Project Initialization and Planning Phase

Date	15 July 2024
Team ID	SWTID1720075266
Project Title	CodeXchange - AI-Powered Code Translation Tool
Maximum Marks	3 Marks

Project Overview	
Objective	The primary objective is to streamline code translation between different programming languages, enhancing collaboration, reusability, and migration processes for developers.
Scope	The project aims to provide an efficient and accurate code translation tool that supports multiple programming languages, improving the workflow and productivity of development teams.
Problem Statement	
Description	Current challenges in code translation include maintaining functionality and performance during platform transitions, facilitating multilingual collaboration, promoting code reusability, and addressing errors in translated code. These issues hinder operational efficiency and developer productivity..
Impact	Addressing these challenges will lead to improved efficiency, seamless collaboration, enhanced code reusability, and reduced errors in translated code, ultimately contributing to better project outcomes and developer satisfaction.
Proposed Solution	
Approach	Leveraging advanced AI and machine learning techniques to develop an AI-powered code translation tool that ensures accurate and efficient translation across different programming languages.
Key Features	1. Implementation of an AI-driven code translation model. 2. Real-time code translation to support live collaboration. 3. Comprehensive library of translated code snippets and modules. 4. Automated error-checking and debugging tools.

Project Proposal (Proposed Solution) report

The proposal report outlines the development of CodeXchange, an AI-powered code translation tool aimed at enhancing code translation accuracy and efficiency. By addressing current inefficiencies and challenges, CodeXchange promises to improve developer productivity, promote seamless collaboration, and ensure consistent code quality across different programming languages. Key features include an AI-driven translation model, real-time translation capabilities, a library of translated code snippets, and automated error-checking tools.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing	CPU/GPU specifications, number of cores	T4 GPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy, matplotlib, seaborn
Development Env.	IDE	Jupyter Notebook, PyCharm
Data		
Data	Source, size, format	GitHub repositories, varied sizes, multiple formats