focus on customer service, SSGC leverages a combination of advanced technology and human interaction. It operates 23 Customer Facilitation Centres (CFCs) across Sindh and Balochistan, in addition to 1199 call centres dedicated to handling customer inquiries and issues.

The company has expanded its business through subsidiaries as well. **SSGC-LPG Ltd.**, a wholly owned subsidiary established in 2012, is involved in the nationwide marketing and distribution of liquefied petroleum gas (LPG). Another subsidiary, **SSGC-Alternate Energy (AE) Pvt. Ltd.**, was launched in 2022 with the aim of supplying unallocated gas through alternative sources under competitive terms. This strategic diversification is part of SSGC's broader objective to generate non-operational income.

In recent years, SSGC has significantly improved its operational performance, achieved better financial outcomes and reduced Unaccounted-for Gas (UFG) losses. The company is also carrying out an extensive network rehabilitation program across its service areas to minimize leakage and enhance infrastructure reliability.

Chapter 3: What I Learned

The internship was a highly practical learning experience for me. I was introduced to how large organizations like SSGC manage their **web and app systems**, not just from a development perspective but also in terms of **operations, updates, security, and data flow**.

Overview of the SSGC Official Website

I was introduced to the official SSGC website under the guidance of **Sir Muhammad Zeeshan**, who gave me a complete review of how the system is structured. I explored how the website is designed and maintained, how content is published, and what technologies support its functioning.

Some of the key technologies used include:

- **WordPress** for frontend interface management.
- **PHP** as the server-side scripting language.
- **MySQL** as the backend database system.
- The hosting provider is **AplusNet**, used for deploying the live website.

The website is designed to be user-friendly and multilingual, allowing access in both **Urdu and English**. It features clear navigation and categorized content for **customers**, **business partners**, and general visitors.

Working with the Admin Dashboard

During my internship, I was introduced to the **Admin Dashboard** of the SSGC website, which is the central place for managing and updating all aspects of the site. The dashboard is a part of the **Content Management System (CMS)** in this case, **WordPress** which allows administrators to efficiently manage content without dealing with code directly.

The dashboard is only accessible to **authorized users** (typically the IT or web team), and it provides a full set of tools to control both the content and structure of the website. My time working with this system gave me a clear view of how professional websites are maintained on a day-to-day basis.

The key features and sections I observed within the Admin Dashboard include:

- **Control Panel**: This is the main area where all backend functions are accessed. It allows admins to navigate to different sections of the site's backend like media, posts, pages, settings, and user roles.
- **Media Management**: Images, PDFs, videos, and other files are uploaded and managed here. These files are later used in posts, pages, banners, and more. Uploads are securely handled, often via **FTP** which ensures files are properly stored on the hosting server.
- **Posts Section**: Used for uploading dynamic content such as news updates, job advertisements, and announcements. These can be scheduled to go live at specific dates and times.
- **Pages Management**: This is where the static parts of the website are built and maintained. I reviewed several key pages, including Home, About, Customer Management, Financial Highlights etc. Each of these pages has its own layout and content, and they can be individually updated through the dashboard. WordPress makes it easier for non-technical staff to edit page content, add sections, or publish new information.
- **Multilingual Support**: I also noticed that the CMS supports content in both **Urdu and English**, providing flexibility for a diverse user base.

Overall, working with the admin dashboard helped me understand how SSGC controls its public-facing digital platforms. It showed me the **real-world application of content management systems**, the importance of user roles and access controls, and the professional workflow behind publishing updates and maintaining a high-traffic website. This section helped me understand how content flows from draft to published status and how internal teams coordinate to keep the information updated and relevant.

Data Flow and Server Communication

Another key part of my learning was understanding how **data travels from the client side to the backend**. In professional systems like SSGC's, data is never stored directly on the live server. The process involves several important stages:

1. **Client Interaction**: A user fills a form or interacts with the website.
2. **Data Communication**: The system sends the request to the server using PHP.
3. **Validation Process**: Before going live, the data is validated and approved.
4. **Publishing**: Once verified, the data is published to the live site.

