

ICT2113 Software Modelling and Analysis

Project Specification (PS)

PD111 Job Portal Android App

Team 2634C

Name	Student No.
Cheng Yi Zhen	2402634
Derick Lee Cheng Zhang	2401154
Muhammad Lutfi Lais Bin Zaludin	2400969
Tan Yu Xuan	2402480
Uwais Alqarni Bin Abdul Rahman	2403169

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1. Company Details

1.1. Company Name

Uwais Hiring Agency Pte. Ltd.

1.2. Industry Sector

Recruitment & Human Resources (Specializing in Tech, Engineering, and Healthcare)

1.3. Mission

To streamline the recruitment lifecycle by connecting high-potential talent with top-tier organizations through precision matching and secure, efficient communication

1.4. Vision

To become Singapore's leading recruitment partner, recognized for reducing time-to-hire and eliminating manual redundancy in high-volume hiring sectors.

1.5. Core Business

Providing end-to-end recruitment services, acting as the intermediary between job seekers and employers in the Technology, Engineering, and Healthcare sectors.

1.6. Key Initiatives for New Software

The following key initiatives outline the strategic actions the organization intends to pursue through the adoption of the new software.

- Transitioning from manual, email-based resume sorting to an automated, algorithmic filtering system.
- Addressing the "overwhelming number of unfiltered resumes" (as noted in Company History 2025).
- Establishing a secure, mobile-first platform for real-time recruiter-candidate interaction.

1.7. Organisation Chart (Project Team)

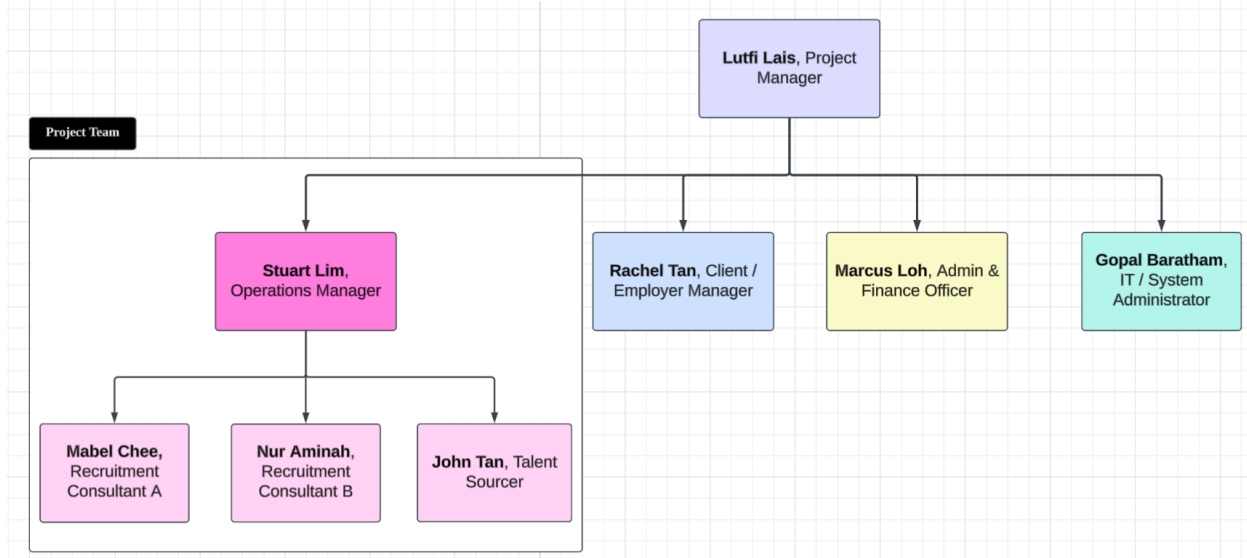


Fig.1 Organisation Chart

2. Project Details

2.1. Name

GotJob?



Fig.2 App Logo

2.2. Context

The following points summarise the historical development of Uwais Hiring Agency and provide the operational context motivating the need for the proposed system.

- **2022:** Uwais Hiring Agency was established as a recruitment firm by Uwais Group, relying primarily on manual, email-based resume submissions and recruiter-led screening.

- **2023–2024:** The agency experienced steady growth in both clients and applicants. Application volumes increased, but recruitment operations continued to depend on manual resume review, leading to increasing screening effort.
- **2025:** Uwais Hiring Agency expanded into the healthcare sector, resulting in a significant surge in job applications. The existing manual process became unsustainable, causing slow response times and increasing the risk of overlooking qualified candidates.
- **Present:** To address these limitations, Uwais Group requires a centralised Android-based recruitment system to replace email submissions. The system must automatically filter and rank candidates to reduce unqualified application “noise” and support two distinct user roles:
 - **Job Seekers:** Submit standardised profile data for algorithmic matching.
 - **Recruiters:** Manage job listings and review filtered candidate results.

2.3. Needs

The following needs capture the core operational and non-functional drivers motivating the development of the system.

- **Automation:** Reduce manual resume screening time by 50%.
- **Standardization:** Force candidates to input data (Skills, Experience, Salary) in a structured format rather than free-text resumes to enable algorithmic matching.
- **Engagement:** Real-time chat functionality to speed up interview scheduling.
- **Security:** Compliance with data privacy regarding candidate personal information (PDPA)

2.4. Stakeholders

The stakeholders for the Uwais Hiring Agency Job Portal System are identified based on their level of interaction and impact on the system.

