PROJECT PLANNING & MANAGEMENT FORM

CMPE314/CTPR214/CTPR315/ITEC414
Software Engineering

PROJECT NO : 1

GROUP NO.   : WILL BE ASSIGNED BY THE SUPERVISOR

PROJECT NAME   : Project Proposal Report

PROJECT START DATE   :03/04/2024

PROJECT END DATE   :05/04/2024

SUPERVISOR   : Yoney Ever

SEMESTER TERM   : 1

Deadline: This file must be submitted by 5**th Apr 2024, Friday at 23:59**.

Project Type: Software Design and Management
Template updated: 17.03.2024

A.1. Preliminary Project Information

A.1.1

Project No	1
Project Name	Project Proposal Report
Start Date	03/04/2024
End Date	05/04/2024
Time	00:00

A.1.2

Project Manager			
Name Surname	Joshua	ID No	22216362
Title/Role	**Project Manager**		
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A.2 Group Information

A.2.1

Student 1			
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Title/Role	Project Manager and Programmer		
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Student 2			
Name Surname	DAN MPINDA	ID No	21907388
Title/Role	Research analyst and requirement analyst		
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A.2.2

List of Completed / Ongoing Projects of Team
Project Manager: As the Project Manager, I'm currently overseeing research and evaluation of the best platforms for team file sharing and communication.

Furthermore, I'm ensuring productivity by facilitating effective team communication and participation.

I'm also coordinating project timelines and milestones to keep the team on track.

Additionally, I'm identifying and resolving any issues or obstacles that may arise during the project execution.

Programmer:

In my role as the Programmer, the ongoing tasks include developing the initial screen for customer interaction.

Additionally, I'm exploring various designs and layouts to enhance the user experience.

I'm actively collaborating with the design team to implement user interface improvements based on feedback.

Furthermore, I'm conducting regular code reviews to maintain code quality and ensure adherence to project standards.

I'm also troubleshooting and debugging any issues that arise during the development process.

Research analyst:

In my role, the ongoing task is to collect information related to the topic, get to know the must have of a good and reliable ticket vending machine, the ways in which we can make the product easy to use, secured and responsive to the user requests.

Also I am going to get the users needs, how they expect the machine to be, to respond and to be accessible and based on that I will provide the necessary data to my team members.

Requirement analyst:

Understanding what are the key points and the role of the machine is important here, to know what is expected from the machine, to list every of the aspects of the vending machine, what services it will be offering and the steps required to achieve the goal. My job is more related with the Mentor/Costumer whereby I will get all that he needs to product to contain.

B.1 Introduction to Project

B.1.1

Summary of Project
Our project, led by a dedicated Project Manager/Lead Systems Analyst, focuses on the development of a user-friendly ticket selling machine. This individual oversees the project's planning, coordination, and execution, ensuring that all team members are aligned and tasks are completed on schedule. Additionally, they play a crucial role in analyzing system requirements and ensuring that the ticket selling machine meets the needs of both travelers and operators.

Working alongside the Project Manager/Lead Systems Analyst, the Research Analyst/Literature Surveyor conducts in-depth research on existing ticket selling systems and industry best practices. Their findings inform the project's design and development process, enabling the team to incorporate proven solutions and innovative approaches into the ticket selling machine.

The Requirement Analyst plays a key role in gathering and documenting the functional and non-functional requirements of the ticket selling machine. They collaborate with stakeholders to define clear and comprehensive specifications, ensuring that the final product meets the expectations and needs of end-users.

The Programmer, responsible for implementing the technical aspects of the ticket selling machine, works closely with the Project Manager and Requirement Analyst to translate requirements into functional code. Their expertise in software development and programming languages ensures the smooth operation and reliability of the ticket selling machine.

Each team member's unique role and contributions are essential to the success of the project, collectively working towards the goal of delivering a user-friendly and efficient ticket selling machine.

