



**Pakistan Ordnance Factories (POF)**

## **Final Report of Internship**

**Internship Program – IT Department**

**Web Development Intern**

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**Duration: SIX Weeks (22/07/2025– 02/09/2025)**

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# بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

## *Acknowledgment*

I would like to express my sincere gratitude to **Pakistan Ordnance Factories (POF)** for providing me the opportunity to complete my six-week internship as a Web Development Intern in the IT Department. This internship has been a highly valuable experience that enabled me to strengthen my technical skills, gain hands-on exposure to real-world projects, and enhance my understanding of web technologies.

I am especially thankful to my supervisor **Qaiser Shahzad** at POF for their continuous guidance, encouragement, and constructive feedback, which played a vital role in my professional growth during this internship. I am also grateful to my colleagues and fellow interns for their support and collaboration, which made the learning process more engaging and insightful.

This internship has been an important step in my career development, and I deeply appreciate POF for equipping me with practical knowledge and skills that will serve as a strong foundation in my future endeavors.

## *Preface*

This report presents the details of my internship at Pakistan Ordnance Factories (POF), Wah Cantt, carried out from **23rd July 2025 to 2nd September 2025** in the IT Department. The internship was undertaken as part of my academic requirements in Computer Science and served as an opportunity to apply my classroom learning to a professional environment.

The contents of this report highlight the skills I gained, the projects I worked on, and the exposure I received in both front-end and back-end web development. I have made every effort to describe my work in a clear and structured manner so that it may serve as a useful record for academic purposes and future reference.

I express my sincere gratitude to my supervisors and colleagues at POF, who guided me throughout the internship and provided valuable insights into the functioning of an IT department in a large industrial organization.

### *Executive Summary*

The internship at Pakistan Ordnance Factories (POF) provided practical exposure to modern web development practices in a professional setting. My primary focus was on learning and applying **front-end technologies** such as HTML, CSS, JavaScript, and Bootstrap, as well as **back-end tools** including PHP, MySQL, and Laravel.

During the six weeks, I actively contributed to the design and development of a job portal project, which allowed me to understand project workflows, database management, and server-side programming. I also observed the use of professional IT equipment and learned about project documentation, system integration, and security practices.

The internship enhanced my technical expertise, improved my problem-solving ability, and strengthened my teamwork and communication skills. Moreover, it gave me valuable insight into the professional discipline and organizational culture at POF.

This experience not only bridged the gap between theory and practice but also prepared me to take on future challenges in the field of web development with greater confidence and determination.

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## *Introduction of Pakistan Ordnance Factories*

Pakistan Ordnance Factories is the largest defence industrial complex under the Ministry of Defence Production, producing conventional arms & ammo to international standards. POF Board headquarter is at Wah Cantt. Presently POF comprises of 14 ordnance factories and three commercial subsidiaries. Pakistan Ordnance Factories also specialize in the manufacture of commercial explosive, hunting ammunition and possess extensive facilities for the manufacture of brass, copper and aluminum ingots, extrusions and sections for non-military applications. A garments factory, which has the state-of-the-art cloth cutting facilities and most modern stitching units, manufactures military uniforms and can also cater for the needs of the civil sector.

## *History of POF*

After the emergence of Islam in the subcontinent in 712 A.D, when Muhammad Bin Qasim(an Arab General) made an entry to this strategically important region of South Asia, the Muslims ruled India for almost one thousand years. The decline of Mughal Empire, however, created a vacuum, which was immediately exploited by the British East India Company resulting in British rule of the subcontinent for nearly one hundred years. During their colonial rule, the British raised sixteen ordnance factories prior to Second World War to thwart strategic threats posed to their occupation. At the time of creation of Pakistan in 1947, all those sixteen factories fell to Indian share since no one of them were located in Muslim majority areas. Newly created Pakistan with fragile state apparatus and fragmented Armed Forces, had absolutely no arms & ammunition manufacturing facility to meet the security challenges to its sovereignty.

## *Chapter 1: Introduction to Web Development*

### *1.1 Introduction:*

Web development is the process of creating and maintaining websites or web applications. It involves a combination of programming, designing, and deploying interactive web pages that can be accessed through the internet. During my internship at Pakistan Ordnance Factories (POF), I was introduced to the fundamentals of web development, including both front-end and back-end practices. This chapter outlines the essential tools, technologies, and concepts I learned and applied.

