

International School

**Capstone Project 1**

CMU-SE 450

**Project Plan**

**Version 2.0**

**Date: December 4th, 2024**

**Al-Powered Chat Bot & Tour Recommendation System**

**Created by C1SE.17**

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**Approval of Mentor:**

**Name:** Huy, Truong Dinh **Signature:** **Date:** **20th Dec, 2024**

**PROJECT INFORMATION**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Project acronym** | **TripGo** | | | |
| **Project Title** | Al-Powered Chat Bot & Tour Recommendation System | | | |
| **Start Date** | 01 Sep 2024 | **End Date** | 19 Dec 2024 | |
| **Lead Institution** | International School, Duy Tan University | | | |
| **Project Mentor** | Huy, Truong Dinh | | | |
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| **Partner Organization** | Duy Tan University | | | |
| **Project Web URL** |  | | | |
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**REVISION HISTORY**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Version** | **Date** | **Comments** | **Author** | **Approval** |
| 1.0 | September 19th, 2024 | Initial Release | All members |  |
| 2.0 | December 4th, 2024 | Development Process | Chi, Tu |  |

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# **1. Introduction**

## **1.1. Purpose**

This document serves as the project plan for the TripGo system, an AI-powered travel website providing personalized recommendations and 24/7 chatbot support. It outlines the project objectives, key deliverables, work breakdown, milestones, resource requirements, timeline, and budget allocation.

The plan ensures the project is completed on time, meets all specified requirements, and aligns with the approved proposal, providing a clear roadmap for stakeholders to monitor progress and achieve successful execution.

## **1.2. Project Overview**

Reference to C1SE.17\_Proposal\_TRIPGO\_ver2.0.docx

## **1.3. Project Deliverable**

The main deliverables for the TripGo project include:

* A fully functional AI-powered tour recommendation system.
* Customer support using chatbots.
* Administrative tools for managing tours, content, and user accounts.
* Analytical reports on tour performance and revenue.

# **2. Team Organization**

## **2.1. Scrum Team Information**

**Table 1.** Scrum Team Organization

|  |  |  |  |
| --- | --- | --- | --- |
| **Full Name** | **Phone** | **Email** | **Position** |
| MSc Huy, Truong Dinh | 0982132352 | truongdinhhuy@dtu.edu.vn | Mentor |
| Tu, Dang Ngoc | 0347259766 | tudangm10@gmail.com | Scrum Master |
| Chi, Dang Thi Kim | 0344551113 | kimchi04022003@gmail.com | Member |
| An, Le Manh | 0866715638 | Lemanhan2132003@gmail.com | Member |
| An, Nguyen Mai Truong | 0905695468 | nguyenan29032003@gmail.com | Member |
| Thang, Tran Van | 0931951269 | thangtran00030@gmail.com | Member |

## **2.2. Role and Responsibility**

**Table 2.** Role and Responsibilities

| **Role** | **Responsibility** | **Name/Title** |
| --- | --- | --- |
| Product Owner | - Understand the user and customers with their needs  - Collaborate with the development team  - Manage the stakeholders  - Describe the user experience and product features  - Provides detailed user stories | Chi, Dang Thi Kim |
| Scrum Master | - Communicate the value of Scrum  - Teach the organization on Scrum to maximize business value  - Attend all Scrum meetings  - Preserve the integrity and spirit of the Scrum framework  - Maintain the focus of the Team  - Make the Team aware of impediments and facilitate efforts to resolve them  - Serve as a coach and mentor to members of the Team  - Respectfully hold the Team, Product Owner and Stakeholders accountable for their commitments  - Continually work with the Team and business to find and implement improvements | Tu, Dang Ngoc |
| Secretary | Record the content of group meetings and activities of the member | Chi, Dang Thi Kim |
| Reviewer | Review documents | All Members |
| Developer | - Analysis of the functions and requirements of the product  - Code and test  - Fix error | All Members |
| Analyzer | - Gather user stories  - Analysis user story to do specify Document | All Members |
| Tester | - Do the Test plan  - Creation of test designs, test processes, test cases and test data.  - Carry out testing as per the defined procedures.  - Graph the results and make sure people know when test results decline.  - Prepare all reports related to software testing carried out.  - Analysis and evaluate the Test result.  - Ensure that all tested-related work is carried out as per the defined standards and procedures. | All Members |
| Mentor | - Guide on the process  - Monitoring all activities of Team  - Help with anything | MSc Huy, Truong Dinh |

