

Software Proposal

TTrack

Group: 1

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Subject Code: SDM 404

Subject Name: Software Development Management

Assessment No.: 1

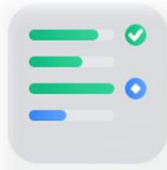
Title of Assessment: Proposal

Lecturer: Dr. Muhammad Atif Qureshi

Date: June 2025

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TTrack

SMART SUBJECT REQUIREMENT CHECKER

Torrens University Research Project

Project Overview

Problem Statement

Torrens admin staff and students face a recurring challenge: tracking degree progress and making sure no critical core or elective subjects are missing. Despite transcripts and course handbooks existing in separate silos, there's no smart, automated way to cross-check course history against what is required to graduate. The current process is manual, error-prone, and frustrating.

TTrack solves this by providing users a desktop application that parses transcripts and compares them with degree rules: no internet, no admin intervention, just clarity.

Target Users/Clients

- Academic advisors who need a faster way to audit student progress;
- University course coordinators looking to reduce manual verification load;
- Students currently enrolled in Torrens who want visibility into their degree path.

Project Goals

TTrack will consist on delivering a desktop application that performs the following:

1. Receives Academic Transcript and Academic Curriculum files (.xlsx) to be analyzed;
2. Automatically validate completed vs. pending subjects;
3. Visually summarize academic progress across subject categories;
4. Recommend electives based on unmet credit or rule gaps;
5. Package into a cross-platform offline app built in Python.

Tools & Technologies

The application will run based on:

- Python 3.10+
- PyQt5 for desktop GUI
- pandas & openpyxl for Excel processing
- matplotlib for dashboard/visuals
- SQLite (optional) for local persistence
- PyInstaller to package the app as .exe/.app

Development Methodology

We're using Agile with 2-week sprints. This gives us breathing room for iteration, makes space for UI feedback, and fits the team's schedule rhythm. We're sticking with Scrum's heartbeat: backlog, sprint plan, build, demo, reflect.

References:

- Cobb, C. (2015). The Project Manager's Guide to Mastering Agile.
- The Scrum Guide (2020). Schwaber & Sutherland.

Scope and Deliverables

In scope:

- Upload & parse transcript and curriculum Excel files
- Match completed units to core, specialisation and elective subjects
- Display subject status with 'done', 'missing', 'invalid'
- Elective suggestion engine

Out of scope:

- Real-time academic system integrations
- Web/mobile versions

Deliverables:

1. Functional desktop app with GUI
2. Matching engine with business logic
3. Visual summary/dashboard
4. Codebase & documentation

Timeline and Milestones

Milestone	Task	Owner	Start	End
Sprint 1	UI structure + upload workflow	Luis	17/06	23/06
Sprint 2	Excel parsing + table view		24/06	30/06
Sprint 3	Subject matching engine		01/07	14/07
Sprint 4	Dashboard + electives logic		15/07	25/07
Sprint 5	Test, polish and deliver		26/07	31/07

The proposed project will be implemented over 12 weeks using a Scrum-based Agile methodology (Heath, F. 2021). The development is divided into **six sprints**, each lasting two weeks. This approach supports iterative improvement, rapid feedback incorporation, and adaptability to evolving requirements from stakeholders and data insights.

Sprint 1: UI Structure, upload workflow

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Sprint 2: Excel parsing and table view

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Sprint 3: Subject matching engine