### *1.2 Installation of Necessary Software and Setup*

The first step in web development is preparing the working environment by installing the required software and tools. For this purpose, I used Visual Studio Code (VS Code), a lightweight and powerful code editor widely used by developers.

- VS Code Installation: The editor was installed and configured to support web technologies.
- Extensions: Useful extensions such as *Live Server*, *Prettier*, and *Emmet* were added to improve efficiency, enable real-time preview, and simplify coding.

This setup created a reliable environment for writing, testing, and debugging code.

### 1.3 Introduction to HTML and HTML5

HTML (Hypertext Markup Language) is the backbone of web development, providing the structure of a web page. I learned both the traditional HTML elements and additional features introduced in HTML5.

#### Key concepts included:

- Basic Structure: <html>, <head>, <body> tags.
- Headings and Paragraphs: <h1> to <h6> for titles, and <p> for text content.
- Links and Navigation: <a> tag for hyperlinks.
- Forms: Input fields, checkboxes, radio buttons, and submit options.
- Semantic Elements (HTML5): <header>, <footer>, <article>, and <section> for improved readability and structure.

This knowledge allowed me to build static web pages with clear content organization.

### 1.4 Styling with CSS and Bootstrap




After learning HTML, I practiced **CSS (Cascading Style Sheets)** to add design and styling to web pages. CSS enabled me to control layout, colors, fonts, and overall presentation.

- **CSS Basics:** Inline, internal, and external styling methods.
- **Selectors:** Class, ID, and element selectors.
- **Layout Techniques:** Box model, margins, padding, and positioning.

I also learned **Bootstrap**, a popular front-end framework, which simplified responsive design and provided pre-styled components such as navigation bars, buttons, and forms.

**Form Validation** was also introduced, allowing me to restrict invalid inputs and enhance user experience.

## Simple Registration form in HTML5 and in bootstrap

 127.0.0.1:5500/index.html  

### Registration Form

Full Name

Email Address

Password



## 1.5 Introduction to JavaScript

JavaScript added interactivity and dynamic behavior to the web pages I developed.

Some important concepts I worked on:

- **Form Validation:** Ensuring correct data entry using JavaScript functions.
- **DOM (Document Object Model) Manipulation:** Accessing and modifying HTML elements dynamically.
- **Events:** Handling user interactions such as clicks, form submissions, and keypresses.

Through JavaScript, I learned how to bring life to static pages, making them more interactive and user-friendly.

### Form Validation through JavaScript

Registration Form

Full Name

Enter your name

Name is required.

Email Address

Enter your email

Email is required.

Password

Enter your password

Password must be at least 6 characters.

Submit

## *Chapter 2: Introduction to Backend Development – PHP, MySQL*

### *Introduction*

Backend development is the process of managing the server-side operations of a web application. Unlike the front-end, which focuses on design and user interaction, the back-end handles data storage, retrieval, and logical operations that power a website. During my internship at Pakistan Ordnance Factories (POF), I was introduced to back-end technologies such as XAMPP, MySQL, and PHP. This chapter describes the setup, tools, and concepts I practiced to build dynamic web applications.

### *2.1 Installation of Necessary Software and Extensions*

To begin back-end development, I installed and configured **XAMPP**, an open-source package that provides an easy way to set up a local server environment.

- **XAMPP Components:**

- **Apache:** The web server for running PHP code.
- **MySQL:** The relational database management system (RDBMS).
- **PHP:** The server-side scripting language for dynamic web pages.
- **phpMyAdmin:** A web-based tool for managing MySQL databases.

Additionally, I installed **PHP extensions** within XAMPP to ensure compatibility with database operations, form handling, and other functionalities. This setup created a complete development environment for building and testing full-stack applications locally.

## *2.2 Introduction to MySQL*

**MySQL** is a widely used relational database system. I worked on designing tables, inserting data, and running queries.

### **CRUD Operations**

The four fundamental database operations are:

- **Create:** Adding new records using INSERT.
- **Read:** Retrieving data with SELECT.
- **Update:** Modifying records with UPDATE.
- **Delete:** Removing data using DELETE.

