SE 4485: Software Engineering Projects

Spring 2025

Project Management Plan

Group Number	12
Project Title	Marketing Intelligence Platform Team B
Sponsoring Company	ARGO
Sponsor(s)	Ponchai Reainthong, Raisa Gonzalez, Goitom Kassaye
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TITLE PAGE

ABSTRACT

- brief summary of the entire document

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INTRODUCTION

- This document serves as a means to record and log the project plan as it develops throughout its life cycle while serving as a reference for all stakeholders involved, providing a clear roadmap for implementation, resource allocation, and risk management. The document will ensure alignment between technical and business goals while facilitating data-driven decision making

- The product will serve as an advanced marketing analytics platform for ARGO. Users will be able to see data gather by GA4 in a clean and digestible manner and will be able to gather real world insight into the data's significance with the help of Chat-GPT integration.

PROJECT ORGANIZATION

- Jesse – Back-end / ML engineer
- Jon – Back-end / ML engineer
- Eric – Head of Front-end engineering
- Nicolas – Back-end / ML engineer
- Zara – Head of UI/UX, Front-end engineer

LIFECYCLE MODEL USED

- Agile model
- The Agile model is chosen for this project due to its alignment with the fast-paced timeline, enabling iterative development, quick adaptability, and continuous feedback.
- This approach ensures efficient prioritization, parallel workstreams, and risk mitigation by delivering functional increments early and refining them based on stakeholder input.
- Overall, the Agile model maximizes productivity, minimizes last-minute Suprises and maintains flexibility for any changes in requirements, ensuring the project stays on track and delivers value efficiently.

RISK ANALYSIS

- RISK: Non-ARGO employees being able to access the website.
- PREVENTION: SSO
- RISK: Unauthorized API access
- PREVENTION: Use secure .env file to hide API keys
- RISK: Scope creep
- PREVENTION: Utilize agile project management and clearly define project scope

SOFTWARE AND HARDWARE RESOURCE REQUIREMENTS

Hardware:

- Desktop Computer/Laptop

Software:

- Operating System: Windows 10/11, macOS 12+, or Linux (Ubuntu 20.04+)
- Code Editor/IDE: VS code
- Version Control: Git & GitHub
- API development: TBD
- Testing Frameworks: TBD

Programming Languages & Libraries:

- Frontend Development: React.js, MaterialUI, Highcharts
- Backend Development: Node.js, Express.js

- Authentication & Security: Building own SSO Integration
- UI/UX Design: Figma

DELIVERABLES AND SCHEDULE

- **Phase 1: February 3 – March 17**
    - **Deep Dive into GA4 API (February 3 – February 10):**
        - **Objective:** Gain a comprehensive understanding of the GA4 API.
        - **Tasks:**
            - Research and document the core functionalities of the GA4 API.
            - Identify key analytics and metrics that will drive the project.
    - **Data Extraction & Analysis (February 11 – February 24):**
        - **Objective:** Learn to effectively query the API and analyze the data.
        - **Tasks:**
            - Develop and test API queries to retrieve valuable data.
            - Analyze the raw data to uncover actionable insights.
    - **Visualization & Reporting (February 25 – March 17):**
        - **Objective:** Transform raw data into engaging, user-friendly visual representations.
        - **Tasks:**
            - Design and build charts that clearly illustrate key trends and insights.
            - Prepare reports that effectively communicate the findings from the data analysis.
- **Phase 2: March 18 – April 28**
    - **Dynamic Search Implementation** (March 18 – March 31):
        - **Objective:** Integrate a dynamic search function powered by Chat-GPT.
        - **Tasks:**
            - Set up and configure the Chat-GPT environment for the search functionality.
            - Begin integration with the existing data analytics framework.
    - **Intuitive Query Capability** (April 1 – April 14):
        - **Objective:** Enable users to perform natural language queries for a more intuitive data exploration.
        - **Tasks:**
            - Refine the Chat-GPT integration to handle conversational queries.
            - Test the dynamic search feature to ensure it returns accurate and

useful results.

- **Enhanced User Experience (April 15 – April 28):**
  - **Objective:** Streamline the data retrieval process and make analytics more accessible.
  - **Tasks:**
    - Optimize the user interface to support the new dynamic search function.
    - Gather user feedback and make final adjustments to enhance usability and engagement.

MONITORING, REPORTING, AND CONTROLLING MECHANISMS

- **Project Status & Sprint Reports** ensure that development is progressing on schedule and blockers are identified early.
- **Risk Assessment Reports** help mitigate potential technical or business risks before they become major issues.
- **API Performance Reports** ensure system stability and highlight inefficiencies in data retrieval.
- **User Feedback Reports** ensure that the platform meets user expectations and usability needs.
- **Budget & Resource Reports** help control costs and avoid overspending.
- **Final Reports** provide insights for future projects and company-wide improvements.

PROFESSIONAL STANDARDS

- It is expected that team members should have a complete understanding of the work that they produce.
- It is expected that team members show up to all meetings which they are available.
- Plagiarism, unauthorized code copying, or falsification of results is strictly prohibited
- Any external code. tools, or libraries should be properly documented and comply with open-source licenses
- refer to Appendix A for more details

EVIDENCE THE DOCUMENT HAS BEEN PLACED UNDER CONFIGURATION MANAGEMENT

ENGINEERING STANDARDS AND MULTIPLE CONSTRAINTS

- IEEE 12207:2017 – Systems and Software Engineering – Software Life Cycle Processes
- IEEE 29148:2018 – Systems and Software Engineering – Requirements Engineering
- IEEE Std 1016-2009 – IEEE Recommended Practice for Software Design Descriptions
- IEEE P3123 – Standard for Artificial Intelligence and Machine Learning (AI/ML) Terminology and Data Formats

ADDITIONAL REFERENCES

- https://standards.ieee.org/
- https://quads.argodata.com/
- IEEE/ISO/IEC 12207:2017
- IEEE/ISO/IEC 29148:2018

- IEEE Std 1016-2009
- IEEE P3123

Appendix A.

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.)