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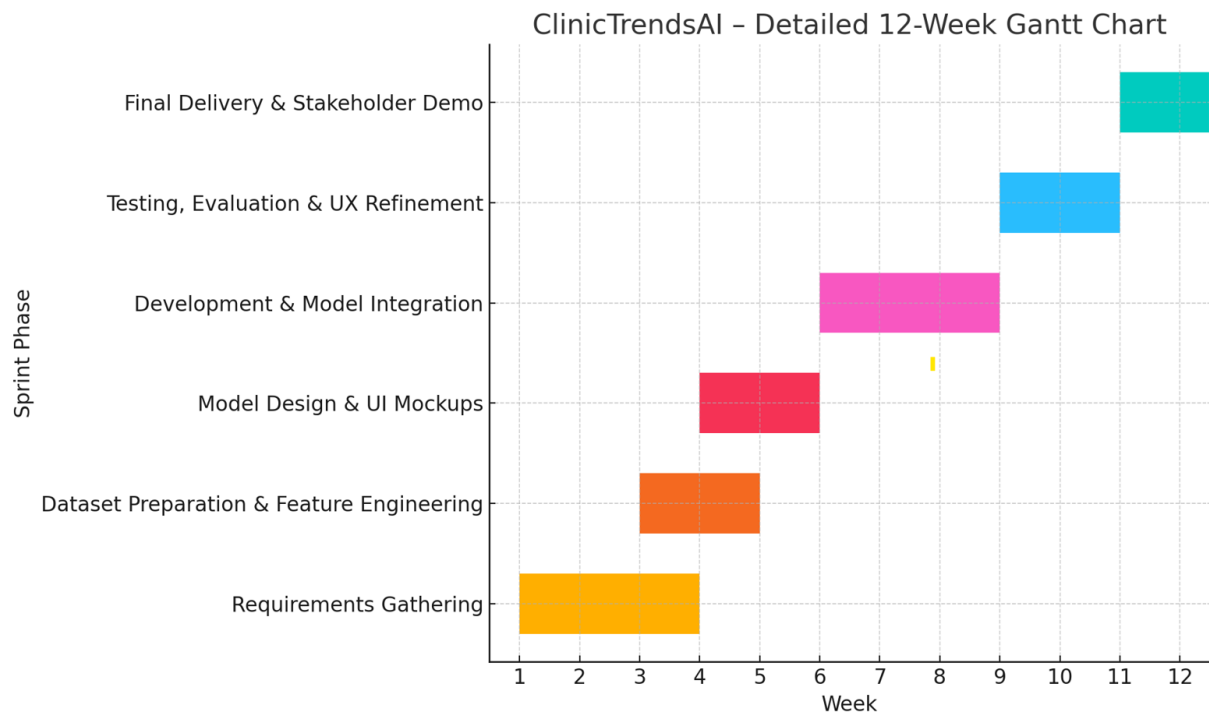
Sprint 4: Dashboard and electives logic

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Sprint 5: Test, Polish, Deliver

- Conduct usability testing with mock users or stakeholders
- Validate prediction outputs against holdout test set
- Ensure system responsiveness for non-technical users
- Prepare final documentation, user guide, and deployment script
- Record walkthrough demo video of app's functionalities
- Present findings and demo to facilitator and peers
- Final polish and retrospective evaluation of project outcomes

Gantt Chart



Team Roles

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Name	Role	Responsibilities
Luis	Fullstack developer	System integration, QA
Rosa	System's designer	
Hussain	Backend Developer	
Victor	DBM	
Nomayer	Backend developer, tester	

Cost and Effort

Human resources needed to make the project happen:

Role	Hours	Rate	Cost
Project Manager	30	70	
Frontend Dev	40	60	
Backend Dev	45	60	
DBM	35	45	
Fullstack Dev	40	60	
TOTAL			

Risk Management

Every software development project faces uncertainties that can affect scope, quality, timeline or even user satisfaction. Identifying and mitigating risks early is key for delivering a stable and valuable solution. In the context of **TTrack**, potential risks range from data-related issues (such as incomplete or inconsistent survey inputs) to technical challenges in machine learning model performance and stakeholder management.

This section outlines the most significant risks identified during project planning, their likelihood, potential impact and strategies that we propose to mitigate them.

Risk	Likelihood	Impact	Mitigation
Curriculum format inconsistency	High	High	Validate against official Torrens format
Over engineering rule logic	Medium	Medium	Start with MVP rule layer and build from it
UI bloat or confusion	Low	Medium	Keep it user-first and minimal

Communication Plan

- Daily async updates via Microsoft Teams
- Weekly sync meetings with mentor/peers
- GitHub for version control and documentation
- OneDrive for mockups, diagrams and references

Appendices

- a) Architecture Diagram
- b) UI Wireframes / Mockups
- c) Dev Notes and Meeting Logs

Individual Report

Tasks Performed

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Challenges

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Lessons Learned

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