### **Joins in MySQL**

To handle complex queries involving multiple tables, I practiced **SQL joins**:

- **INNER JOIN:** Returns records with matching values in both tables.
- **LEFT JOIN:** Returns all records from the left table and matched records from the right.
- **RIGHT JOIN:** Returns all records from the right table and matched records from the left.
- **FULL JOIN (simulated in MySQL):** Combines results from both left and right joins.

These operations allowed me to manage structured data effectively and understand relational database concepts.

## *2.3 Introduction to PHP*

**PHP (Hypertext Preprocessor)** is a server-side scripting language that enables dynamic interaction between the front-end and back-end.

Key concepts I learned include:

- Writing PHP scripts to handle logic and processing.
- Using PHP for **form validation** (ensuring correct user inputs before storing in a database).
- Embedding PHP in HTML pages to display dynamic content.

## *2.4 Connecting Frontend Forms with Database*

One of the most important tasks I performed was connecting HTML forms with MySQL database using PHP.

The workflow included:

1. **Designing a form** in HTML (e.g., registration form).
2. **Validating inputs** using PHP (checking required fields, valid email format, etc.).
3. **Establishing a database connection** in PHP with mysqli or PDO.
4. **Inserting data** from the form into the database table using SQL queries.
5. **Displaying stored data** back on the web page for verification.

Through these steps, I was able to build a complete data-driven application where the front-end and back-end were integrated.

## Chapter 3: *A PHP Framework: Laravel*

### *3.1 Introduction to Laravel*

**Laravel** is one of the most popular PHP frameworks used for building modern web applications. It follows the **MVC (Model–View–Controller)** architectural pattern, which separates the application's logic, presentation, and data management. Laravel is known for its elegant syntax, built-in security features, and developer-friendly tools that simplify web development.

During my internship, I learned the structure of a Laravel project and how different components interact with each other to create dynamic, secure, and scalable applications.

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### *3.2 File Management in Laravel*

Laravel projects have a well-organized folder structure. Some of the key components I studied include:

- **APP/Controllers**  
Located in the app/Http/Controller's directory, controllers handle the application's logic and act as intermediaries between models and views.
- **Resources(Views)**  
Stored in the resources/views folder, these files use **Blade**, Laravel's templating engine, which allows the integration of PHP code with HTML. Blade enables features like template inheritance and reusable components.
- **Models**  
Found in the app/Model's directory, models represent the database tables and handle data operations using **Eloquent ORM** (Object Relational Mapping).
- **DatabaseMigrations**  
Stored in the database/migrations folder, migrations are version-controlled files that allow developers to create and modify database tables using PHP code rather than manual SQL commands.
- **Routes**  
Located in the routes folder, especially routes/web.php for web applications, routes define the URL structure and map requests to specific controllers or views.

- **Configuration and Environment Files**

- The .env file stores environment-specific settings such as database credentials, mail configurations, and API keys.
- The config directory contains configuration files for different services like database, cache, and session management.

- **FileLinking**

Laravel provides helpers for linking CSS, JavaScript, and images stored in the public folder. Blade directives such as @vite or asset() are used to reference these files.

This structured organization ensures clean, scalable, and maintainable code throughout the development lifecycle.

**Laravel files**

The screenshot displays an IDE interface with the following components:

- EXPLORER (Left Panel):** Shows the project structure for 'JOB\_PORTAL'. The 'routes' directory is expanded, highlighting 'web.php'. Other visible directories include 'app', 'bootstrap', 'config', 'database', 'public', 'resources', 'storage', 'tests', and 'vendor'. Configuration files like '.editorconfig', '.env', '.env.example', '.gitattributes', and '.gitignore' are also listed.
- Editor (Center):** Displays the content of 'routes/web.php'. The code includes PHP opening tags, imports for 'AdminJobController', 'ApplicationController', and 'UserController', and the use of 'Route' facade. It defines a root route for '/jobs' that redirects to 'user.jobs.index', and admin routes for '/jobs' and '/jobs/create' using the 'AdminJobController'.
- TERMINAL (Bottom Panel):** Shows the output of a command, likely 'php artisan serve'. It displays the following log entries:

```
2025-08-26 14:39:49 /jobs ..... ~ 504.87ms
2025-08-26 14:39:49 /favicon.ico ..... ~ 1s
2025-08-26 14:41:21 /jobs/3/apply ..... ~ 514.66ms
2025-08-26 14:41:21 /favicon.ico ..... ~ 623.68ms
```

## *Chapter 4: Mini Full-Stack Project in Laravel: Job Portal*

### *4.1 Introduction*

As a practical application of my internship learning, I developed a **Job Portal** using the Laravel framework. The project was designed to include two main modules:

1. **Admin Panel** – where administrators can manage job postings and review applications.
2. **User Panel** – where job seekers can view available positions and submit applications.

