



EMPOWERING REFUGEE TALENT: A DIGITAL PLATFORM FOR ADVANCING EDUCATION AND EMPLOYMENT OPPORTUNITIES FOR COMPATANT INDIVIDUALS.

BSc. in Software Engineering

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Declaration

I, Vincent TWIZERE, hereby declare that this research is my original work (except where acknowledgements indicate otherwise), and neither any part of it nor the whole work has been, is being, or is to be submitted for any other degree in this or any other university.

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Abstract

In Rwanda's refugee camps, thousands of talented and skilled youth struggle to continue their education and get employment opportunities despite their potential. Refugees face significant barriers such as limited awareness of available scholarships, lack of digital infrastructure, and insufficient platforms to showcase their talents or connect with sponsors and employers. Even when students excel in national examinations, many cannot pursue higher education due to the lack of funding or guidance. Similarly, skilled individuals remain unemployed due to systematic challenges like strong competition from the citizens. This research aims to develop a digital platform specifically designed to support refugees, enabling them to track opportunities, receive guidance, and connect with sponsors and guidance directly. The platform will track the student's performance and talents and connect them with sponsors, mentors, and potential employers or investors. This study shows the need for this solution by addressing the gap in the current system, like the lack of coordinated talent tracking, and proposes a software-driven solution as a sustainable solution.

Keywords: Refugee Talent, Empowering, Digital Platform, Education, Employment, Competent Individuals.

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NGOs: Non-Governmental Organizations

UNHCR: United Nations High Commissioner for Refugees
IOM: International Organization for Migration
WFP: World Food Programme
REFUNITY: Refugee Unit
UI: User Interface
UX: User Experience
MVP: Minimal Viable Product
TBB: Talent Beyond Boundaries
UNICEF: United Nations Children's Fund
GDPR: General Data Protection Regulation
RWF: Rwandan Francs
RDBMS: Relational Database Management System
API: Application Programming Interface
UML: Unified Modeling Language

CHAPTER ONE: INTRODUCTION

1.1 Introduction and background

As of 2024, over 100 million people around the world have been forced to leave their homes because of war, violence, or natural disasters, creating the most pressing humanitarian challenges in modern history (UNHCR, 2024). As a result, those people end up becoming refugees in neighboring countries or other countries where they can get peace. Among those refugees, there are a lot of people who are educated and talented, and their ability to learn and work can positively contribute to society when given the right opportunity and support. Sadly, these talents are often ignored or forgotten.

Without empowering them, they remain dependent on basic aid provided by NGOs like UNHCR, WFP, and others. Refugee empowerment goes beyond providing immediate needs like food and shelter, but rather creates opportunities that allow them to take control of their future. This includes access to quality education, employment opportunities, and connections to mentors and investors. Therefore, empowering refugees will help them to grow, contribute to society, and live a life of purpose.

Today, the use of technology in addressing society's problems has been increasing more than ever; therefore, the use of digital platforms designed for refugee communities can address different challenges faced by refugees in their everyday lives, sharing information, learning, building connections with mentors, employers, and investors, and reuniting family members. On the other hand, education and employment can be the best way of empowering refugees, as they can use their skills and talents for personal growth and society in general. However, employment opportunities and continuing education remain at the top of the challenges in refugee camps due to the systematic barriers such as lack of visibility, limited financial support, and poor access to career guidance.

This issue is particularly evident in Rwanda, which provides a perfect case study. As of 2023, Rwanda hosted over 135,000 refugees and asylum seekers; the majority of those refugees come from Burundi and the Democratic Republic of Congo (UNHCR, 2025). These refugees are spread across different camps, including Mahama, Kigeme, Mugombwa, Kiziba, and Nyabiheke. Those camps have become home to young and competent individuals who are academically talented and skilled. However, they still find it hard to continue their education and get jobs. A study by Karinganire (2024) reports that over 70% of refugee students are unable to continue in university due to financial and systemic challenges, even after excellently passing Rwanda's national exams. In the same way, many skilled people in refugee camps are not employed due to the lack of visibility, recognition, and connections to the labor market. Over time, these build up; each missed opportunity, each closed door, makes them feel like their efforts don't matter. Therefore, without a clear and consistent way of tracking competent individuals and connecting them to the right opportunities, a lot of talent will remain in the shadows.