## **2.3. Communication Methodology**

**Table 3**. Communication Methodology

|  |  |  |  |
| --- | --- | --- | --- |
| **Audience/ Attendees** | **Topic/ Deliverable** | **Frequency** | **Method** |
| Mentor and Team member | Project Progress Review | Weekly | Meeting Online, Meeting Offline, Zalo |
| Team Member | Project Progress Review and Daily Meeting | Daily | Trello, GitHub, Discord |

## **2.4. Communication and Report**

**Table 4.** Communication and Report

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type of communication** | **Methods tools** | **Frequency** | **Information** | **People** |
| **Communication among in group** | | | | |
| Scrum meeting | Face to face or Hangouts | Every two day | Informed about what was done in the last 24 hours, working on plans for today, the difficulties encountered and the solutions required, just meeting 10-15 minutes. | Project team |
| Sprint Planning Meeting | Meet face to face | 15-20 days | All members in team together to analyze the requirements, functions, working on the sprint going to do, planning and design for the sprint. | Project team |
| Retrospective meeting | Meet face to face | 15-20 days | Complete documentation. For each stage, sharing materials, given the strengths and weaknesses for each. Period for each member and the solution calculated measurement project. | Project team and Mentor |
| Demo | Meeting online | Every day | A web-based task tracking system. To manage or divide task, report bugs/issues. | Project team. |

# **3. Development Process**

**Figure 1.** Scum Process

* Scrum is an iterative and incremental agile software development framework for managing software projects and product or application development.
* Scrum focuses on project management institutions where it is difficult to plan.
* Mechanisms of empirical process control, where feedback loops that constitute the core management technique are used as opposed to traditional.
* Its approach to planning and managing projects is to bring decision-making authority to the level of operation properties and certainties.

The benefit of the methodology:

* The project can respond easily to change.
* Problems are identified early.
* Customers get the most beneficial work first.
* Work done will better meet the customer’s needs.
* Improved productivity.
* Ability to maintain a predictable schedule for delivery.

