Project Initialization and Planning Phase

Date	08 July 2024
Team ID	SWTID1720160264
Project Title	Predicting Compressive Strength Of Concrete Using Machine Learning
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

Project Overview	
Objective	The project aims to develop a machine learning model capable of accurately predicting the compressive strength of concrete based on various influencing factors.
Scope	Developing a machine learning model to predict concrete compressive strength by analyzing mix proportions, curing conditions, and age, aiming to optimize construction practices and enhance structural integrity.
Problem Statement	
Description	The specific goal of the model is to predict the compressive strength of concrete. Compressive strength is a critical property of concrete that measures its ability to withstand compressive forces.
Impact	1) Improved Construction Practices. 2) Enhanced Safety. 3) Sustainable Development. 4) Cost Savings. 5) Technological Advancements.
Proposed Solution	

Approach	1) Dataset Collection.
	2) Data Pre-processing.
	    a) Import libraries
	    b) Reading Dataset.

	c) Processing the data.
	d) Taking care of missing data.
	e) Label Encoding.
	f) Data Visualization.
	g) Splitting data into dependent and independent variables.
	h) Splitting data into train and test.
	3) Model Building.
	  a) Training and testing model.
	  b) Evaluation of model.
	4) Application Building.

Key Features	1) Domain-Specific Feature Selection. 2) Handling of Time-Dependent Properties.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	2 x NVIDIA V100 GPUs
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
Development Environment	IDE, version control	Jupyter Notebook, Git
Data		
Data	Source, size, format	Kaggle dataset, 1,030 inputs