This research proposes a specific digital platform to empower refugee youth and skilled individuals by supporting continuous education and employment opportunities through a digital platform designed for refugee communities.

1.2 Problem Statement

Platforms such as REFUNITY and Talent Beyond Boundaries have made an effort in reuniting separated families and providing job placement services to refugees but fall short in supporting continuous education, local job matching (REFUNITY, 2022; Talent Beyond Boundaries, 2023). This gap leaves a lot of talent underutilized and disconnected from necessary opportunities.

This research aims to develop a specific platform for refugees that tracks academic performance, skill development of talented individuals, and connects them to relevant sponsors, mentors, and employers.

1.3 Project's Main Objective

In response to the existing problem of identifying and supporting talents in refugee camps. This research aims to develop a specific digital platform to empower refugee youth and skilled individuals by supporting continuous education and job placement by tracking competent individuals and connecting them to the relevant opportunities.

1.4 Specific objectives

Based on the main objective of the project, the following specific objectives are necessary in building and testing our digital solution and should be achieved:

Conducting a comprehensive needs assessment will help to find out the specific education gap, challenges in job matching, and the level of digital literacy in selected camps.

Reviewing existing literature and platforms related to refugee education and job matching in refugee camps.

Identifying and analyzing key requirements and functionality needed for a digital platform to effectively track academic performance, matching competent individuals with relevant scholarships and job opportunities.

Designing and developing a friendly user interface (UI/UX).

Developing a prototype or minimum viable product (MVP) of the proposed digital platform's basic functionalities, such as user profiles, academic performance tracking, and connecting talents to mentors and sponsors for initial testing in a selected refugee camp.

Evaluating the impact of the proposed digital platform in addressing issues like talent visibility, continuous education, and employment opportunities among youths in refugee camps, based on user feedback and analysis of the refugee camp environment.

1.5 Research Questions

The questions below will guide this research and help to find out the challenges faced by refugees in continuing education, finding a job and investigate how a new digital platform can effectively address this problem and support people in refugee camps.

What are the key educational and employment challenges faced by skilled and talented refugees that can be addressed by a digital platform?

What are the existing digital and non-digital solutions that support refugee education and employment in Rwanda?

What are the strengths and weaknesses of the already existing initiatives, and what features can be integrated into the new platform to ensure competent individuals in refugee camps are better served?

What are the potential impacts of the digital platform in improving refugee talents' visibility and connecting refugees to education and employment opportunities?

What are the possible ethical considerations and data privacy challenges while designing and implementing a digital platform that collects and manages sensitive information like personal data?

How can a digital platform effectively help to connect refugee talents, educational institutions, and potential employers within and outside Rwanda?

1.6 Project Scope

The research will focus on refugees in Mugombwa and Kigeme camps, targeting one hundred skilled and talented refugees aged between 18 and 35 over two months. This will help us to find feedback from a realistic number of users, and this will help to find the effectiveness of the platform in tracking academic performance and skilled individuals, and connecting them to the available relevant opportunities.

1.7 Ethical considerations

Research involving vulnerable populations, such as refugees, inherently carries significant ethical responsibilities, demanding the highest standards of integrity, respect, and a primary focus on participant welfare. This proposal is committed to upholding these principles throughout all phases of the study, from design and data collection to analysis, reporting, and platform deployment. Our ethical framework is designed to protect the rights, dignity, and well-being of all individuals involved.

Data Management and Storage: Given the extremely sensitive nature of data about refugees, stringent protocols will govern its management. All data will be collected only after obtaining explicit, informed consent from participants. Wherever feasible, data will be pseudonymized or fully anonymized to protect individual identities. Storage will be on secure, encrypted servers, protected by robust access controls, firewalls, and multi-factor authentication. Access will be strictly limited to authorized research team members on a need-to-know basis, protected by robust access controls and regular security audits. Data retention policies will adhere to ethical guidelines and relevant Rwandan legal requirements, ensuring data is not held longer than necessary for the research purpose.

Possibility of Discovering Anomalies in Existing Systems: Should the research process uncover any anomalies, flaws, inefficiencies, or biases within existing humanitarian aid, education, or employment systems, these findings will be handled with utmost responsibility and discretion. Such discoveries will be reported confidentially to relevant stakeholders (e.g., NGOs, government bodies) to facilitate constructive dialogue and systemic improvement. The objective will be to support positive change without compromising individual privacy or unjustly discrediting organizations or individuals.

