Project Initialization and Planning Phase

Date	01 October 2024
Team ID	LTVIP2024TMID24974
Project Title	Analysis Of Amazon Cell Phone Reviews
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) report

The proposed solution involves analyzing Amazon cell phone reviews using natural language processing techniques to identify key sentiment trends, product features, and customer preferences. This analysis will provide valuable insights into customer satisfaction and help improve product offerings.

Project Overview	
Objective	The primary objective of this project is to perform sentiment analysis and extract key insights from Amazon customer reviews on cell phones, identifying trends, customer satisfaction levels, and product features that are frequently discussed.
Scope	This project will analyze a dataset of Amazon cell phone reviews to provide valuable feedback to retailers and manufacturers. It will focus on understanding customer sentiment (positive, negative, neutral) and analyzing the frequency of specific terms (e.g., battery life, camera, performance). The scope will be limited to reviews in English for products in the cell phone category.
Problem Statement	
Description	This analysis involves examining Amazon customer reviews of cell phones to assess sentiment, highlight common complaints or praises, and identify trends in product performance, helping guide improvements and inform consumer decisions.
Impact	Solving this problem will provide manufacturers with actionable insights into consumer preferences and recurring issues. It will also allow customers to make informed purchasing decisions based on aggregated reviews and sentiments.
Proposed Solution	
Approach	The project will use natural language processing (NLP) techniques for sentiment analysis. Text pre-processing methods will clean the review text, and a machine learning model (such as Naive Bayes or a neural network) will classify reviews into different sentiment categories.

	Additionally, the project will utilize topic modeling to identify common themes.
Key Features	- Sentiment analysis (positive, negative, neutral classification) - Topic modelling for key aspects (e.g., camera quality, battery life) - Word cloud visualizations to highlight frequent terms - Insights into the most discussed cell phone brands/models

Resource Requirements

Resource Type	**Description**	**Specification/Allocation**
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	2 x NVIDIA V100 GPUs for processing
Memory	RAM specifications	16 GB RAM for data processing tasks
Storage	Disk space for data, models, and logs	1 TB SSD for storing reviews, models, and logs
Software		
Frameworks	Python frameworks	Flask for web interface
Libraries	Additional libraries	scikit-learn, pandas, NumPy, NLTK for sentiment analysis
Development Environment	IDE, version control	Jupyter Notebook for development, Git for version control
Data		
Data	Source, size, format	Amazon product reviews dataset, estimated size: 100,000 reviews, format: CSV