This project combined all aspects of **front-end and back-end development** and demonstrated the use of Laravel's MVC architecture, authentication, routing, migrations, and database interaction.

### *4.2 Project Objectives*

The main objectives of this mini-project were:

- To design a structured job portal with separate roles for admin and users.
- To implement CRUD functionalities for job postings and applications.
- To create a professional and responsive interface using **Blade** and **Bootstrap**.

### *4.3 Tools and Technologies Used*

- **Framework:** Laravel 10
- **Database:** MySQL
- **Server:** Apache (via XAMPP)
- **Editor:** Visual Studio Code
- **Frontend:** Blade templates with HTML, CSS, and Bootstrap

## File structure of Mini Laravel Job Portal project

```
job_portal/      # Main project folder
|
├── app/
|   ├── Http/
|   |   ├── Controllers/
|   |   |   ├── Admin/
|   |   |   |   ├── JobController.php      # Handles job CRUD for admin
|   |   |   |   ├── ApplicationController.php # Handles applications view for admin
|   |   |   |   └── User/
|   |   |   |       ├── JobController.php      # Displays jobs to users
|   |   |   |       ├── ApplicationController.php # Users apply for jobs
|   |   |   |       └── Controller.php
|   |   └── Middleware/          # Middleware (auth, roles, etc.)
|   └── Models/
|       ├── Job.php              # Job Model (Eloquent ORM)
|       ├── Application.php      # Application Model
|       └── User.php             # Default User model
|
├── database/
|   ├── migrations/
|   |   ├── 2025_xx_xx_create_jobs_table.php      # Migration for jobs table
|   |   ├── 2025_xx_xx_create_applications_table.php # Migration for applications table
|   |   └── 2014_10_12_000000_create_users_table.php # Default user tabl
|   └──
|
├── public/
|   ├── css/                    # Custom CSS files (if any)
|   ├── js/                    # Custom JS files (if any)
|   └── storage/                # Uploaded files (like resumes)
|
├── resources/
|   ├── views/
|   |   ├── admin/             # Admin panel views
|   |   |   ├── dashboard.blade.php
|   |   |   ├── jobs/
|   |   |   |   ├── index.blade.php      # Job listing for admin
|   |   |   |   ├── create.blade.php     # Add new job form
|   |   |   |   └── edit.blade.php       # Edit job form
|   |   |   └── applications/
|   |   |       └── index.blade.php      # Show user applications
|   |   └── user/              # User panel views
|   |       ├── jobs/
|   |       |   ├── index.blade.php      # Jobs listing for users
|   |       |   └── show.blade.php       # Job details + apply form
|   |       └── applications/
|   |           └── index.blade.php      # User's applied jobs list
|   └── layouts/               # Reusable layouts
|       ├── app.blade.php
|       └── admin.blade.php
|
├── routes/
|   └── web.php                # Defines routes (admin & user
```



## (A) Admin Panel

- **Job Management:** Add, edit, and delete job postings.
- **Applications Management:** View applications submitted by users.
- **Dashboard:** Overview of posted jobs and received applications.

### Admin Panel

POF Job Portal

JobsAdminApplications

Post a New Job

Job Title

Software Engineer

Description

We are seeking a highly motivated and skilled Software Engineer to join our dynamic team.