- **Direct End Users** include job seekers, recruitment consultants, talent sourcers, and the IT/system administrator. These stakeholders interact with the system on a regular basis to carry out core operational functions such as job management, candidate sourcing, application processing, and system maintenance
- **Indirect End Users** consist of the client/employer manager and the admin and finance officer. While these stakeholders do not use the system on a daily operational level, they depend on system-generated outputs such as candidate profiles, job listings, placement records and reports to support their responsibilities
- The **Operations Manager** is classified as a beneficiary, as this role derives operational and managerial value from the system without direct involvement in daily usage.
- The **Project Manager** is the authority and decision maker, providing governance, approval, and strategic oversight of the system.

2.5. Goals/Objectives

The following goals and objectives define the intended outcomes of the project and provide clear criteria for evaluating its success.

- **Specific:** Develop and launch a native Android application integrated with an MSSQL backend that handles job posting, application tracking, and automated candidate scoring.
- **Measurable:** The system must be able to parse and rank 100% of incoming applications based on keyword and parameter matching (Experience, Skills, Notice Period).
- **Attainable:** Project scope is limited to Android Front-end and MSSQL Back-end (as per PD constraints).
- **Relevant:** Directly addresses the company's 2025 bottleneck of "unfiltered resumes."
- **Time-bound:** Completion of User Acceptance Testing (UAT) and final deployment within 6.5 months of contract signing.

2.6. Assumptions

The following assumptions were made with reference to the system being made.

- Users have an Android device with internet connectivity for normal operation.
- Job recommendations and candidate matching are performed using a rule-based approach derived from stored job criteria and user profile attributes.
- All recruiters are pre-vetted by Uwaishiring Agency, allowing them to create job postings and search for candidates on the platform without additional verification.
- Job seeker and recruiter accounts are distinct, with each user holding only one role per account.

2.7. Constraints

The following constraints define the key technical, operational, and financial boundaries within which the system must be designed and implemented.

- **Budget:** SGD 250,000 – 350,000.
- **Platform:** Native Android (Java/Kotlin) for users, MSSQL for DBMS.
- **Legacy:** Must import existing client data (if any) or start fresh with a specific schema.
- **Regulations:** Data collection must comply with PDPA laws
- **Security:** Data collected must be protected, and also conform to the company's retention and deletion policy

3. Business Operations Requirements

This section outlines the functional mandates and operational logic required to transition Uwais Hiring Agency from a manual, email-based workflow to a centralized, automated mobile platform. The requirements are structured according to the Project Requirements Tree, focusing on Level 0 (System) and Level 1 (Sub-functions) granularity to ensure clarity and traceability. These clauses define the essential interactions between Recruiters and Job Seekers, specifically addressing the core business objectives of precision candidate matching, structured data collection, and secure communication. Each requirement is accompanied by specific business rules and assigned a [precedence index](#) to guide the development priority, ensuring the delivery of a Minimum Viable Product (MVP) that effectively resolves the critical bottleneck of unfiltered resume volume.

All requirements have been derived from the requirements tree stated [here](#).

Code	Requirement Description	Precedence Index	Constraints / Notes
SC01	The system shall allow job seekers to create and maintain profiles and submit applications to job postings.	Essential	Users must review and confirm auto-populated profile data before publishing.
SC02	The system shall allow recruiters to create and manage job postings and review and shortlist applicants.	Essential	A job post cannot be "Closed" if there are pending interviews scheduled, unless cancelled.
SC03	The system shall enable job seekers and recruiters to discover relevant jobs and candidates.	Essential	None
SC04	The system shall facilitate communication between recruiters and job seekers.	Essential	None
RE01	The system shall comply with data protection and privacy regulations (PDPA) for collection, storage, and disclosure of personal data.	Essential	Must provide a "Delete Account" function that removes all personal data, including CVs and contact info.
RE02	The system shall safeguard personal data from unauthorized access.	Essential	Access control must be enforced; only authorized users can view profiles.

RE04	The system shall apply the retention policy for personal data such as profiles, applications, and chat messages.	Essential	Data must be retained and deleted according to PDPA retention guidelines.
RE07	The system assumes recruiters can access candidate profiles only under authorization conditions defined by policy.	Essential	Access is restricted to authorized recruiters only.

SC01.1	Allow job seekers to register for a user profile.	Essential	None
SC01.2	Allow job seekers to create and update personal details, skills, and work experience.	Essential	Must review auto-populated data before publishing profile.
SC01.3	Allow job seekers to upload CV/resume on their user profile.	Essential	Secure file storage; associate CVs with profiles; max file size 5MB.
SC01.4	Allow job seekers to search, view, and apply for jobs.	Essential	None
SC01.5	Allow job seekers to view submitted applications and their statuses.	Essential	None
SC02.1	Allow recruiters to manage and edit job postings.	Essential	Job cannot be "Closed" if interviews are scheduled, unless cancelled.
SC02.2	Allow recruiters to view applicants who have applied to their job postings.	Essential	Access restricted to authorized recruiters.
SC02.3	Allow recruiters to shortlist applicants.	Desirable	None
SC03.1	Allow job seekers to discover jobs via search or automated recommendations.	Desirable	None

SC03.2	Allow recruiters to discover candidates via search or automated recommendations.	Desirable	None
SC04.1	Allow recruiters and job seekers to exchange messages via chat.	Essential	None
SC04.2	Notify users when new chat messages are received.	Essential	None
SC04.3	Allow users to view recent chats and notifications.	Desirable	None

Table.1 Business Operations Requirements

4. Technical Requirements

Code	Requirement Description	Constraints / Notes
AR01.1	The system shall deliver a native Android client application that provides user interfaces for job seekers and recruiters.	Must operate on Android OS version 6.0 and above; compatible across varying screen sizes; main screens load within 3 seconds.
AR02.1a	The system shall deliver a backend application service implementing business logic and APIs for authentication, profiles, job postings, applications, search/matching, chat, and notifications.	Backend must support MSSQL; stable internet connection required for real-time features; integration limited to compatible third-party services.
AR02.2a	The system shall deliver a Microsoft SQL Server database schema package defining tables, relationships, constraints, and stored procedures.	Must enforce referential integrity among jobs, applications, users, and recruiters; support migration to updated schemas with rollback mechanisms.
AR04.1	The system shall deliver a versioned API interface specification defining communication between the Android client and backend services.	API must pass integration testing after any migration or upgrade.

