Project Initialization and Planning Phase

Date	25-09-2024
Team ID	LTVIP2024TMID25000
Project Title	SMS Spam Detection
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

This proposal AI-ML to develop a machine learning-based SMS spam detection system, enhancing the user experience by automatically classifying SMS messages as either spam or not spam. The project leverages a pre-trained model and web technologies to deliver real-time predictions in a user-friendly interface. It tackles the challenge of spam overload, promising to reduce unnecessary distractions and improve user security.

Project Overview	
Objective	The primary objective is to create a Flask web application capable of detecting spam SMS messages with high accuracy by utilizing machine learning techniques such as Naive Bayes and TF-IDF vectorization.
Scope	This project will allow users to input an SMS message via a web interface and receive instant feedback on whether the message is classified as spam or not spam. The application aims to improve user convenience by automating the spam detection process and offering an intuitive, easy-to-use web solution.
Problem Statement	
Description	Users often receive unwanted and potentially harmful SMS spam messages that affect their productivity and pose security risks. Manually filtering these messages is time-consuming and inefficient.
Impact	By addressing the issue of spam detection, the application can reduce the number of unsolicited messages users have to handle manually, thereby improving user experience, increasing productivity, and enhancing digital security.
Proposed Solution	

Approach	The proposed solution is to build a Flask-based web application that employs machine learning techniques, such as **Naive Bayes** and **TF-IDF vectorization**, to classify SMS messages as spam or not spam in real-time.
Key Features	1.Implementation of a machine learning-based model for **SMS spam detection**. 2.**Real-time predictions**: Users will receive instant feedback on the spam classification of the SMS. 3.User-friendly **web interface** for easy input of messages and result visualization. 4.Continuous updates and retraining of the model to adapt to new spam techniques.

Resource Requirements

Resource Type	**Description**	**Specification/Allocation**
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	NVIDIA V100 GPUs
Memory	RAM specifications	4 GB / 8 GB / 16 GB
Storage	Disk space for data, models, and logs	512 GB SSD / 1 TB SSD
Software		
Frameworks	Python framework for web development	Flask
Libraries	Libraries for machine learning and data processing	scikit-learn, pandas, numpy, matplotlib, seaborn
Development Environment	IDEs for coding	Jupyter Notebook, Google Colab, Visual Studio Code
Data		
Data	Dataset used for training and testing	Kaggle dataset (SMS Spam Collection), 5,000+ rows, CSV format