

SE 4485: Software Engineering Projects

Fall 2025

Project Management Plan

Group Number	Group 4
Project Title	Intelligent EMR Note Generation Service
Sponsoring Company	ARGO Data Resource Corporation
Sponsor(s)	Raisa Gonzalez Goitom Kassaye
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Project Title: Intelligent EMR Note Generation Service

Course: SE 4485 – Software Engineering Project

Term: Fall 2025

Company Sponsor: ARGO Data Resource Corporation

Corporate Mentor: Goitom Kassaye

Business Contact: Raisa Gonzalez

University: The University of Texas at Dallas

Team Size: 6 Students

ABSTRACT

This document outlines the project plan for the Intelligent EMR Note Generation Service, sponsored by ARGO Data Resource Corporation. The system will extend ARGO's existing Behavioral Health CareChain (BHCC) Simulator Application by incorporating an AI-powered note generation capability. The project aims to integrate large language models (LLMs) when building the Note Generation Service to create clinically relevant notes either on demand or through an automated process. Deliverables include: a React-based front end, RESTful back end service, AI integration module, scheduling mechanism, testing suite, documentation, and final live demonstration. The plan specifies organizational roles, development lifecycle, risk analysis, required resources, project schedule, monitoring mechanisms, and adherence to professional standards.

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ROLE	PRIMARY RESPONSIBILITIES	RATIONALE
Front-End Developer (UI Enhancements)	<ul style="list-style-type: none">● Implement React-based UI changes (buttons, preview pane, loading indicators)● Integrate with backend APIs● Ensure usability and responsiveness.	UI needs are small but critical; having a dedicated member seamless user interaction.
Back-End Development (REST API & Service Logic)	<ul style="list-style-type: none">● Build and maintain REST APIs endpoints● Implement data persistence logic● Handle errors and logging	Core of the system; needed for integration between UI, AI, and scheduler.
AI Integration Engineer (Prompt Engineering)	<ul style="list-style-type: none">● Design prompt templates for each note type	Ensures accurate, structured, and clinically relevant AI-generated

	<ul style="list-style-type: none"> • Call LLM APIs securely • Parse and validate AI responses 	notes.
Scheduler & Automation Engineer	<ul style="list-style-type: none"> • Develop daily and on-demand batch job feature • Manage scheduling logic for scalability • Ensure automation reliability 	Adds scalability and realism to the simulator; reduces manual workload.
QA & Testing Engineer	<ul style="list-style-type: none"> • Write unit, integration, and functional tests • Validate AI outputs and system interactions • Ensure performance and reliability 	Critical for catching errors early and meeting quality standards.
Project Manager & Documentation Lead	<ul style="list-style-type: none"> • Coordinate schedule and team communication • Manage sponsor updates and mentor meetings • Oversee documentation and reporting 	Keeps the team aligned, ensures timely delivery, and maintains project records.

INTRODUCTION

Purpose and Scope:

The purpose of the project is to design, implement, and deliver an Intelligent EMR Note Generation Service that will be integrated with ARGO's BHCC Simulator. Creating manual and automated note generation features, enhancing user interface, building back-end services, integrating AI model(s), and developing scheduling and testing frameworks are included in the scope.

Product Overview:

- Purpose: Reduce manual burden on clinicians by generation notes automatically.
- Capabilities: Manual AI note generation, batch scheduling, prompt engineering library, integration with BHCC APIs.
- Scenarios: A nurse may generate a progress note from minimal inputs; automated jobs may generate daily notes for multiple patients.

Document Structure:

This document is structured into sections covering project organization, lifecycle model, risk analysis, resource requirements, schedule, monitoring, and professional standards.

PROJECT ORGANIZATION

- The development team is divided into six roles.

- Front-End Developer: Builds React-based UI enhancements.
- Back-End Developer: Implements REST APIs and persistence logic.
- AI Integration Engineer: Designs prompt library and LLM integration.
- Scheduler Engineer: Builds automation and batch job features.
- QA & Testing Engineer: Develops test suites and ensures quality.
- Project Manager & Documentation Lead: Oversees schedule, documentation, and communication.
- Dependencies:
 - UI depends on back-end APIs.
 - Automation depends on AI integration.
 - Testing depends on completed features.

Rationale: This division is in alignment with the project's deliverables and ensures ownership while also promoting collaboration.

LIFECYCLE MODEL USED

- Our team decided that we will use the Incremental Model. The system will be built in parts, with each increment adding new features. This lets us deliver a working version early and add improvements step by step.
 - Manual AI note generation.
 - Automated scheduling.
 - Testing and deployment.

Rationale: The Incremental Model was chosen because it allows steady progress, early delivery of features, mentor feedback, and lower risk by testing each part as it is built.

RISK ANALYSIS

- AI Output Risk: LLM may generate clinically irrelevant or malformed notes.
 - Risk Level: Medium
 - Mitigation: Use structured prompts, JSON outputs, and validation logic.
- Integration Risk: API mismatches with BHCC simulator.
 - Risk Level: Medium
 - Mitigation: Frequent testing with BHCC API stubs.
- Scheduling Risk: Automated jobs may overload the system.
 - Risk Level: Low
 - Mitigation: Schedule jobs during off-peak hours.
- Team Risk: Lack of experience in prompt engineering.
 - Risk Level: Medium
 - Mitigation: Assign learning tasks early.

Rationale: These risks were chosen because they directly affect project success. Addressing AI accuracy, system integration, scheduling, and team skills early helps reduce delays and ensures a working product by the end of the semester.