# **4. Schedule and Cost**

## **4.1. Detailed Schedule**

**Table 5**. Detailed Schedule

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Task Name** | **Start** | **Finish** | **Effort** |
| **1** | **Initial** | **10/03** | **14/03** |  |
| **1.1** | **Gathering Requirement** | **10/03** | **11/03** |  |
| 1.1.1 | Get requirement from stakeholders | 10/03 | 10/03 |  |
| 1.1.2 | Analyzing requirement | 11/03 | 11/03 |  |
| **1.2** | **Create Proposal Document** | **12/03** | **14/03** |  |
| 1.2.1 | Product Definition | 12/03 | 12/03 |  |
| 1.2.2 | Business Need | 12/03 | 12/03 |  |
| 1.2.3 | Prior Art | 13/03 | 13/03 |  |
| 1.2.4 | Proposed Solution | 13/03 | 13/03 |  |
| 1.2.5 | Master Plan | 14/03 | 14/03 |  |
| **2** | **Start Up** | **15/03** | **18/03** |  |
| **2.1** | **Project kick-off** | **15/03** | **15/03** |  |
| **2.2** | **Create Document** | **16/03** | **18/03** |  |
| 2.2.1 | Project’s Meeting |  |  |  |
| 2.2.2 | Create User Story |  |  |  |
| 2.2.3 | Create Product Backlog |  |  |  |
| 2.2.4 | Review Document |  |  |  |
| 2.2.5 | Create Project Plan |  |  |  |
| 2.2.6 | Create Architecture Design Document |  |  |  |
| 2.2.7 | Design and Write Database Document |  |  |  |
| 2.2.8 | Review and Completion of Document |  |  |  |
| **3** | **Development** | **19/03** | **16/05** |  |
| **3.1** | **Sprint 1** | **19/03** | **08/04** |  |
| 3.1.1 | Sprint Planning Meeting |  |  |  |
| 3.1.2 | Create Sprint Backlog |  |  |  |
| 3.1.3 | Create Test Plan document for Sprint 1 |  |  |  |
| 3.1.4 | Update the Database document |  |  |  |
| 3.1.5 | Update the Architecture Design Document |  |  |  |
| 3.1.6 | **Design** |  |  |  |
| 3.1.6.1 | Home Page UI/UX Design |  |  |  |
| 3.1.6.2 | Registration Form UI Design |  |  |  |
| 3.1.6.3 | Login Form UI Design |  |  |  |
| 3.1.6.4 | Password Recovery Form UI |  |  |  |
| 3.1.6.5 | OTP Verification Form UI |  |  |  |
| 3.1.6.6 | Password Reset Form UI |  |  |  |
| 3.1.6.7 | Admin Authorization Form UI |  |  |  |
| 3.1.6.8 | User Dashboard UI/UX Design |  |  |  |
| **3.1.7** | **Coding Frontend** |  |  |  |
| 3.1.7.1 | [FE] Create Home Page UI |  |  |  |
| 3.1.7.2 | [FE] Implement Registration UI |  |  |  |
| 3.1.7.3 | [FE] Implement Login UI |  |  |  |
| 3.1.7.4 | [FE] Implement Logout Function UI |  |  |  |
| 3.1.7.5 | [FE] Implement Password Recovery UI |  |  |  |
| 3.1.7.6 | [FE] Implement OTP Verification UI |  |  |  |
| 3.1.7.7 | [FE] Implement Password Reset UI |  |  |  |
| 3.1.7.8 | [FE] Implement Dashboard UI for Users |  |  |  |
| 3.1.7.9 | [FE] Implement Admin Authorization UI |  |  |  |
| **3.1.8** | **Coding Backend** |  |  |  |
| 3.1.8.1 | [BE] Develop API for User Registration |  |  |  |
| 3.1.8.2 | [BE] Develop API for User Login |  |  |  |
| 3.1.8.3 | [BE] Develop API for User Logout |  |  |  |
| 3.1.8.4 | [BE] Develop API for Password Recovery |  |  |  |
| 3.1.8.5 | [BE] Develop API for OTP Verification |  |  |  |
| 3.1.8.6 | [BE] Develop API for Password Reset |  |  |  |
| 3.1.8.7 | [BE] Develop API for Admin Authorization |  |  |  |
| **3.1.9** | **Testing & Fix Bugs** |  |  |  |
| 3.1.9.1 | Test Home Page UI |  |  |  |
| 3.1.9.2 | Test Registration Form UI |  |  |  |
| 3.1.9.3 | Test Login Form UI |  |  |  |
| 3.1.9.4 | Test Password Recovery Form UI |  |  |  |
| 3.1.9.5 | Test OTP Verification Form UI |  |  |  |
| 3.1.9.6 | Test Password Reset Form UI |  |  |  |
| 3.1.9.7 | Test Admin Authorization Form UI |  |  |  |
| 3.1.9.8 | Test User Dashboard UI |  |  |  |
| 3.1.9.9 | Test API for Registration |  |  |  |
| 3.1.9.10 | Test API for Login |  |  |  |
| 3.1.9.11 | Test API for Logout |  |  |  |
| 3.1.9.12 | Test API for Password Recovery |  |  |  |
| 3.1.9.13 | Test API for OTP Verification |  |  |  |
| 3.1.9.14 | Test API for Password Reset |  |  |  |
| **3.1.10** | **Release Sprint 1** |  |  |  |
| 3.1.10.1 | Sprint 1 Review Meeting |  |  |  |
| 3.1.10.2 | Sprint 1 Retrospective |  |  |  |
| **3.2** | **Sprint 2** | **09/04** | **29/04** |  |
| 3.2.1 | Sprint Planning Meeting |  |  |  |
| 3.2.2 | Create Sprint Backlog |  |  |  |
| 3.2.3 | Create Test Plan document for Sprint 2 |  |  |  |
| 3.2.4 | Update the Database document |  |  |  |
| 3.2.5 | Update the Architecture Design Document |  |  |  |
| **3.2.6** | **Design** |  |  |  |
| 3.2.6.1 | Quiz Creation UI/UX Design |  |  |  |