AR04.1	The system shall provide an authentication service supporting login and registration for job seekers and recruiters.	Must enforce secure credentials and multi-factor authentication.
AR05.1	The system shall access MSSQL only through the middleware/API layer.	Middleware/API layer required; role-based access control enforced.
AR02.1	The system shall store users, recruiters, jobs, applications, chat messages, and notifications in MSSQL.	Database must support daily automated backups; migration to new servers without data loss.
AR02.2	The system shall enforce referential integrity among jobs, applications, users, and recruiters.	Referential constraints must be maintained; database must remain consistent.
RE03.1	The system shall hash and salt passwords before storing them in the database.	Must comply with industry-standard encryption protocols (SSL/TLS).
RE03.2	The system shall verify login using hashed password comparison and shall not expose stored credential values.	Multi-factor authentication recommended; secure storage of sensitive data.
RE05.1	The system shall validate file uploads against allowed file types.	CV/resume files only; must comply with secure file storage requirements.
RE05.2	The system shall reject file uploads that exceed the maximum file size of 5MB.	Applies to CV/resume uploads.
SC01.3a	The system shall provide secure file storage for CV/resume uploads and associate stored files with job seeker profiles.	Encryption at rest; linked to user profile; secure retrieval.

Table.2 Technical Requirements

5. Financial Requirements

5.1. Project Budget

The total estimated budget for this project is **SGD 250,000 – 350,000**.

This project is fully funded by Uwais Group, the parent holding company of Uwais Hiring Agency Pte. Ltd., as part of a group-level digital transformation and platform modernisation initiative following the agency's expansion into the healthcare recruitment sector in 2025.

The budget allocation has been approved by Uwais Group's executive management and released as an internal capital expenditure to support the development of a scalable, production-grade recruitment platform. The approved budget serves as the upper financial boundary for the project unless formally revised by the funding authority.

This budget is intended to cover:

- The development of a dual-user recruitment platform (job seekers and recruiters)
- Secure handling of sensitive personal and employment data
- Real-time communication and automated candidate filtering features
- Initial deployment, testing, and post-launch operational readiness

The approved budget shall serve as the upper financial boundary unless formally revised by the customer.

Cost Component	Percentage
Requirements Engineering & Analysis	15%
System Design & Architecture	15%
Application Development (Android & Backend)	35%
Testing, Validation & Quality Assurance	15%
Deployment, Documentation & Training	10%
Contingency & Risk Buffer	10%

Table.3 Budget Allocation

This allocation ensures sufficient emphasis on requirements quality, system reliability, and risk mitigation.

5.2. Payment Schedule

Payments shall be milestone-based and released only upon formal customer acceptance:

- 15% upon completion of Phase 1: Analysis and Design
- 25% upon completion of Phase 2: Core Development
- 30% upon completion of Phase 3: Advanced Features Development
- 20% upon completion of Phase 4: Testing and Quality Analysis
- 10% upon completion of Phase 5: Deployment and Handover

This structure protects the customer from premature financial exposure.

5.3. Operational & Infrastructure Costs

The project budget includes provision for:

- Cloud hosting and backend infrastructure setup
- Secure database provisioning
- Notification and messaging services
- Initial system monitoring and logging tools

Ongoing operational costs beyond the agreed maintenance period shall be treated as recurring expenses and excluded from this project budget.

5.4. Maintenance & Support Costs

The project shall include 6 months of post-deployment maintenance, covering:

- Bug fixes
- Minor performance optimisations
- Security updates
- Operational support

Extended maintenance or feature enhancements beyond this period shall require a separate maintenance contract.

5.5. Financial Risk Considerations

The project shall prioritise cost-effective and scalable solutions.

- Commercial third-party services must be approved before inclusion.
- Any requirement changes after PS approval must follow formal change control and cost re-evaluation.

5.6. Cost Justification (Business Rationale)

The investment is justified by:

- Reduced recruiter time-to-hire
- Improved candidate-job matching efficiency
- Centralised recruitment data management
- Long-term scalability for organisational growth

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6. Delivery Requirements

The project execution shall adhere to a 6.5-month timeline, utilising a modified Waterfall methodology. Deliverables are structured into graduated phases and milestones to ensure quality control, client feedback, and alignment with the financial payment schedule. For tracking and visualisation, refer to the [Gantt chart \(Fig. 3\)](#) in the addendum, illustrating tasks, milestones, dependencies, and key deadlines, providing a clear overview of the project schedule.

6.1. Delivery Milestones

Phase	Date range	Key work items (summary)
Phase 1: Analysis & Design	15 Jan–24 Feb 2026	Requirements elicitation & analysis, product specification finalisation, implementation plan, procurement of cloud/3rd-party services, database schema design, UI design & wireframing
Phase 2: Core Development	2 Mar–27 Mar 2026	Backend environment & cloud setup, user authentication module, job posting & management module, profile management & basic search
Phase 3: Advanced Features Development	6 Apr–22 May 2026	Automated resume parsing logic, algorithmic matching engine, real-time chat & notifications, full system integration
Phase 4: Testing & Quality Analysis	26 May–1 Jul 2026	Test case crafting, internal testing & bug fixes, UAT deployment, UAT feedback implementation
Phase 5: Deployment & Handover	6 Jul–24 Jul 2026	Production server migration (deployment), documentation (user manuals), soft launch & handover
Phase	Date range	Key work items (summary)

Phase 1: Analysis & Design	15 Jan–24 Feb 2026	Requirements elicitation & analysis, product specification finalisation, implementation plan, procurement of cloud/3rd-party services, database schema design, UI design & wireframing
Phase 2: Core Development	2 Mar–27 Mar 2026	Backend environment & cloud setup, user authentication module, job posting & management module, profile management & basic search

Table.4 Milestone Delivery Table

6.2. Document Submission

Upon delivery of the software, the documents listed in the table below are required to ensure a scalable, maintainable, and auditable system. These documents provide clear guidance for users, support system maintenance, and help verify that all functional and regulatory requirements have been met. Each document is linked to specific stakeholders to ensure relevance and accountability.