For example, I was introduced to FTP (File Transfer Protocol), which is used for uploading files such as images and documents to the server. This method allows secure and organized

transfer of files from local machines to the web server through the File Manager, which is also accessible only by admins.

This workflow ensures **data integrity, security, and proper approval**, which is crucial in a sensitive and regulated organization like SSGC.

Overview of the SSGC Customer Connect App

I also had the opportunity to review and analyse the **SSGC Customer Connect mobile application**. This app is designed to provide customers with a convenient, digital way to manage their interactions with SSGC. It plays a vital role in the company's efforts to modernize and digitize its customer service operations.

The app is available for both **Android** and **iOS** platforms, allowing a wide range of users to access SSGC services directly from their smartphones.

Technology Stack Used

During the technical briefing, I learned about the different technologies used in the development of the app:

- **iOS Version**: Developed using **Swift**, which is Apple's official programming language for building reliable and high-performance iOS applications.
- **Android Version**: Built using **Kotlin**, a modern language preferred for Android development due to its efficiency and safety features.
- **Backend**: The server-side of the application is developed in **PHP** using the **Laravel framework**. Laravel provides a secure and organized structure for handling database interactions, user authentication, and API integration.

The backend communicates with the frontend through APIs, ensuring data is retrieved and updated in real-time. The database and user-related activities are all handled securely through this structured backend system.

Main Features of the App

The **Customer Connect App** is focused on user convenience and service accessibility. Some of its core features include:

- **Bill Viewing & Payment**: Users can check their current and past gas bills and proceed with online payments using integrated payment gateways.
- **New Connection Requests**: The app allows users to apply for new gas connections without visiting an SSGC office physically.

- **Complaint Registration**: Customers can file service or billing complaints directly through the app, track complaint status, and receive updates.
- **Service Request Tracking**: Users can monitor the progress of their service requests or new connection applications.
- **Notifications & Alerts**: The app provides real-time notifications regarding service changes, scheduled maintenance, or urgent alerts.
- **Location-Based Services**: It helps customers locate nearby SSGC offices or service centres using built-in map integration.
- **Report Theft**: It helps to report the theft
- **Complaints and Feedback**:

User Interface and Experience

The app has a **simple and intuitive user interface**, designed to make navigation easy even for first-time users. Key elements include:

- **Multi-language support** (Urdu and English) to cater to a broad user base.
- A **secure login system** using registered phone numbers and CNICs.
- Clearly defined menus and sections for quick access to essential services.

Chapter 4: Findings from Analysis

During my internship at SSGC's VAS-IT department, I conducted an in-depth analysis of the company's digital platforms — particularly the official website and the Customer Connect mobile application. This analysis involved reviewing the UI/UX design, system architecture, backend operations, and overall user interaction. The following are the key findings:

Strengths and Achievements

1. **Professional CMS Integration**
   The use of WordPress for the corporate website allows easy and flexible content management. Updates can be made quickly without heavy technical involvement, ensuring the site remains current and informative.

2. **Dynamic Website Functionality**
   The website supports dynamic content — including live updates, online forms, service request submissions, and user-specific data — making it interactive, functional, and responsive to user needs.

3. **Bilingual Content Support**
   Availability of content in both English and Urdu makes the platforms user-friendly for a wider demographic, improving accessibility across Pakistan.

4. **Secure Backend Infrastructure**
   Both the website and mobile app use secure backend technologies (PHP, Laravel, FTP), ensuring data protection, access control, and safe communication between users and the server.

5. **Efficient Theft Reporting System**
   The mobile application includes a dedicated feature that allows users to report gas theft anonymously. This not only supports corporate transparency but also empowers citizens to take part in accountability.

6. **Online Billing and Payment Convenience**
   Users can view and pay their gas bills directly through the app and website. This eliminates the need for physical visits and encourages digital adoption — especially valuable in remote or urban areas.

7. **Digital Service Request Feature**
   The Customer Connect app offers a seamless interface for placing service requests — such as new connections, meter relocation, or complaints. Users can track their requests in real time, reducing reliance on in-person visits.