High Possibility of Using Already Existing Algorithms or Code Snippets: Should the development of the digital platform necessitate the use of existing algorithms or open-source code snippets, each component will undergo thorough ethical scrutiny. This includes assessing for potential biases embedded within the algorithms that could inadvertently disadvantage specific demographic or ethnic groups or compromise data privacy. Transparency regarding the origin and functionality of such components will be maintained. Preference will be given to open-source tools where their ethical implications and security can be readily scrutinized.

Ethical Approval from the University and/or the Source where Data will be Acquired: Full ethical approval will be sought from the ALU ethical committee before commencing any data collection. Furthermore, recognizing the unique context of this research in Rwanda involving

refugees, explicit ethical clearance will also be obtained from relevant Rwandan national authorities, including governmental bodies responsible for refugee affairs. Crucially, direct ethical approval and collaboration will be sought from UNHCR Rwanda and other key humanitarian organizations operating in the specific refugee camps or urban areas that will be part of the study. This multi-layered approval process ensures adherence to both academic rigor and local humanitarian ethical standards.

Consideration for Elders and Juveniles: Special protective measures will be implemented for particularly vulnerable populations such as elders and juveniles (individuals under the legal age of consent as fixed by Rwandan law). For juvenile participants, informed consent will be rigorously obtained from their parents or legal guardians. Additionally, assent will be sought directly from the children themselves, where developmentally appropriate. Elders will be approached with profound cultural sensitivity, ensuring their participation is entirely voluntary, free from coercion, and that they fully comprehend the research's purpose and implications, potentially facilitated by trusted community leaders or culturally competent interpreters.

Research that may Lead to ‘Labeling’: The research design is meticulously structured to proactively mitigate any risk of stigmatization or negative "labeling." Any categorization of participants will be for analytical purposes only, utilizing aggregated and anonymized data. Findings will be presented in a manner that avoids individual identification or any form of negative characterization. During interactions, researchers will cultivate a non-judgmental and empathetic environment to prevent participants from feeling compelled to make self-deprecating or abnormalizing statements.

Research that may Hurt Employment or Social Standing: Protecting participants from any adverse impact on their employment status, social standing, or access to services is paramount. Participation in the research, or subsequent use of the as-yet-to-be-developed platform, will be presented as entirely voluntary, with explicit assurance that it carries no implications for their refugee status, eligibility for aid, or future opportunities. Data shared will not be used in any way that could jeopardize their legal standing, access to humanitarian assistance, or social reputation. Anonymity and pseudonymity will be prioritized in all data handling and reporting.

Research Involves Access to Records of Personal or Confidential Information: Access to any personal or confidential information will only occur with explicit, granular, and informed consent from the individuals concerned or through authorized and anonymized data sharing agreements with partner organizations that already hold such data (e.g., UNHCR), provided all necessary ethical and legal clearances are in place. Robust data security measures, as detailed under data management, will be applied.

Research Involves a Significant Element of Deception: This research is predicated on the principles of transparency and honesty. No element of deception will be employed at any stage of the study. Participants will be fully informed about the research's purpose, methodologies, procedures, potential benefits, and any foreseeable risks before they provide their consent to participate.

Research Involves Sensitive Topics: Researching the lives of refugees inherently involves engagement with sensitive topics, including experiences of violence or harm, legal status, political behavior, gender identity, and ethnic status. All researchers will receive mandatory training in trauma-informed approaches, active listening, and culturally sensitive communication. Participants will be explicitly informed of their right to withdraw from the study at any time, skip any question they feel uncomfortable answering, or request a break, all without penalty or explanation. Appropriate referral pathways to local psychosocial support services will be established and offered discreetly should any participant experience distress during their involvement.

Local or Regional Regulatory Guidelines that You are Adhering to: This research will strictly adhere to all applicable Rwandan national laws and regulations concerning data protection, research ethics, and refugee rights. This specifically includes **Rwandan Law N° 058/2021 of 13/10/2021 on the protection of personal data and privacy**. Furthermore, the study will rigorously align with international best practices and guidelines for research involving refugees, such as those established by the **UNHCR's Data Protection Policy** and core principles derived from the **General Data Protection Regulation (GDPR)**, particularly concerning informed consent, transparency, data minimization, data security, and data subject rights. Our commitment extends to respecting cultural norms and local community leadership structures throughout the research process.