Code	Requirement Description	Stakeholder / Notes
SC01.D1	A user guide shall be produced for job seekers covering registration, profile management, CV upload, job search, and job application.	Job Seekers
SC02.D1	A user guide shall be produced for recruiters covering job posting management, applicant review, shortlisting, candidate search/matching.	Recruiters
SC04.D1	The system shall provide an in-app help section explaining chat usage and notification handling.	All Users
AR02.D1	A data dictionary shall be produced defining entities, attributes, and constraints for database tables and stored files.	IT / Database Team
RE01.D1	A privacy notice shall be produced describing what personal data is collected and how it is used and disclosed.	All Users / Legal
RE04.D1	A retention and deletion policy shall be produced describing how long data is retained and how deletion is handled.	Legal / IT

D01	A document shall be produced providing the test plan, test cases, and a traceability matrix that verify SC01-04 and RE01-08.	QA / Testing Team
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Table.5 Document Submission

7. Sign-Off

Project Specification (PS)

Sign-off

Authenticator Signature: UWAIS

Designated Approvers (not yet signed): NIL

8. Addendum & Attachment

Appendix A Diagrams

Gantt Chart

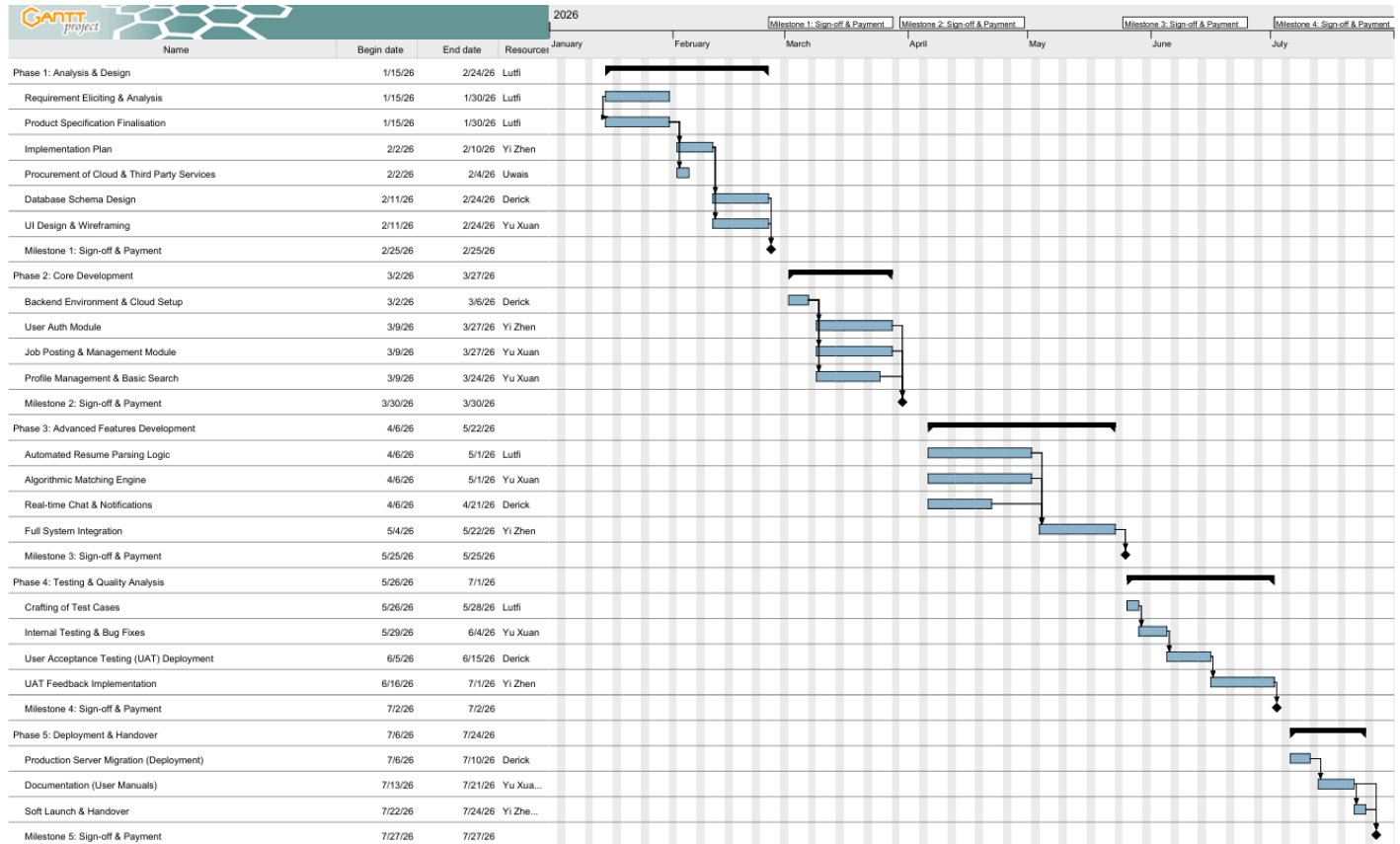


Fig.3 Project Gantt Chart

As is & To-Be Models

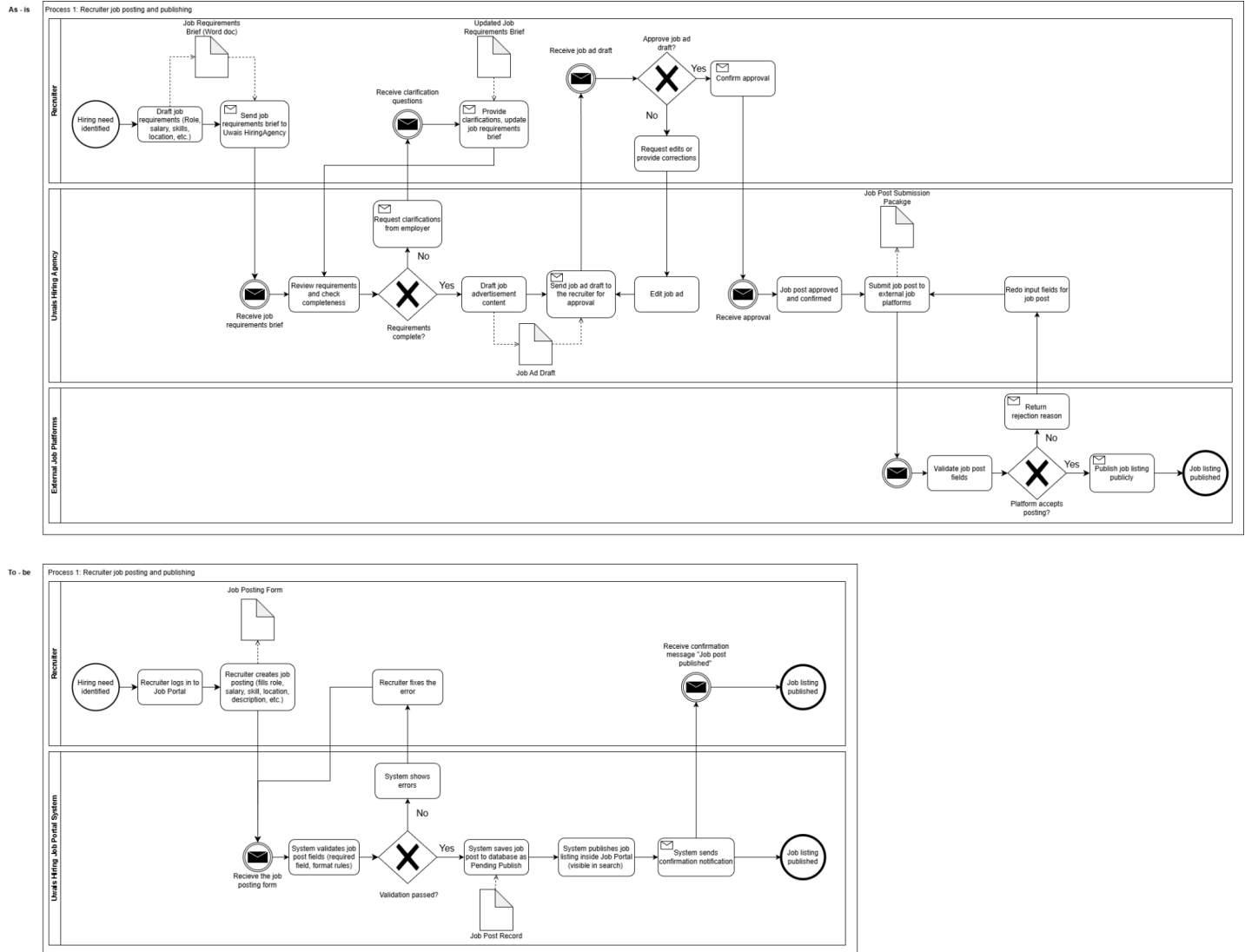
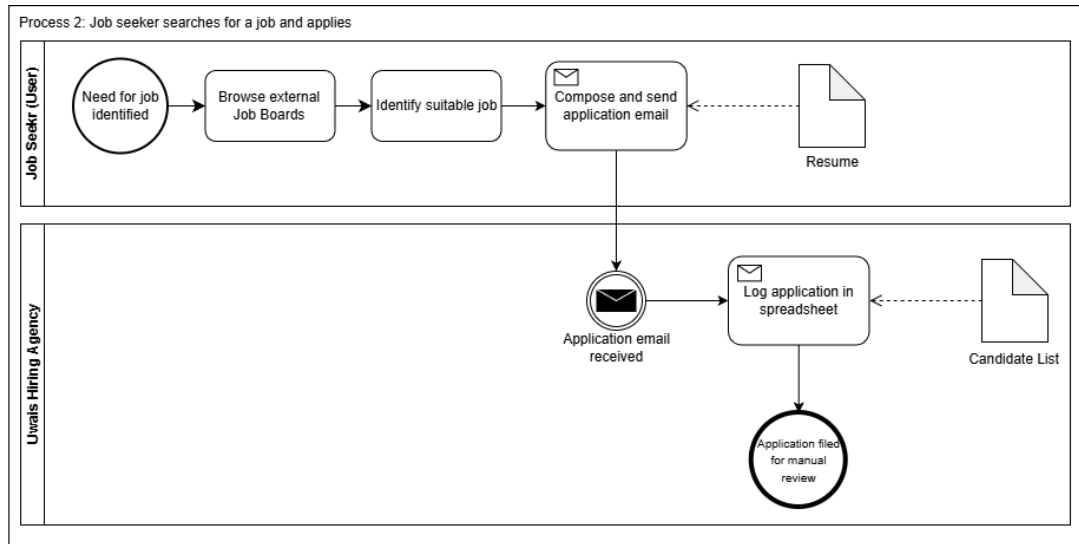