8. **Modern Redesign (React + Tailwind)**
   The redesigned version of the website using React.js, Tailwind CSS, and Node.js

offers better performance, mobile responsiveness, and a clean modern interface, enhancing user satisfaction.

9. **Customer-Centric and Accessible Design**
   The UI focuses on logical structure, easy navigation, and a responsive layout, ensuring users of all age groups can interact with the platform effortlessly.

10. **Agile Development Workflow**
    Regular stand-ups, team sync-ups, and documented updates are part of the development cycle which ensures faster bug fixes and consistent feature rollouts.

Conclusion of Analysis

SSGC's digital platforms especially the Customer Connect mobile app stand out as efficient, user-friendly, and security conscious. The integration of theft reporting, online billing, dynamic content, and service request modules showcase the company's commitment to modernizing public utility services. While some backend limitations exist, the transition toward modern technologies reflects a progressive and future-ready mindset.

Chapter 5: Conclusion and Recommendations

The internship at **Sui Southern Gas Company (SSGC)** has been a transformative experience. By working within the VAS section of the IT Department, I gained a strong understanding of how large-scale web and mobile applications are structured, managed, and optimized for public and internal use.

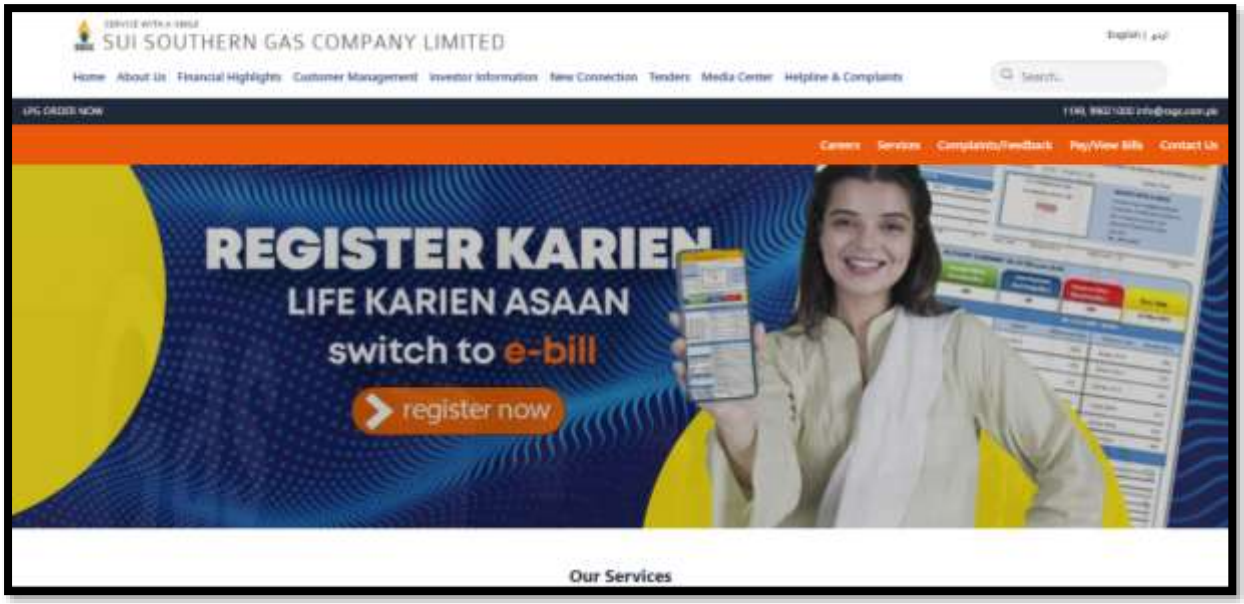
The opportunity to analyses and redesign the official website helped reinforce key software development principles—ranging from frontend design and backend logic to user-centred architecture and performance optimization. My suggested solution built using **React, Tailwind CSS, and Node.js**, provides a future-ready structure that meets both user needs and organizational goals.