1.8 Significance and justification

Due to insecurity around the world, different countries are going to war, which increases the number of refugees day by day. As a result, a lot of skilled and talented refugees find it hard to get access to employment opportunities or continuing education and are dependent on aid to survive since they are unable to utilize their skills to make their living and have control over their future. Traditionally, there have been some initiatives that have been made to support education and employment that heavily rely on manual systems, especially the use of physical notice boards, or word-of-mouth information, which remains the common way of information and opportunities in many camps. As a result, competent individuals may find information about opportunities too late, and this causes many people to miss deadlines for scholarships, job openings, or training programs. Therefore, a lot of competent individuals lose a life-changing opportunity because they didn't get the right information at the right time.

This project will approach this by building a special platform for refugees that will track academic performance and skilled and talented people and connect them to scholarship opportunities, job training, mentors, and employment opportunities so that they can truly show their talents to the world. This solution will help competent refugees to use their skills to earn a living instead of depending on aid, contributing to the economy of the host community and the country in general. Furthermore, this platform will help organizations and sponsors find smart

and efficient ways to find talent and match them to the available opportunities, leading to better coordination and long-lasting solutions.

1.9 Research Budget

The table below shows the estimated amount of money required to implement the proposed research project successfully within Mugombwa and Kigeme refugee camps in two months. All figures are estimated and presented in Rwandan francs (RWF). Furthermore, the estimated amount may be refined based on local market analysis.

Project Duration: 2 months

Target participants: 100 skilled and talented refugees aged 18-35.

Geographical Focus: Mugombwa and Kigeme Refugee Camps in Rwanda.

Category	Sub-category	Estimated Cost (RWF)	Notes
Personnel	Research team (Salaries/Fees)	200,000	This is the cost of research assistant salaries for the project duration.
	Participants' Compensation	100,000	Payments to the refugees for their contribution to the research.
Travel	Kigali to camps	10,000	This is the cost of transport from Kigali to those refugee camps
Equipment	Software and Licenses	150,000	This is the cost of any software for the project, such as data analysis software and collaboration tools.
	Hardware	2,000,000	This is the cost of any hardware requirement that will be needed for collecting data, user testing.

			Example: computer, tablet
Communication	Airtime and internet	60,000	These are the phone calls and internet costs needed during the project time.
Other direct costs	Ethical Review	50,000	This is the cost that will be needed for ethical approval.
Other indirect costs		300000	This is the money that will be needed during the project time, such as rent and utilities
Total Project Budget		2,870,000	The sum of all categories.

1.10 Research Timeline

The table below shows the schedule of the research project, detailing key activities and how they will follow each other over the two months.

Phase	Activity	Duration (Weeks)	Month
Phase 1: Writing Research Proposal	<ul style="list-style-type: none"> ✓ Idea generation ✓ Abstract ✓ Chapter one ✓ Chapter two ✓ Chapter three 	2	Month 1 Week 1-2
Phase 2: Prototype development	✓ Figma design	4	Week 2-6

	<ul style="list-style-type: none"> ✓ Front-end development ✓ Backed development and Integration 		
Phase 3: Testing and Analysis	<ul style="list-style-type: none"> ✓ User testing and feedback collection ✓ Analyzing the collected data ✓ Final report writing 	2	Month 2 Week 6-8

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In reviewing the literature of this research, the main intention was to find the software-related solutions that support refugees' education, employment, and talent visibility. The goal was to find and analyze available digital platforms specifically designed to support refugees to have access to different opportunities, such as education and employment. While conducting this research, we used a systematic literature review to find the existing solutions through different platforms such as Google Scholar, Mendeley, SpringerLink, and ScienceDirect. Specific keywords used include refugee education, employment opportunities for refugees, and digital platforms.

In more than 20 resources that were initially found, only 12 peer-reviewed articles and technical reports were selected based on their relevance, recency, focus on refugee education, and employment opportunities for refugees.

2.2 Historical Background of the Research Topic

The problem of refugees has been increasing in recent years, with over 117 million people around the world living as refugees or internally displaced persons (UNHCR, 2024). In response, humanitarian organizations have helped refugees with immediate survival needs such as food, healthcare, and basic education. Often leaving long-term development, continuous education, and empowerment strategies. In this context, technology has become a promising tool to empower displaced populations, where software solutions have been helping with reuniting separated families and job placement. However, they fail to support continuous education, local job placement, and talent visibility.