Fig.4 Process 1: Recruiter job posting and publishing

As - is



To - be

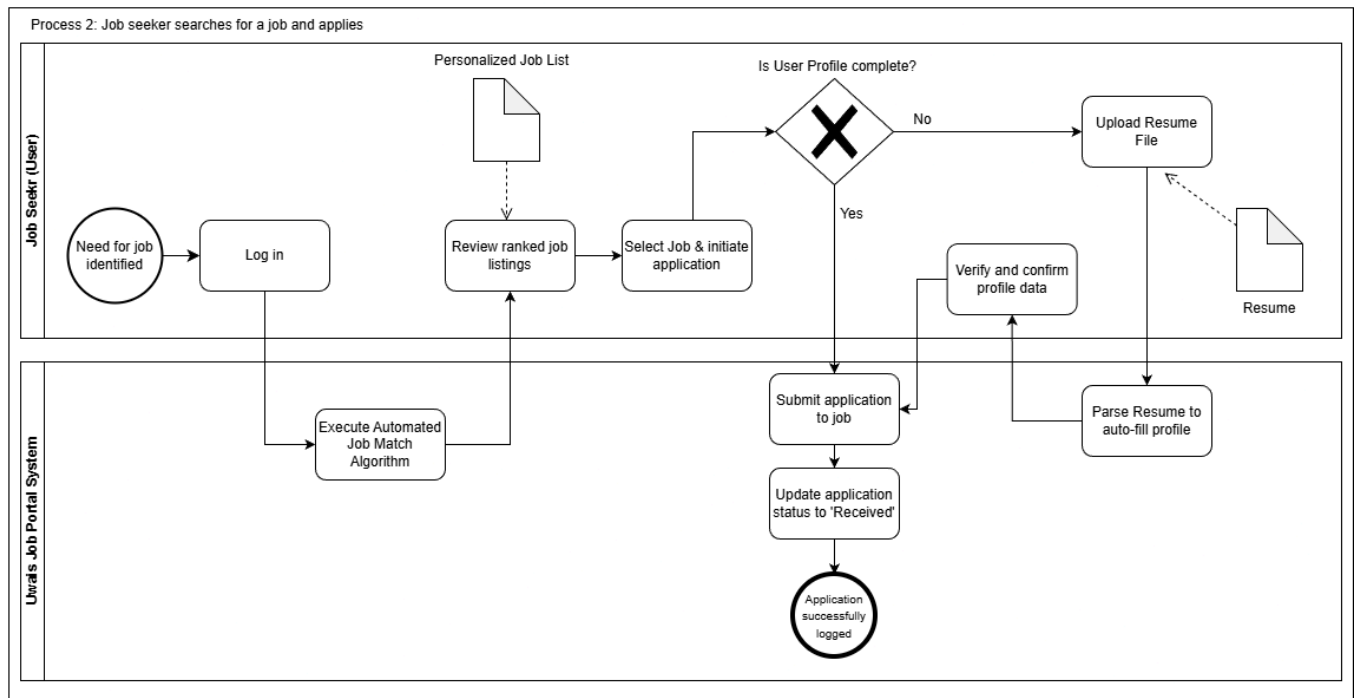
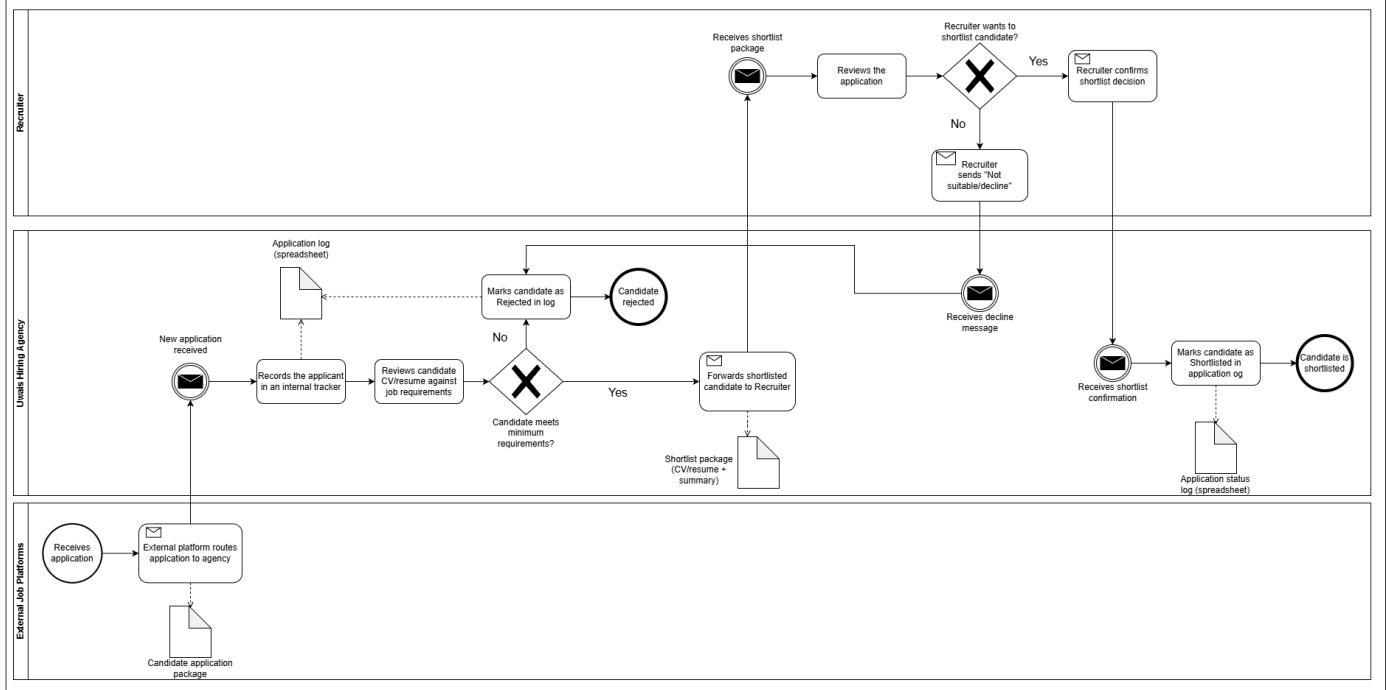


