

Irembo Internship Program Projects

IremboGov Product management internship project

IremboGov

IremboGov is the digital gateway to government services in Rwanda, and its mission is to improve citizens' experience with government services meaningfully. On IremboGov portals (web and USSD), citizens can request services such as birth certificates, passports, etc..

Problem description

As we transition from version 2.0 to 3.0 of our platform, requirements documentation for services currently on IremboGov 2.0 must be adapted to a new template that will enable easy migration. With more than 100 services spanning across 9 workflows, We need to diligently carry out the work and propose revamps where necessary.

Scope of work

- Growing a good understanding of the IremboGov platform
- Conduct requirements documentation for a pipeline of existing services
- User experience research for new services
- Identifying and designing new workflows for the new services

Skills required for the internship position

- Design thinking
- Software requirements documentation
- Problem-solving
- Communication
- Teamwork
- Drive

Key deliverables

- Quality service requirements are documented for all services currently on IremboGov 2.0
- 20 new services workflows are designed & requirements documented
- 100% Talent LMS Service courses for 3 Gold Partners (MINALOC, RNP & DGIE) with a 95% minimum score are completed

IremboPay Product management internship project

IremboPay

IremboPay is an e-payment solution that enables organizations to securely accept payments on their websites or services to citizens, while ensuring easy settlement of the payments collected.

The solution has enabled Irembo to be the preferred payment partner to the government of Rwanda when it comes to collecting payment for public services.

IremboPay aims at building **a seamless payments platform** that delivers great value to businesses and individuals and drives trust in **digital payments**.

Problem description

IremboPay still has some product debts to address, such as implementing a refund feature, etc.... The intern will help in the discovery, design and launch of new features and feature improvements.

Scope of work

- Growing a good understanding of the IremboPay platform
- User experience research for new features and feature improvements for IremboPay
- Document new feature and feature improvements requirements
- Improve the IremboPay experience for our clients

Skills required for the internship position

- Design thinking
- Software requirements documentation
- Problem-solving
- Communication
- Teamwork
- Drive

Key deliverables

- 100% of IremboPay product areas requirements are reviewed & key learnings about the product are documented & presented.
- 5 key product debts are addressed: problem/opportunity documented, user mapped, solution designed & requirements for the solution are documented.

- 2 new features are discovered: problem/opportunity documented, user mapped, solution designed & requirements for the solution are documented.

IremboPay Software Development Internship project

Problem description

IremboPay Wallet

As any other payment platform, IremboPay provides payment solutions to a large number of clients, this means that we handle a lot of transactions between our clients (Merchants), their customers, and several banks. There is a lack of an accurate way to track our client's money movement through the platform. We need to build a feature to solve this problem and provide visibility to our clients.

Scope of work

- Design of the proposed solution: The intern will work on the technical design of the proposed solution using standard practices in software engineering.
- Implementation of the proposed solution: The intern will develop the designed solution using software development industry standards.

Skills required for the internship position

- Critical thinking.
- Familiarity with programming languages such as Java, Javascript
- Good communication skills, both written and verbal.
- Ability to work independently and manage their own time effectively.

NB: We currently use **Java** and **JavaScript** as our main languages in a microservice architecture but feel free to be innovative.

Key deliverables

- A well-designed and implemented solution.

IremboGov application Security internship project

Problem Description:

The IremboGov platform is an important tool for the government of Rwanda to deliver services to its citizens. However, like any web application, it may be vulnerable to security threats such as injection attacks, authentication issues, and insecure API endpoints. To ensure the security of the platform, an intern will be tasked with testing it for potential vulnerabilities and providing recommendations for remediation.

Scope of Work:

The intern will be responsible for the following tasks:

- Testing the security of the IremboGOv platform (both web and APIs) using tools such as Burp Suite, OWASP ZAP, and Nmap.
- Identifying potential vulnerabilities such as injection attacks, authentication issues, and insecure API endpoints.
- Learning and applying application security skills using the application.security training platform and Portswigger.
- Document findings in a report that includes a description of the vulnerabilities found, potential risks associated with them, and recommended remediation steps.
- Communicating findings and recommendations clearly and effectively to stakeholders.

Skills Required for the Internship Position:

The following skills will be required for the intern to succeed in this project:

- Knowledge of web application security principles and common vulnerabilities such as SQL injection, cross-site scripting (XSS), and cross-site request forgery (CSRF).
- Experience with testing web applications using tools such as Burp Suite, OWASP ZAP, and Nmap.
- Familiarity with programming languages such as Java, python
- Good communication skills, both written and verbal.
- Ability to work independently and manage their own time effectively.

Key Deliverables:

The following deliverables are expected from the intern :

- A report detailing the identified vulnerabilities and suggested remediation steps, along with the associated risks.
- A presentation of the findings and recommendations to stakeholders, including the development team and security team.

- Any supporting evidence gathered during testing, such as screenshots or code snippets.