2.3 Overview of Existing System

Due to the increase in the humanitarian problem all over the world, a lot of digital solutions have been developed to support refugee education and employment challenges among refugees. For example, Talent Beyond Boundaries (TBB) connects refugees with international employers, but it does not support local employment, as it only focuses on professional migration. Furthermore, UNHCR has partnered with several organizations, such as Coursera, to support education in refugee camps. Although those initiatives help refugees, tracking academic progress, local job matching, and scholarship opportunities are still problems.

2.4 Review of Related Work

Recent academic and institutional research has increasingly focused on the role of technology in supporting refugee populations, especially in the areas of education, employment, and skills development, to help refugees rely on themselves instead of relying on aid (UNICEF 2025; Bock et al., 2020). Furthermore, the study by Speed and Kulichyova (2021) provides a detailed examination of the instrumental role that specialized talent intermediaries play in the complex ecosystem of refugee employment. Their research, which included a single case study of a UK charitable organization supporting academics in exile (the Council for At-Risk Academics), delves into how these intermediaries facilitate both access to and the ongoing development of talent pools comprised of forcibly displaced individuals.

The author shows that specialized organizations are necessary to connect refugees to pursue international opportunities. Furthermore, their research shows that specialized talent intermediaries are effective in addressing the unique challenges faced by refugees in talent development and integration into the workforce.

Furthermore, a review of platforms such as ScholaX and Bridge for Billions (BusinessDay, 2021) shows that while those platforms provide mentorship and entrepreneurship support, their services are designed for the general population, which does not address the unique needs faced by refugees in camp settings, such as tracking undocumented skills and linking users to scholarships based on performance. Springer and IEEE sources also present case studies of mobile job-matching tools and e-learning portals used in humanitarian contexts. However, they rarely combine the core elements of performance tracking, personalized opportunity matching, and localized accessibility, all of which are critical in Rwanda's camp-based settings, and this highlights the need for a localized platform based on unique challenges faced by refugees in Rwanda's camp settings.

Although those initiatives help refugees get access to mentorship and job opportunities, they fail to track academic performance, local job matching, and scholarship opportunities, which shows the gap in existing digital solutions, which this research aims to address through the development of a digital platform designed specifically for talented refugee youth and skilled individuals in Rwanda's camps.

2.4.1 Summary of Reviewed Literature

The research about the use of digital solutions to support refugees and internal migration shows an increase in recognizing the ability of technology to help refugees increase their potential and go beyond relying on humanitarian aid towards fostering long-term empowerment, education, and a promising future. This shift acknowledges that education is not merely a basic need but a fundamental driver of durable solutions for refugees, facilitating self-reliance and successful integration into host communities (IOM, 2025). However, the practical realization of this potential faces significant challenges, particularly in contexts like Rwanda, where refugee students often struggle to continue their education and integrate into the workforce without more robust, targeted support (Karinganire, 2025).

Existing research shows different applications of information and communication technologies (ICTs) in helping refugees and migrants. Bock, Haque, and McMahon (2020), in their review of numerous digital platforms, illustrate how ICTs are being utilized to provide various services. Their work also delves into the critical factors that contribute to the success of such initiatives, alongside crucial ethical considerations.

Although a lot of efforts are being made to support refugees using digital solutions, it is still a problem in many refugee camps to get access to stable internet connections, and low digital literacy in refugee camps makes it difficult for digital solutions to address the problem effectively.

In general, different reviewed literature shows that the use of technology can be a long-term solution in empowering refugees through education and employment. Current solutions lack an integrated system of connecting educational advancement, talent tracking, and local job

placement, which provides a gap in education and economic opportunities. Therefore, a digital platform designed specifically for refugees is needed to bridge this gap.

2.5 Strengths and Weaknesses of existing solutions

2.5.1 Strengths:

Most platforms provide online education and remote job matching.

Increased access to information that would be difficult to access without those platforms

The use of those digital platforms helps refugees connect with people around the world.

2.5.2 Weaknesses:

Lack of real-time and localized tracking of academic and professional talents

They did not support local job matching.

Poor talent visibility

They did not connect students directly to scholarship opportunities.

