Project Initialization and Planning Phase

Date	6 July 2024
Team ID	SWTID1720116242
Project Title	Predicting Compressive Strength Of Concrete Using Machine Learning
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

This project proposal presents a solution designed to tackle a particular issue. With well-defined objectives, a clear scope, and a succinct problem statement, the proposed solution outlines the strategy, main features, and necessary resources, including hardware, software, and personnel.

Project Overview	
Objective	The main goal is to transform the prediction of concrete compressive strength by using advanced machine learning techniques, providing quicker and more precise evaluations.
Scope	The project thoroughly evaluates and improves the method of predicting concrete compressive strength by integrating machine learning to create a more robust and efficient system.
Problem Statement	
Description	Tackling the inconsistencies and inefficiencies in the existing concrete strength prediction process that negatively impact structural integrity and construction planning.
Impact	Addressing these problems will lead to greater prediction accuracy, lower risk of structural failures, and enhanced overall efficiency in construction projects, ultimately improving project outcomes and stakeholder satisfaction.
Proposed Solution	
Approach	Using machine learning techniques to evaluate and forecast the compressive strength of concrete, developing a flexible and responsive predictive support system
Key Features	• Development and deployment of a machine learning model for predicting concrete strength.

	• Real-time support for decision-making to enable faster and more precise predictions • Ongoing learning to adjust to changing data and construction standards.

Resource Requirements:

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	Intel i7, 8 cores or NVIDIA GTX 1660 GPU
Memory	RAM specifications	16 GB DDR4
Storage	Disk space for data, models, and logs	2 TB NVMe SSD
Software		
Frameworks	Python frameworks	Flask, TensorFlow 2.x
Libraries	Additional libraries	scikit-learn, pandas, numpy, matplotlib, seaborn, SQLAlchemy
Development Environment	IDE, version control	PyCharm, GitHub, VS Code
Data		
Data Source	Source, size, format	Kaggle, multiple sources, JSON and CSV formats