IremboGov software development internship project

IremboGov Airport Agent Portal Revamp

IremboGov currently has agents at airports, these agents assist travelers with paying for fees such as visa on arrival fees as well as other required payments. These agents use a software to assist travelers to pay these fees. However, the current software lacks all necessary features to efficiently manage the payment process, leading to long queues and delays. There is a need to update the software system to improve the payment process and streamline operations, resulting in agents being able to provide better service to travelers, leading to a more positive experience for everyone involved.

Scope of work

- **Requirements gathering:** Working alongside our product team to Gather requirements from the stakeholders to identify the features and functionalities needed in the software system. This can include identifying the types of payments that need to be processed, the languages the system needs to support, and any integration needs.
- **Design and architecture:** Design the software system and determine the architecture that will be used, taking into consideration the requirements identified during the requirements gathering phase. This includes identifying the various components of the system, defining the data models and data flow, and designing the user interface.
- **Development:** Develop the software system, implementing the features and functionalities identified during the design phase. This includes integrating with other systems as needed and implementing any security measures required & developing a user interface that fits the needs of the users of the software.
- **Testing:** Conduct thorough testing of the software system alongside our QA team to ensure that it is functioning as intended and meets the requirements identified during the requirements gathering phase. This includes both functional and non-functional testing, such as usability testing, performance testing, and security testing.
- **Deployment:** Working alongside our DevOps team to deploy the software system, ensuring that the necessary infrastructure is in place to support the system.
- **Documentation:** This involves writing all documents eliciting the setup of the project, technical designs & technical manual. This may involve writing a user manual that will help in training the agents on how to use the system.
- **Maintenance:** Provide ongoing maintenance and support for the software system, including bug fixes, upgrades, and enhancements as needed.

Key deliverables

- An efficient & innovative feature set

- A well-documented technical design
- A fast & well-implemented solution

IremboPay Infra & Data internship project

Problem description

IremboPay is in the process of accelerated growth and with that, we need to ensure a robust, resilient, and scalable infrastructure. Developers need to release, test, and evaluate the performance of the various microservices faster than before. The intern will help in reviewing and improving the current deployment of IremboPay system, improve on the CI/CD pipelines as well as support developers in day-to-day operations.

Scope of work

- Review and understand the components of IremboPay system and how they are interconnected.
- Review and improve existing application helm charts as well as the CI/CD pipelines for all IremboPay environments.
- Learn new technologies quickly, including topics like container orchestration, container registries, container build strategies, microservices, etc.
- Support software development teams e.g. by enabling continuous integration and infrastructure self-service.
- Write effective documentation for both new and existing systems.
- Work both independently and collaboratively in cross-functional teams.

Skills required for the position

- Critical & Analytical thinking.
- Eager to learn.
- Familiarity with programming languages such as Java, and Javascript.
- Good communication skills, both written and verbal.
- Ability to work independently and manage their own time effectively.
- Components of IremboPay system and how they are interconnected.
- Review and improve existing application helm charts as well as the CI/CD pipelines for all IremboPay environments.
- Learn new technologies quickly, including topics like container orchestration, container registries, container build strategies, microservices, etc.
- Support software development teams e.g. by enabling continuous integration and infrastructure self-service.
- Write effective documentation for both new and existing systems.
- Work both independently and collaboratively in cross-functional teams.

Skills required for the internship position

- Working knowledge of git version control
- Good written and verbal communication skills
- Problem-solving attitude
- Collaborative team spirit
- Willingness to learn

Key deliverables

- Improve the helm charts and CI/CD pipelines for IremboPay applications
- Integrate the CI/CD pipelines with external tools to test and scan code for vulnerabilities before deployment
- Develop scripts to automate manual processes
- Offer support to the IremboPay development team in day-to-day operations

IremboGov Infra & Data [DevOps] internship project

Problem description

The intern will play a critical role in improving the continuous integration pipelines for irembogov 3.0 by optimizing our workflows, reducing pipeline execution time, and proposing the right quality gate rules and thresholds. This will help us ensure the quality and reliability of our product.

Additionally, the intern will contribute to deploying and maintaining services on our Dev and Staging environments, including migrating all Helm charts to ArgoCD to enforce GitOps culture.

Scope of work

Day-to-Day activities:

- Automating and improving our CI/CD pipeline.
- Building and supporting our development tools using technologies like Git/Docker/kubernetes
- Work with Infra team members to troubleshoot and resolve issues in our dev, and staging environments.

Skills required for the internship position

Experience coding Java, Python, Go, JavaScript, C++, or similar Experience using a version control system (Git) Knowledge on Linux OS and comfortable playing with the terminal Knowledge on containerization technologies (Docker) Good written and verbal communication skills.

Key deliverables

- Improved CI pipeline for Gov3.0
- Quality gate rules defined for Gov3.0
- Ensure that all services deployed through Helm charts are visible and being managed using ArgoCD.
- Document their learning journey