B.1.2

Key Words
These key terms outline the specific areas of focus and responsibilities associated with each role in the project team. They will guide the activities and contributions of team members throughout the project lifecycle. **For the Project Manager/Lead Systems Analyst:** Project Management Coordination Planning Execution Objectives Alignment Deadlines Team Leadership **For the Research Analyst/Literature Surveyor:** Research Literature Review Survey Insights Gathering Data Analysis

Information Synthesis
Best Practices Identification
Users experiences

For the Requirement Analyst:

Requirements Gathering
Functional Requirements
Non-functional Requirements
Stakeholder Expectations
Documentation
Specifications
Validation

For the Programmer:

Software Development
Coding
Implementation
Testing
Debugging
Code Review
System Maintenance

Customer :

Stakeholder Engagement
Feedback Gathering
Expectations Alignment
Guidance
Support
Mentorship
Evaluation

B.1.3

Aim of Project
Our venture points to attain a multifaceted set of objectives, each pointed at reshaping the ticket purchasing landscape to superior serve wants of travelers and administrators alike. Basically, our objective rotates around presenting a cutting edge, instinctive ticket offering arrangement custom fitted to meet the advancing requests of modern travelers. By creating and executing a progressed ticket offering machine, our point is to streamline and streamline the ticket acquirement handle, reducing common disappointments such as long lines and convoluted exchange methods.

Moreover, a key center of our endeavor is to prioritize the security and constancy of ticket exchanges. Through the integration of strong verification and encryption conventions, our point is to defend the privacy and judgment of installment information, ingrains certainty in travelers with respect to the security of their exchanges.

In pair with improving the traveler encounter, our extend is equipped towards optimizing ticket distributing operations for administrators. By consolidating advanced stock administration and exchange following functionalities, our objective is to prepare administrators with real-time bits of knowledge and analytics, empowering them to optimize operations, moderate downtime, and maximize income potential.

Besides, our extend endeavors to use developing innovations and industry best hones to convey a scalable and future-ready arrangement. Through a proactive approach to plan and improvement, our point is to future-proof our ticket offering machine, guaranteeing compatibility with advancing mechanical patterns and advertise flow.

Eventually, our project's overarching aspiration is to revolutionize the ticket distributing scene, advertising travelers a consistent and stress-free ticket obtaining encounter whereas enabling administrators with the instruments and experiences vital for operational brilliance and client fulfillment. Through advancement, collaboration, and faithful commitment to brilliance, we yearn to set up modern benchmarks of accomplishment inside the ticket distributing space

B.1.4

Innovative Aspects/Contributions of Project

Our project introduces several innovative aspects and contributions that aim to redefine the ticket vending experience for travelers and operators alike.

Foremost among these is our commitment to leveraging cutting-edge technology and industry best practices to develop a ticket selling machine that sets new standards for efficiency and user-friendliness. By incorporating state-of-the-art features such as intuitive interface design, secure payment processing, and real-time transaction tracking, our project seeks to enhance the overall ticket purchasing experience for travelers while streamlining operations for operators.

Additionally, our project places a strong emphasis on scalability and adaptability, ensuring that our ticket selling machine is equipped to meet the evolving needs of the market. Through modular design principles and flexible architecture, our solution can easily accommodate future enhancements and expansions, enabling seamless integration with emerging technologies and evolving customer preferences.

Furthermore, our project's innovative approach extends beyond technical considerations to encompass a holistic focus on customer-centricity and operational excellence. By prioritizing user feedback and stakeholder engagement throughout the development process, our project aims to deliver a ticket selling machine that not only meets but exceeds the expectations of both travelers and operators.

Moreover, our project's emphasis on data-driven decision-making and continuous improvement represents a significant innovation within the ticket vending domain. By leveraging analytics and insights gleaned from transaction data, our solution empowers operators to optimize operational efficiency, identify revenue opportunities, and enhance customer satisfaction, driving sustainable growth and success.