Key Recommendations:

- **Modernize the Stack**: Shift from legacy platforms like PHP to more scalable technologies like Node.js for improved performance.
- **Enhance Responsiveness**: Ensure that mobile-first design principles are applied throughout the website for better user reach.
- **Optimize Navigation**: Simplify menus and user journeys to reduce bounce rates and improve engagement.
- **Streamline Content Management**: Implement a more intuitive CMS interface for the IT/web team to manage updates with ease.
- **Security and Validation**: Continue using layered data flow with validations before publishing any user input, ensuring both safety and data integrity.

In summary, this internship was not just a technical journey but also a professional experience that sharpened my problem-solving, analysis, and design thinking skills. It has prepared me to contribute effectively to digital transformation efforts in large-scale organizations like SSGC.

Appendix A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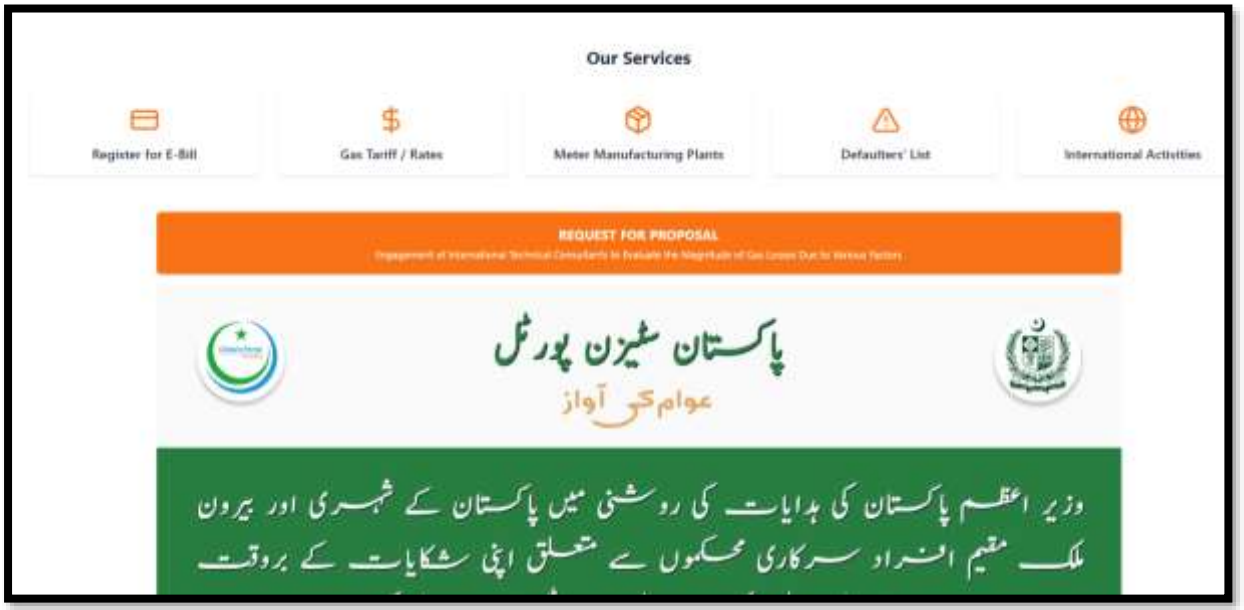
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Appendix B: Code Overview

The redesigned SSGC website was developed using a **React.js** frontend with **Tailwind CSS** for styling and a **Node.js + Express.js** backend for server-side operations. The structure emphasizes performance, modularity, and scalability.

1. Project Structure

Frontend (/client)

- components/ – Reusable UI elements (Navbar, Footer, Cards)
- pages/ – Main views like Home, About, Contact
- App.jsx – Root component
- main.jsx – Renders the app

Backend (/server)

- routes/ – API endpoints (e.g., contact form)
- controllers/ – Route logic
- middlewares/ – Validation, security
- app.js – Express server entry point

2. Key Features

- **Responsive UI** with dark/light mode
- **Language toggle-ready** (Urdu/English)
- **Form handling** via secure POST requests
- **Dynamic navigation and content loading**
- **FTP-based media management supported via CMS**

3. Tech Stack

Layer	Technology
Frontend	React.js, Tailwind CSS
Backend	Node.js, Express.js
Tools	GitHub, Postman, FTP