| 3.2.6.2 | Multiple Choice Question UI |  |  |  |
| 3.2.6.3 | True/False Question UI |  |  |  |
| 3.2.6.4 | Short Answer Question UI |  |  |  |
| 3.2.6.5 | Quiz Hosting Dashboard UI |  |  |  |
| 3.2.6.6 | Quiz PIN Entry UI |  |  |  |
| 3.2.6.7 | Quiz Start & End UI |  |  |  |
| 3.2.6.8 | Player Quiz UI |  |  |  |
| 3.2.6.9 | Quiz Result Page UI |  |  |  |
| **3.2.7** | **Coding Frontend** |  |  |  |
| 3.2.7.1 | [FE] Implement Quiz Creation UI |  |  |  |
| 3.2.7.2 | [FE] Implement Multiple Choice UI |  |  |  |
| 3.2.7.3 | [FE] Implement True/False UI |  |  |  |
| 3.2.7.4 | [FE] Implement Short Answer UI |  |  |  |
| 3.2.7.5 | [FE] Implement Quiz Hosting Dashboard UI |  |  |  |
| 3.2.7.6 | [FE] Implement Quiz PIN Entry UI |  |  |  |
| 3.2.7.7 | [FE] Implement Quiz Start & End UI |  |  |  |
| 3.2.7.8 | [FE] Implement Player Quiz UI |  |  |  |
| 3.2.7.9 | [FE] Implement Quiz Result Page UI |  |  |  |
| **3.2.8** | **Coding Backend** |  |  |  |
| 3.2.8.1 | [BE] Develop AI-powered Quiz Generator |  |  |  |
| 3.2.8.2 | [BE] Develop API for Quiz Creation |  |  |  |
| 3.2.8.3 | [BE] Develop API for Storing Quiz Data |  |  |  |
| 3.2.8.4 | [BE] Develop API for Quiz Hosting |  |  |  |
| 3.2.8.5 | [BE] Develop API for PIN-based Quiz Access |  |  |  |
| 3.2.8.6 | [BE] Develop API for Answer Submission |  |  |  |
| 3.2.8.7 | [BE] Develop API for Quiz Scoring |  |  |  |
| 3.2.8.8 | [BE] Develop API for Quiz Results & Statistics |  |  |  |
| **3.2.9** | **Testing & Fix Bugs** |  |  |  |
| 3.2.9.1 | Test Quiz Creation UI |  |  |  |
| 3.2.9.2 | Test Multiple Choice Question UI |  |  |  |
| 3.2.9.3 | Test True/False Question UI |  |  |  |
| 3.2.9.4 | Test Short Answer Question UI |  |  |  |
| 3.2.9.5 | Test Quiz Hosting Dashboard UI |  |  |  |
| 3.2.9.6 | Test Quiz PIN Entry UI |  |  |  |
| 3.2.9.7 | Test Quiz Start & End UI |  |  |  |
| 3.2.9.8 | Test Player Quiz UI |  |  |  |
| 3.2.9.9 | Test Quiz Result Page UI |  |  |  |
| 3.2.9.10 | Test API for AI Quiz Generation |  |  |  |
| 3.2.9.11 | Test API for Quiz Creation |  |  |  |
| 3.2.9.12 | Test API for Quiz Data Storage |  |  |  |
| **3.2.10** | **Release Sprint 2** |  |  |  |
| 3.2.10.1 | Sprint 2 Review Meeting |  |  |  |
| 3.2.10.2 | Sprint 2 Retrospective |  |  |  |
| **3.3** | **Sprint 3** | **30/04** | **16/05** |  |
| 3.3.1 | Sprint Planning Meeting |  |  |  |
| 3.3.2 | Create Sprint Backlog |  |  |  |
| 3.3.3 | Create Test Plan document for Sprint 3 |  |  |  |
| 3.3.4 | Update the Database document |  |  |  |
| 3.3.5 | Update the Architecture Design Document |  |  |  |
| **3.3.6** | **Design** |  |  |  |
| 3.3.6.1 | Gamification UI Design |  |  |  |
| 3.3.6.2 | Leaderboard UI Design |  |  |  |
| 3.3.6.3 | Adaptive Learning UI Design |  |  |  |
| 3.3.6.4 | Reward System UI Design |  |  |  |
| 3.3.6.5 | Real-time Feedback UI Design |  |  |  |
| **3.3.7** | **Coding Frontend** |  |  |  |
| 3.3.7.1 | [FE] Implement Gamification UI |  |  |  |
| 3.3.7.2 | [FE] Implement Leaderboard UI |  |  |  |
| 3.3.7.3 | [FE] Implement Reward System UI |  |  |  |
| 3.3.7.4 | [FE] Implement Adaptive Learning UI |  |  |  |
| 3.3.7.5 | [FE] Implement AI Dynamic Quiz UI |  |  |  |
| 3.3.7.6 | [FE] Implement Real-time Feedback UI |  |  |  |
| **3.3.8** | **Coding Backend** |  |  |  |
| 3.3.8.1 | [BE] Develop API for Gamification System |  |  |  |
| 3.3.8.2 | [BE] Develop API for Leaderboard Updates |  |  |  |
| 3.3.8.3 | [BE] Develop API for Reward System |  |  |  |
| 3.3.8.4 | [BE] Develop AI for Adaptive Learning |  |  |  |
| 3.3.8.5 | [BE] Develop API for Personalized Quiz Questions |  |  |  |
| 3.3.8.6 | [BE] Develop API for Real-time Quiz Feedback |  |  |  |
| **3.3.9** | **Testing & Fix Bugs** |  |  |  |
| 3.3.9.1 | Test Gamification UI |  |  |  |
| 3.3.9.2 | Test Leaderboard UI |  |  |  |
| 3.3.9.3 | Test Adaptive Learning UI |  |  |  |
| 3.3.9.4 | Test Reward System UI |  |  |  |
| 3.3.9.5 | Test Real-time Feedback UI |  |  |  |
| 3.3.9.6 | Test Gamification API |  |  |  |
| 3.3.9.7 | Test Leaderboard API |  |  |  |
| **3.3.10** | **Release Sprint 3** |  |  |  |
| 3.3.10.1 | Sprint 3 Review Meeting |  |  |  |
| 3.3.10.2 | Sprint 3 Retrospective |  |  |  |
| **4** | **Project’s Retrospective Meeting** | **17/05** | **17/05** |  |
| **5** | **Final Release** | **18/05** | **18/05** |  |
| **Duration** | |  |  |  |