Location

Islamabad

Type

Full-time

Post Job

POF Job Portal

JobsAdminApplications

Post a JobApplications

All Jobs

Title	Location	Type
Software Engineer	Islamabad	Full-time
Web Developer	Wahh Cannt	Remote

127.0.0.1:8000/admin/applications

POF Job Portal

JobsAdminApplications

Applications

ID	Job	Name	Email	Cover Letter	Resume	Applied At
5	Web Developer	Muhammad Arbaz khan	arbaz.mehsud@gmail.com	Having two year experience in web	<a href="#">View</a>	26 Aug 2025
4	Software Engineer	Saif Ur Rehman	saifedu449@gmail.com	i havving 2 year experience	<a href="#">View</a>	26 Aug 2025

## B) User Panel

- **Browse Jobs:** View a list of available jobs with details.
- **Apply for Jobs:** Submit applications with cover letters and resumes.
- **User Dashboard:** Track submitted applications.

### User Panel

POF Job Portal

Jobs

#### Available Jobs

**Software Engineer**  
We are seeking a highly motivated and skilled Software Engineer to join our dynamic team.  
**Location:** Islamabad  
**Type:** Full-time  
[Apply](#)

**Web Developer**  
javascript , laravel  
**Location:** Wahh Cannt  
**Type:** Remote  
[Apply](#)

← → ↺ 127.0.0.1:8000/jobs/3/apply

POF Job Portal

Jobs

#### Apply for Software Engineer

Saif Ur Rehman

saifedu449@gmail.com

I have two year experience

Choose file

Saif -CV.pdf

[Submit](#)

## *Chapter 5: Conclusion & Recommendations*

### *Conclusion*

The six-week internship at Pakistan Ordnance Factories (POF) was far more than a practical training period; it was a defining experience that bridged the gap between theoretical knowledge and real-world application. From the very first day, I was immersed in a professional environment that challenged me to not only apply the concepts I had learned in my computer science courses but also to develop a new set of skills essential for success in the IT industry. This internship provided a unique opportunity to understand the complete lifecycle of a web development project, from initial requirements and planning to collaborative execution and final deployment. It proved to be a pivotal step in my journey, transforming abstract academic concepts into tangible, professional outcomes.

My contributions to the job portal project were particularly impactful. I had the chance to work directly with modern web technologies, gaining valuable, hands-on experience with both front-end and back-end development. Specifically, my work with the Laravel framework solidified my understanding of its powerful architecture and systematic approach to web application design. Beyond merely writing code, I learned to appreciate the importance of clean, maintainable code, proper documentation, and the use of version control systems like Git for seamless teamwork. This experience demystified the complexities of a professional workflow and gave me the confidence to tackle real-world challenges, such as debugging complex functions and ensuring robust database integration.

Beyond the technical aspects, this internship was a masterclass in professional development. I discovered the critical importance of effective communication and teamwork. Working alongside experienced professionals, I learned how to clearly articulate ideas, provide and receive constructive feedback, and collaborate to solve problems efficiently. My problem-solving skills were also greatly enhanced as I learned to approach technical roadblocks with a systematic, logical mindset rather than through trial and error. Furthermore, I developed a strong sense of adaptability and resourcefulness, learning to quickly pick up new tools and technologies as the project demanded. These "soft skills" are not merely secondary; they are the foundation upon which technical expertise becomes a successful career.

## *Recommendations*

Based on my internship experience at Pakistan Ordnance Factories (POF), I would like to suggest the following recommendations for improving the internship program and making it more beneficial for students:

- **Provision of Stipend**
  - It is recommended that POF should provide a minimum monthly stipend of at least **Rs. 10,000** to interns.
  - A stipend will encourage students, reduce their financial burden, and recognize the time and effort they invest during the internship.
- **Accommodation for Distant Students**
  - Many interns come from cities far from Wah Cantt, which creates difficulties in managing daily travel and living expenses.
  - POF should arrange **hostel or accommodation facilities** for such students, ensuring they can focus more on learning rather than travel and lodging concerns.
- **Enhanced Practical Exposure**
  - Interns should be given more opportunities for **hands-on practical work** rather than only theoretical learning.
  - They should be allowed to see and understand the **different equipment, servers, and networking systems** used in the IT Department.
  - Practical exposure will strengthen their skills and prepare them for industry-level challenges.
- **Structured Internship Plan**
  - The internship program should follow a clear and structured roadmap, ensuring that every intern learns the fundamentals of front-end, back-end, database management, and frameworks.
  - Weekly evaluations or feedback sessions can help track progress and address difficulties.