2.6 General Comment and Conclusion

Recently, a lot of research shows an increase in digital solutions that address the problem of refugee populations. But refugees still find it difficult to continue their education and access local job opportunities regardless of their talents and skills. Therefore, a new digital platform that addresses those systematic challenges. The proposed solution will be able to track academic performance, connect students to scholarship opportunities, and enhance talent visibility.

CHAPTER THREE: SYSTEM ANALYSIS AND DESIGN

3.1 introduction

This chapter outlines different approaches that will be used in the analysis, design, and implementation of the proposed digital platform for empowering refugee talents. It shows methodologies that will be used to ensure that the platform effectively addresses the challenges faced by refugees using different software engineering principles. Our solution will focus on user

needs and prioritize continuous feedback and adaptability as the situation in refugee camps keeps changing over time.

3.2 Research design

This diagram illustrates how the proposed digital platform will be developed using a combination of Scrum (Agile) methodology and Design Science Research (DSR) principles. It emphasizes **user-centered**, **iterative**, and **development-based feedback**, particularly suitable for refugee environments where conditions and needs can change quickly.

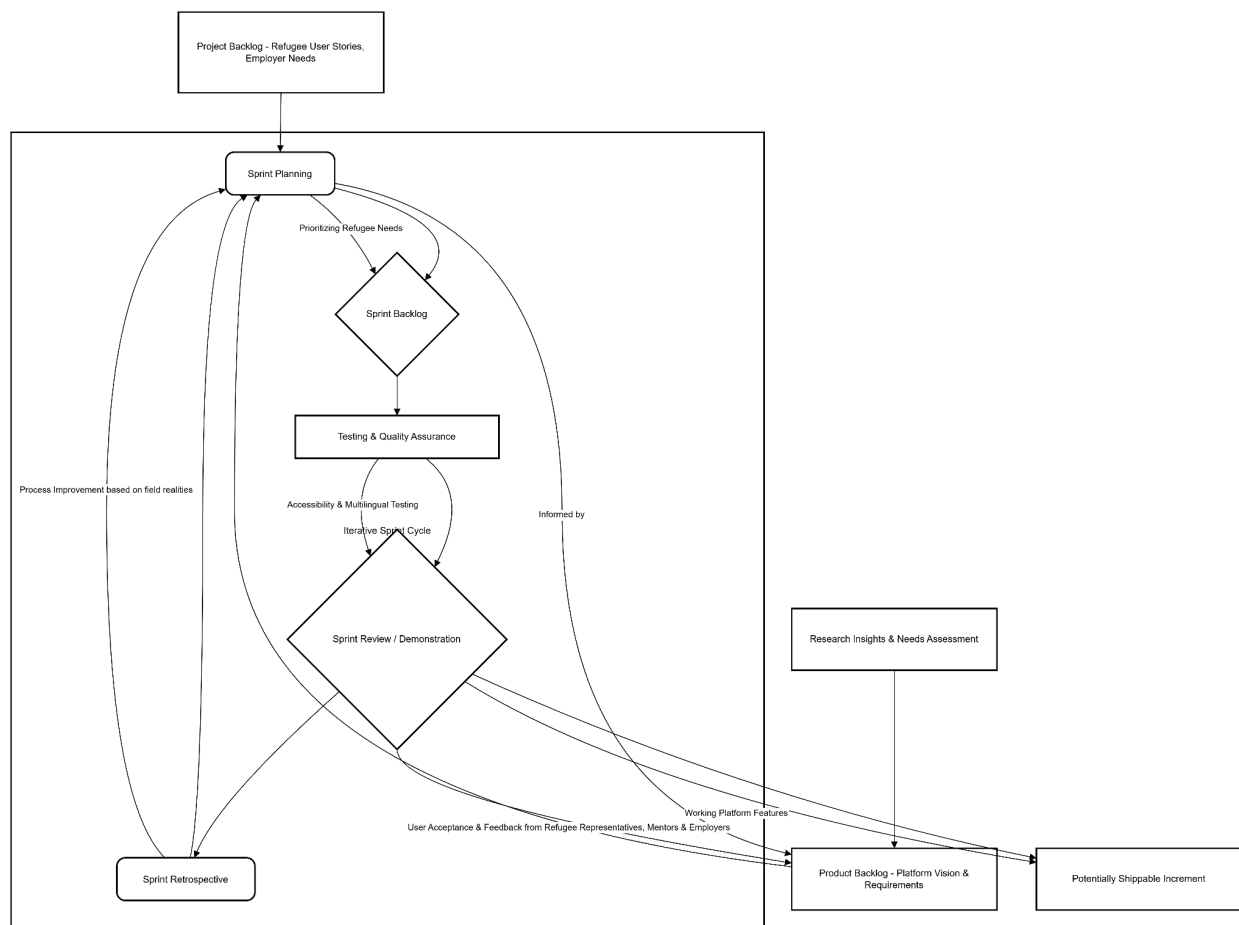


Figure 1: Development Model Diagram

The diagram would illustrate an iterative cycle. Each cycle (sprint) would begin with

1. Sprint Planning (involving user stories from refugees/employers/mentors).

This leads to **2. Design & Development** of specific platform features.

This increment is then subjected to **3. Testing & Quality Assurance**.