## **4.2. Cost**

**Table 6.** Cost person/hours

|  |  |  |
| --- | --- | --- |
| **Full Name** | **Role** | **Salary Rate (USD/hour)** |
| Tu, Dang Ngoc | Scrum Master | 2 |
| Chi, Dang Thi Kim | Team Member | 2 |
| An, Nguyen Mai Truong | Team Member | 2 |
| An, Le Manh | Team Member | 2 |
| Thang, Tran Van | Team Member | 2 |

**Table 7.** Description

|  |  |  |
| --- | --- | --- |
| **Description** | **Amount** | **Unit** |
| Number of Members | 5 | Person |
| Number of working hours per day | 6 | Hours |
| The cost per hour per member | 2 | USD |
| The number of working days | 110 | Days |
| Other | 100 | USD |

**Table 8.** Total cost estimation

|  |  |  |
| --- | --- | --- |
| **No** | **Criteria** | **Total (USD)** |
| 1 | Working hours | $6600 |
| 2 | Other cost | $500 |
| TOTAL | | $7100 |

**The explanation for the table**

* Amount of working hours = 5 members \* 6 hours \* 110 days
* Other cost = 5 members \* 100 USD

# **5. Project Risk**

**Table 9.** Rating for likelihood and seriousness for each risk

|  |  |  |  |
| --- | --- | --- | --- |
| **RATING FOR LIKELIHOOD AND SERIOUSNESS FOR EACH RISK** | | | |
| **L** | Rated as Low | **E** | Rated as Extreme (Used for Seriousness only) |
| **M** | Rated as Medium | **NA** | Not Assessed |
| **H** | Rated as High |  |  |

**Table 10.** Project Risk

| **Risk** | **Definition** | **Level** | **Likelihood** | **Mitigation Strategy** |
| --- | --- | --- | --- | --- |
| Scope Creep | Requirements may change or expand during development, impacting timelines and deliverables. | H | M | - Organize regular review meetings to confirm and freeze requirements. - Prioritize core functionalities first |
| AI Integration Complexity | Challenges may arise in implementing AI-based features like the chatbot and recommendation system. | H | H | - Conduct early prototyping and testing of AI features  - Consult existing AI solutions and frameworks |
| Technical Compatibility | Compatibility issues or technical errors may occur with ReactJS, NodeJS, and SQL Server. | M | M | - Perform thorough unit and integration testing.  - Share programming expertise across the team. |
| Network | Limited bandwidth or server capacity may slow down website performance and API response times. | H | M | Optimize source code and upgrade network lines as needed. |
| Resource Constraints | Team members may lack time due to personal commitments or overloaded schedules. | H | M | - Create a detailed and balanced work schedule.  - Allocate additional working hours on weekends if needed. |
| Schedule Delays | Development phases may run longer due to unforeseen technical complexities or workload issues. | H | M | - Regularly update and review project timelines.  - Break work into smaller, well-defined sprint tasks. |
| User Adoption Challenges | The platform may struggle to attract users if it lacks engaging features or a smooth experience. | H | M | - Focus on delivering an exceptional UI/UX experience.  - Collect and incorporate user feedback early. |

# **6. Deliverables**

**Table 11.** Deliverables

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Document** | **Deadline** | **File Name** |
| 1 | Proposal Document | Dec 10th, 2024 | C1SE.17\_Proposal\_ TRIPGO\_ver2.0.docx |
| 2 | Project Plan Document | Dec 4th, 2024 | C1SE.17\_ProjectPlan\_ TRIPGO \_ver2.0.docx |