SOFTWARE AND HARDWARE RESOURCE REQUIREMENTS

- Software:
 - React (UI updates)
 - Backend framework (Node.js/Flask/Django)
 - GitHub (version control)
 - Jira (issue tracking)

- LLM API (Gemini)
- Hardware:
 - Standard laptops with 8GB+ RAM and internet access.
 - UTD lab machines if needed for testing and deployment.

Rationale: These tools provide everything needed for coding, collaboration, testing, and running the AI note generation service.

DELIVERABLES AND SCHEDULE

- Activities and Deliverables:
 - Project setup and team roles
 - Front-end UI updates (React)
 - Back-end REST APIs
 - AI integration and prompt library
 - Scheduler for automation
 - Testing suite (unit, integration, functional)
 - Documentation and final demo
- Dependencies:
 - UI depends on back-end APIs.
 - Automation depends on AI integration.
 - Testing depends on completed features.

Rationale: the schedule is organized so each part builds on the previous one. This ensures steady progress and a working system by the final demo.

SCHEDULE

Week	Summary	Deliverable Due Dates
9/8 - 9/14	Project Planning & Expectations	9/12 Project Management Plan
9/15 - 9/21	Wireframes and Workflows UI/UX	
9/22 - 9/28	Front-end UI updates/Back-end implementation AI integrations and prompting	9/26 Requirements Documentation
9/29 - 10/5	Testing suite	
10/6 - 10/12	Documentation and final demo for part 1	10/10 In-class Midterm Meeting
10/13 - 10/19	Part 2 Planning & Expectations	
10/20 - 10/26	Wireframes/Workflows/BUCs	10/24 Architecture Documentation
10/27 - 11/2	Front-end UI updates/Back-end implementation AI integrations and prompting	
11/3 - 11/9	AI refinement	11/7 Detailed Design Documentation
11/10 - 11/16	Testing suite	

11/17 - 11/23	Testing suite & documentation	11/21 Test Plan
11/24 - 11/30	Documentation and final demo part 2	
12/1 - 12/7	Closing remarks	12/2 Final Project Presentation Slides & Demo 12/5 Final Project Report

MONITORING, REPORTING, AND CONTROLLING MECHANISMS

- Weekly Status Reports: Summarize completed tasks, blockers, and next steps.
- Weekly Mentor Meetings: Progress review with ARGO mentor.
- GitHub Activity Tracker: Monitor commits, branches, pull requests.
- Issue Tracking: Jira

Rationale: Frequent communication and transparency will help in reducing risk for misalignment.

PROFESSIONAL STANDARDS

- Team members are expected to act honestly, meet deadlines, attend meetings, and produce quality work. Respectful communication and accountability are required. Scholastic dishonesty, missed work without reason, or poor behavior will not be accepted.
- Clear standards ensure fairness, teamwork, and reliable progress. They help maintain professionalism and align with course and sponsor expectations.
- refer to Appendix A for more details

Rationale: Clear standards ensure fairness, teamwork, and reliable progress. They help maintain professionalism and align with course and sponsor expectations.

EVIDENCE THE DOCUMENT HAS BEEN PLACED UNDER CONFIGURATION MANAGEMENT

- Please download the template from this [\[link\]](#)

Configuration management will be handled through GitHub and Google Docs for each deliverable. For simultaneous collaboration, Google Docs will be used to identify differences between two consecutive versions. For large changes/official submissions, Github will be used to maintain the version number of each document and check in/check out major changes on deliverables.

<https://github.com/TranTammy/ai-note-generation>

*** Commit to GitHub and screenshot in tree to fulfill this requirement for project management plan

ENGINEERING STANDARDS AND MULTIPLE CONSTRAINTS

- [IEEE Std 1058-1998: Software Project Management Plans \[pdf\]](#)
- [PMBOK® Guide: Project Management Body of Knowledge \[pdf\]](#)
- [IEEE Std 12207: Software Life Cycle Processes \[pdf\]](#)
- [IEEE Std 15939: Measurement Process \[pdf\]](#)
- [ISO/IEC/IEEE Std 29148-2018: Systems and Software Engineering](#)
 - [Life Cycle Processes](#)
 - [Requirements Engineering \[pdf\]](#)

Students should work with their project sponsor(s) to identify all the standards and constraints that should be applied for preparing this document. Additional materials that are not listed above can be included.

ADDITIONAL REFERENCES

- Larson, E. and Gray, C., 2014. Project Management: The Managerial Process. McGraw Hill
- Humphrey, W.S. and Thomas, W.R., 2010. Reflections on Management: How to Manage Your Software Projects, Your Teams, Your Boss, and Yourself. Pearson Education

Each group may include other related references that are not listed above.

Appendix A.

The following provides a professional standards guideline for the teams. This guideline may be tailored. **The professional standards must be agreed upon by each member in the team.**

Guideline:

On the first occurrence of unacceptable behavior, determine the circumstances involved, resolve the problem, and document the event in the meeting minutes.

On a second occurrence, notify the instructor of the problem. A meeting will be set up to evaluate the situation and resolve the problem.

On a third occurrence, again notify the instructor of the problem. A meeting will be set up to evaluate the situation and resolve the problem. At this point, the team will have the *option* of removing the team member. If removed, then the team member receives a pro-rated grade based on the number of weeks they have participated in the group.

Examples of unacceptable behavior may include not delivering on time, delivering poor quality work, missing team meetings, being unprepared for team meetings, disrespectful or rude behavior, etc. Reasons such as “too busy” or “I forgot”, or “my dog ate my design model” are unacceptable.

Valid reasons that must be considered include those listed for obtaining an incomplete standing in a course (illness, death in the family, travel for business or academic reasons, etc.)