Ultimately, our project's innovative aspects and contributions are poised to revolutionize the ticket vending landscape, offering a compelling blend of cutting-edge technology, user-centric design, and operational excellence that sets new benchmarks of achievement within the industry.

So no need to go to online websites where you might be hacked or wait in a long queue just to get your ticket, this is a fast way to get your ticket securely and safely without having to worry about anyone or any interference.

B.1.5

Methods to be Applied

Version Control: We'll kick off with version control systems like Git, ensuring efficient management of codebase and documentation revisions to foster collaboration and preserve code integrity.

Requirements Gathering Techniques: We'll utilize various methods such as interviews and surveys to gather and prioritize functional and non-functional requirements, shaping the development of the ticket selling machine.

Unified Modeling Language (UML): Utilizing UML diagrams, including activity diagrams, we'll visualize and analyze the system's operation sequence, providing a blueprint for feature design and implementation.

Prototyping: We'll create interface prototypes to solicit stakeholder feedback and validate design decisions before advancing to full-scale development.

Test-Driven Development (TDD): Adopting TDD practices, we'll ensure system reliability and resilience by crafting automated tests before coding to verify behavior and identify defects early on.

Continuous Integration and Deployment (CI/CD): Establishing CI/CD pipelines, we'll automate building, testing, and deployment processes to facilitate rapid, dependable delivery of updates and features.

Agile Development Approach: Embracing agile methodology, we'll prioritize adaptability and teamwork, ensuring iterative delivery and responsiveness to evolving requirements and stakeholder input.

Documentation: We'll maintain comprehensive documentation, including design specifications and user guides, to facilitate knowledge sharing and support future maintenance efforts.

B.1.6

Who can contribute to this project in your team?

Project Manager/Lead Systems Analyst: Tasked with supervising project progression, orchestrating team efforts, and ensuring that project objectives are achieved within designated timeframes.

System Designer: Designs the system's architecture and functionality for the ticket selling machine, ensuring alignment with project requirements and specifications.

Research Analyst/Literature Surveyor: Conducts research to gather insights from existing ticket vending systems and industry standards, informing the project's design and development phases.

Requirement Analyst: Analyzes and documents both functional and non-functional requirements of the ticket selling machine, ensuring coherence with the needs of travelers and operators.

Programmer: Implements the system's design and functionality, coding and testing software components to meet quality benchmarks and user needs.

Mentor/Customer: Offers guidance, feedback, and assistance throughout the project's lifecycle, ensuring adherence to academic standards and expectations.

B.2 Methods and R&D Stages

B.2.1

1- Explain the purpose of this project.

Our primary objective of this project is to develop a ticket selling machine system that prioritizes user-friendliness and efficiency. Our aim is to simplify the process of purchasing tickets for travelers, ensuring a seamless and convenient experience. By automating ticket sales, we seek to enhance overall user satisfaction and streamline operations for transportation providers. Through this initiative, we aspire to improve the accessibility and reliability of ticketing services, ultimately contributing to a more efficient and enjoyable travel experience for all users.

2- Explain
  - o   **output of project**
  - o   **the specific objectives of the project**
  - o   **success criteria**
  - o   **realistic constraints**

The culmination of this project will yield a fully operational ticket selling machine system, meticulously crafted to optimize the ticket purchasing experience for travelers. Its output will represent a synthesis of various components, encompassing user interface design, backend system architecture, payment processing capabilities, validation mechanisms, real-time communication protocols, and overall system reliability. Each specific objective within this multifaceted endeavor serves as a building block towards achieving the overarching goal of enhancing user satisfaction and operational efficiency within the transportation domain.

One of the primary objectives is the creation of an intuitive user interface that fosters seamless interaction between travelers and the ticket selling machine. This entails designing layouts and visual elements that prioritize clarity, simplicity, and accessibility, thereby ensuring a user-centric experience. Concurrently, the development of robust backend systems forms another crucial objective, involving the implementation of intricate algorithms and databases to handle ticket requests, process payments securely, and maintain transaction logs with precision.