4. User Feedback & Demonstration (involving direct interaction with refugee representatives and other stakeholders to gather insights). This feedback feeds back into **1. Sprint Planning** for the next iteration, ensuring continuous refinement and alignment with real-world needs, while the overall process is guided by the **Project Backlog** (all desired features) and delivered as **Potentially Shippable Increments**.

3.4 System Architecture

The proposed digital platform will adopt a **client-server architecture** with a strong emphasis on modularity, scalability, and security.

- **Client-Side (Frontend):** This layer will comprise responsive web applications accessible via modern web browsers and potentially native or hybrid mobile applications (iOS/Android) to cater to various user devices. Key considerations will be user-friendly interfaces, multilingual support, and low-bandwidth design.
- **Server-Side (Backend):** This will host the core application logic, business rules, and API endpoints. It will manage user authentication, data processing, and interactions with the database. The backend will be designed to be robust and scalable to handle a growing number of users and data.
- **Database:** A robust relational database management system (RDBMS) will be used to store structured data, including user profiles, educational progress, skills inventories, job listings, and mentorship records. Data integrity, security, and efficient querying will be paramount.
- **APIs (Application Programming Interfaces):** RESTful APIs will facilitate secure communication between the frontend and backend and enable future integration with third-party services.

3.5 UML Diagram

Below is the class diagram of the proposed platform. It shows all the information that the platform will manage, such as users and courses (mentor sessions), opportunities, and how they are all connected to make the entire application work.