Fig.5 Process 2: Job seeker searches for a job and applies

As - is Process 3: Recruiter screening and shortlisting an application



To - be Process 3: Recruiter screening and shortlisting an application

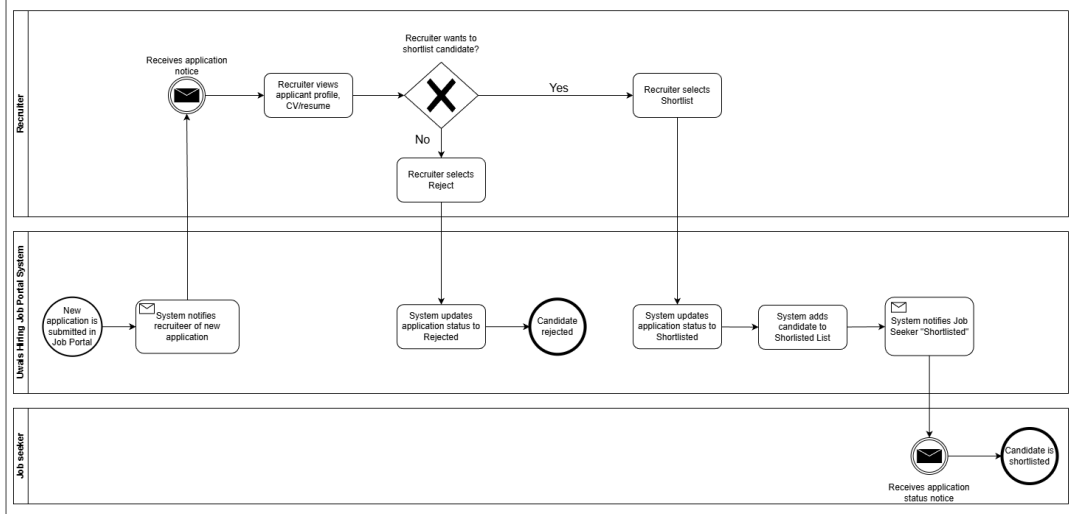


Fig.6 Process 3: Recruiter screening and shortlisting an application

Use Case Diagram

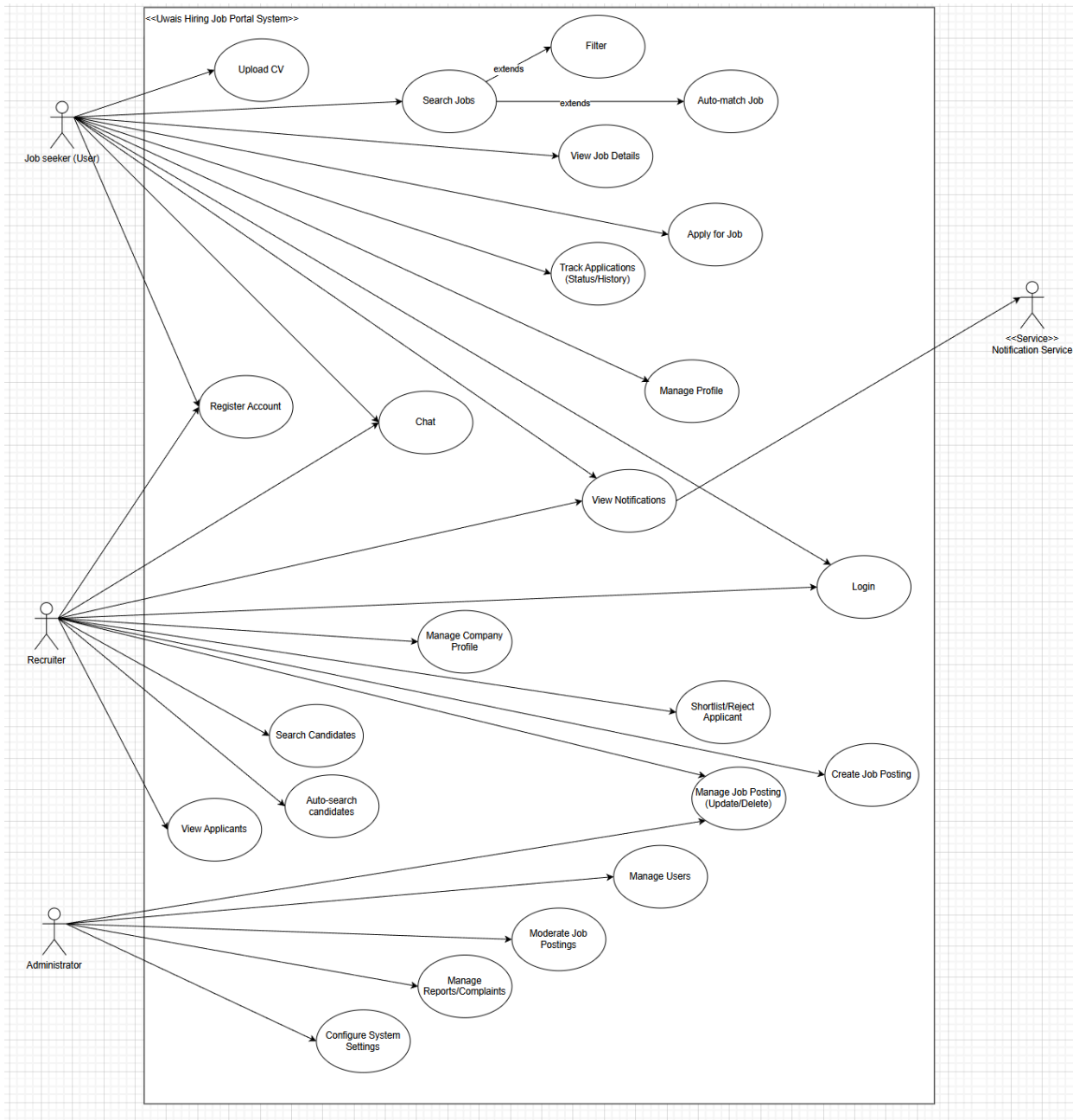


Fig.7 Use Case Diagram

Requirements Tree

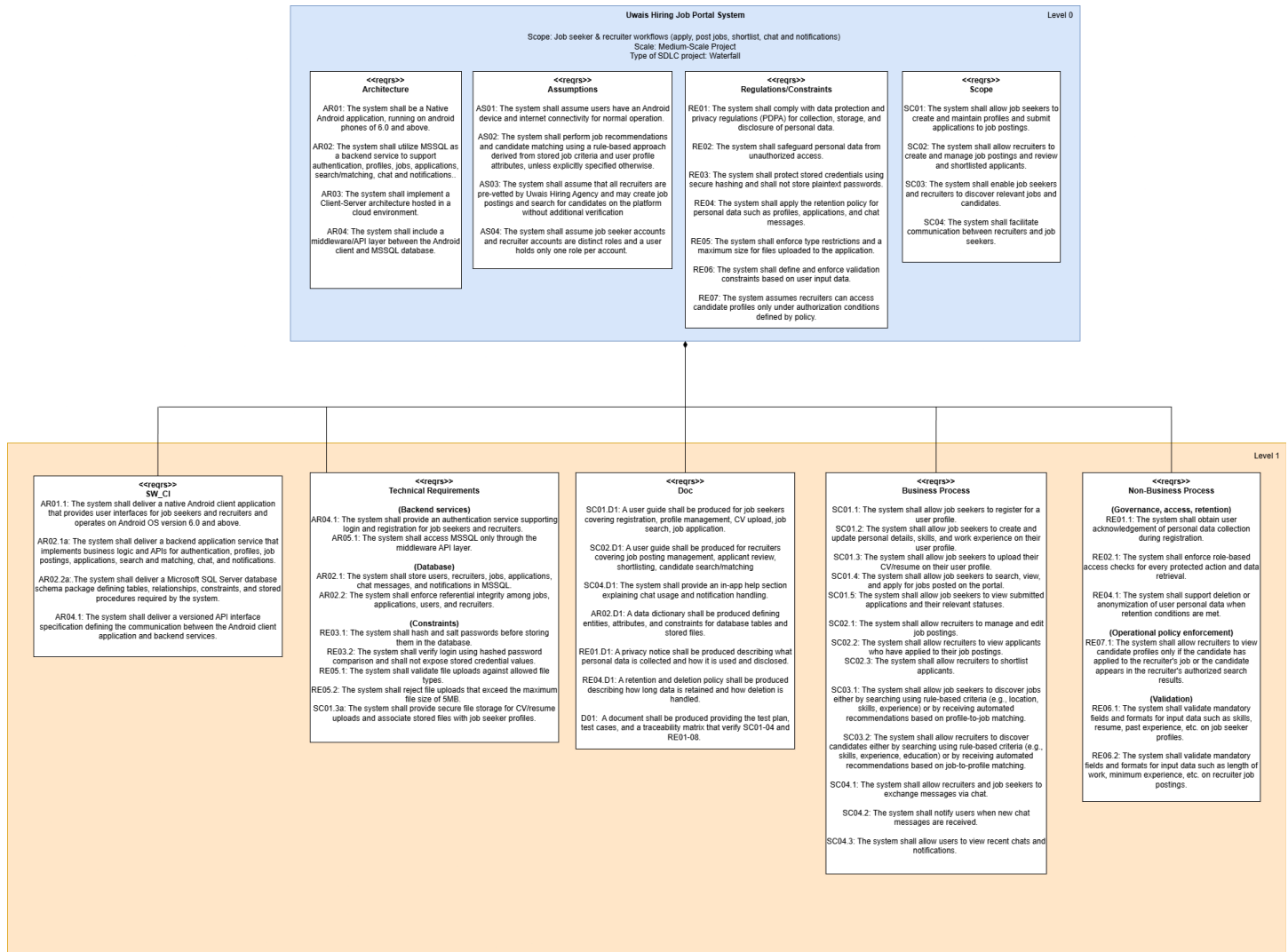


Fig.8 Requirements Tree

Appendix B Tables

Each Business Requirement is tagged with a precedence index which clarifies the priority of the requirement to its various stakeholders. It also guides resource allocation, and supports informed decision-making.

The precedence index was split into 3 main options:

Essential – Must-have. System cannot operate correctly without this requirement. Highest priority.

Desirable – Important but not critical. Adds value; can be postponed if resources are limited.

Acceptable – Nice-to-have. Low priority; implemented if time and resources allow

The table below is an example of how the precedence index is used on a requirement.

Code	Requirement	Precedence	Business / Government Constraints
BR01	Users must be able to log in securely	Essential	Must comply with PDPA / IT security policies
BR02	Users can customize their dashboard	Desirable	-
BR03	System generates monthly usage reports	Acceptable	May require internal reporting standards

Table.6 Example Precedence Index Table