Moreover, the integration of various payment options, such as cash, credit/debit cards, and mobile payments, stands as a pivotal objective within the project scope. This necessitates the establishment of seamless connections with external payment gateways and banking systems, ensuring swift and secure financial transactions. Additionally, the implementation of validation mechanisms ensures the accuracy and integrity of data inputted by travelers, safeguarding against errors and discrepancies.

Success criteria for the project encompass a spectrum of qualitative and quantitative metrics, including user satisfaction ratings, transaction processing times, payment processing accuracy, system reliability, and seamless integration with external services. Furthermore, adherence to realistic constraints, such as project timelines, resource allocation, budgetary considerations, technical complexities, and regulatory compliance, serves as a cornerstone for project success.

3- Explain
- o **the methods to be applied during R&D activities**
- o **applications**
- o **technics and tools to be used**
- o **standards to be followed under the workflow**

Which SOFTWARE PROCESS MODEL in below will you apply? Why? How?

Considering the complexities and requirements of our ticket selling machine project, the choice of software process model is critical to ensure the success and efficiency of the development process. After careful evaluation, the Evolutionary Development model emerges as the most suitable option.

The Evolutionary Development model, also known as iterative or incremental development, offers several advantages that align well with the nature of our project. Firstly, this model allows for the incremental delivery of functionality, enabling us to deliver tangible results to stakeholders early in the development process. By breaking down the project into smaller iterations, we can gather feedback from users and stakeholders, incorporate changes, and refine the system iteratively. This iterative approach facilitates flexibility and adaptability, crucial aspects for a project with evolving requirements and dynamic user needs.

Project Workflow:

Feasibility and Pre-research:
The feasibility and pre-research phase serve as the foundation for the project, where we conduct comprehensive analysis and research to assess the viability and scope of the ticket selling machine system. This involves market research, user requirement analysis, and technical feasibility studies to understand the market landscape, user preferences, and technological capabilities. Through this phase, we aim to establish a clear understanding of the project objectives, constraints, and potential risks.

System Design:

System design is a crucial phase where we translate the requirements gathered during the feasibility analysis into a comprehensive system architecture and design. Utilizing industry-standard techniques such as Unified Modeling Language (UML), we develop detailed system specifications, use cases, and architectural diagrams. This phase ensures that all stakeholders have a clear understanding of the system requirements and lays the groundwork for the subsequent development phases.

Software Development:
In the software development phase, we follow an iterative and incremental approach to build the ticket selling machine system. Using agile methodologies such as Scrum or Kanban, we break down the development process into manageable iterations or sprints, each focused on delivering specific functionality. Through continuous collaboration with stakeholders and regular feedback loops, we prioritize features based on user needs and adapt the system accordingly. This iterative approach allows us to address changes and requirements as they arise, ensuring that the final product meets user expectations.

Prototype Implementation and Testing Work:
Prototype implementation involves creating functional prototypes of the ticket selling machine system to validate design concepts and gather feedback from stakeholders. Concurrently, rigorous testing procedures are conducted to ensure the quality and reliability of the system. This includes various testing techniques such as unit testing, integration testing, and user acceptance testing to identify and address any issues or defects.

Maintenance:
The maintenance phase involves ongoing support, updates, and enhancements to the deployed system. This includes addressing bug fixes, implementing new features based on user feedback, and ensuring the continued reliability and performance of the ticket selling machine system. Through proactive maintenance and regular updates, we aim to optimize the system's functionality, address any emerging issues, and enhance the overall user experience.

By following the Evolutionary Development model and adhering to this structured project workflow, we are confident in our ability to deliver a robust, user-friendly, and efficient ticket selling machine system that meets the needs of both travelers and transportation providers.