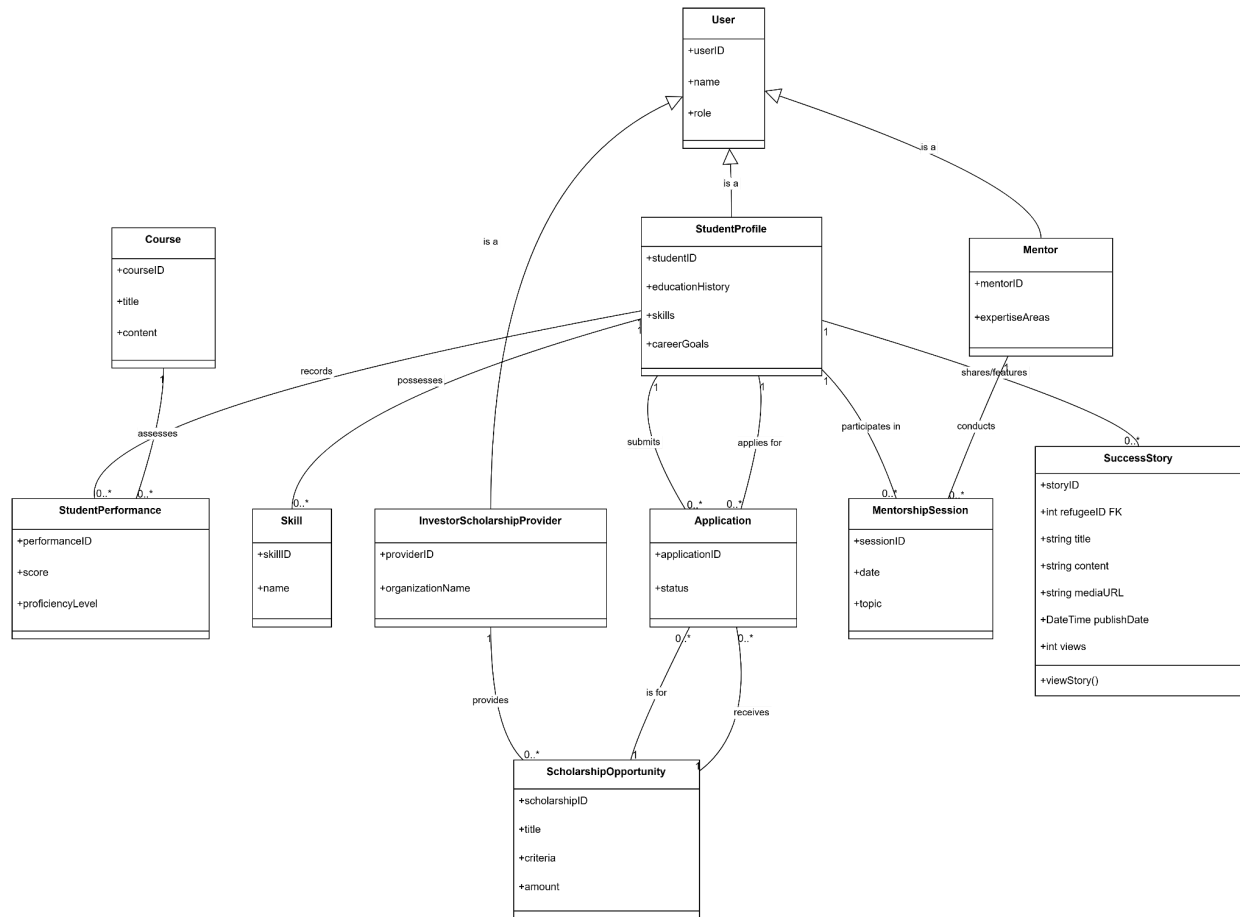


Figure 2: Application Diagram

3.6 Development Tools

For the successful development of the platform, the following tools and technologies will be used.

Stack	Technology
Front-end development	React.js, Tailwind CSS
Back-end development	Node.js, Express.js
Database	MongoDB
Version Control System	Git
Code Editor	VS Code

References

- Bock, J. G., Haque, Z., & McMahon, K. A. (2020, 10 1). *Displaced and dismayed: how ICTs are helping refugees and migrants, and how we can do better*. Information Technology for Development. Retrieved 6 16, 2025, from 10.1080/02681102.2020.1727827
- BusinessDay. (2021, April 13). *ScholarX partners Airtel to launch mobile learning platform*. BusinessDay NG. Retrieved June 17, 2025, from https://businessday.ng/news/article/scholarx-partners-airtel-to-launch-mobile-learning-platform/#google_vignette
- International Organisation for Migration (IOM). (2025). *Digital Inclusion*. International Organization for Migration (IOM). Retrieved 6 18, 2021, from <https://www.iom.int/digital-inclusion>
- Karinganire, E. D. (2024, 1 24). *Refugee students in Rwanda need more support to strive for a better future*. Refugee students in Rwanda need more support to strive for a better future. Retrieved 6 18, 2025, from <https://www.unhcr.org/rw/news/refugee-students-rwanda-need-more-support-strive-better-fu>
- REFUNITY. (2024). *Connecting Families*. Connecting Families. Retrieved June 2, 2025, from <https://refunite.org>
- Speed, F., & Kulichyova, A. (2021, 10 26). The role of talent intermediaries in accessing and developing refugee talent pools. *Journal of Organization: People and Performance*, 8(4), 407-426. 10.1108/JOEPP-01-2021-0023

Taftaf, R., & Williams, C. (2020). American Journal of Distance Education. *Supporting Refugee Distance Education: A Review of the Literature*, 34, 5-18.

10.1080/08923647.2020.1691411

Talent Beyond Boundaries. (2024). *Unlocking skilled migration for refugees*. Talent Beyond Boundaries. Retrieved June 17, 2025, from <https://www.talentbeyondboundaries.org/>

Ziaian, T., Miller, E., Anstiss, H. d., Puvimanasinghe, T., Dollard, M., Esterman, A., Barrie, H., & Stewart-Jones, T. S.-J. (2019, 7 31). Refugee Youth and Transition to Further Education, Training, and Employment in Australia: Protocol for a Mixed Methods Study. *JMIR Research Protocols*, 8, e12632. 10.2196/12632