

SENTIMENT ANALYSIS FOR MARKETING

PROJECT TITLE	SENTIMENT ANALYSIS FOR MAKETING
SKILLS TAKEN AWAY	❖ Python script ❖ EDA ❖ UI deployment
DOMAIN	FMCG[FAST MOVING CONSUMER GOODS]

TOOLS :

Pandas , numpy , matplotlib , seaborn . scikit learn , NLP libraries

TECHNOLOGY :

Machine learning NLP

PROBLEM STATEMENT :

Customer review for any product . Product review feedback from customer play apivotal role in enriching the product quality along site meet the market expectation . It is easy for any seller to get review to one to one conversation with custom . If the product is stored in offline store but it is difficult to retrieve and analyse the same review , if the same product sold online .

“E- commerce” one of the booming industries and is the one stop destination for various sellers to market and sell their product online to attract a large market .

Given set of review of each category for product that is live on a e-commerce plat form like flipkart/amazon/myntra etc...

ABSTRACT :

Sentiment analysis, a critical aspect of natural language processing (NLP), plays a pivotal role in understanding public sentiment towards various entities, such as products, services, or events. This study presents a comprehensive approach to sentiment analysis using state-of-the-art NLP techniques. The research encompasses data preprocessing, feature extraction, and sentiment classification, leveraging advanced machine learning models.

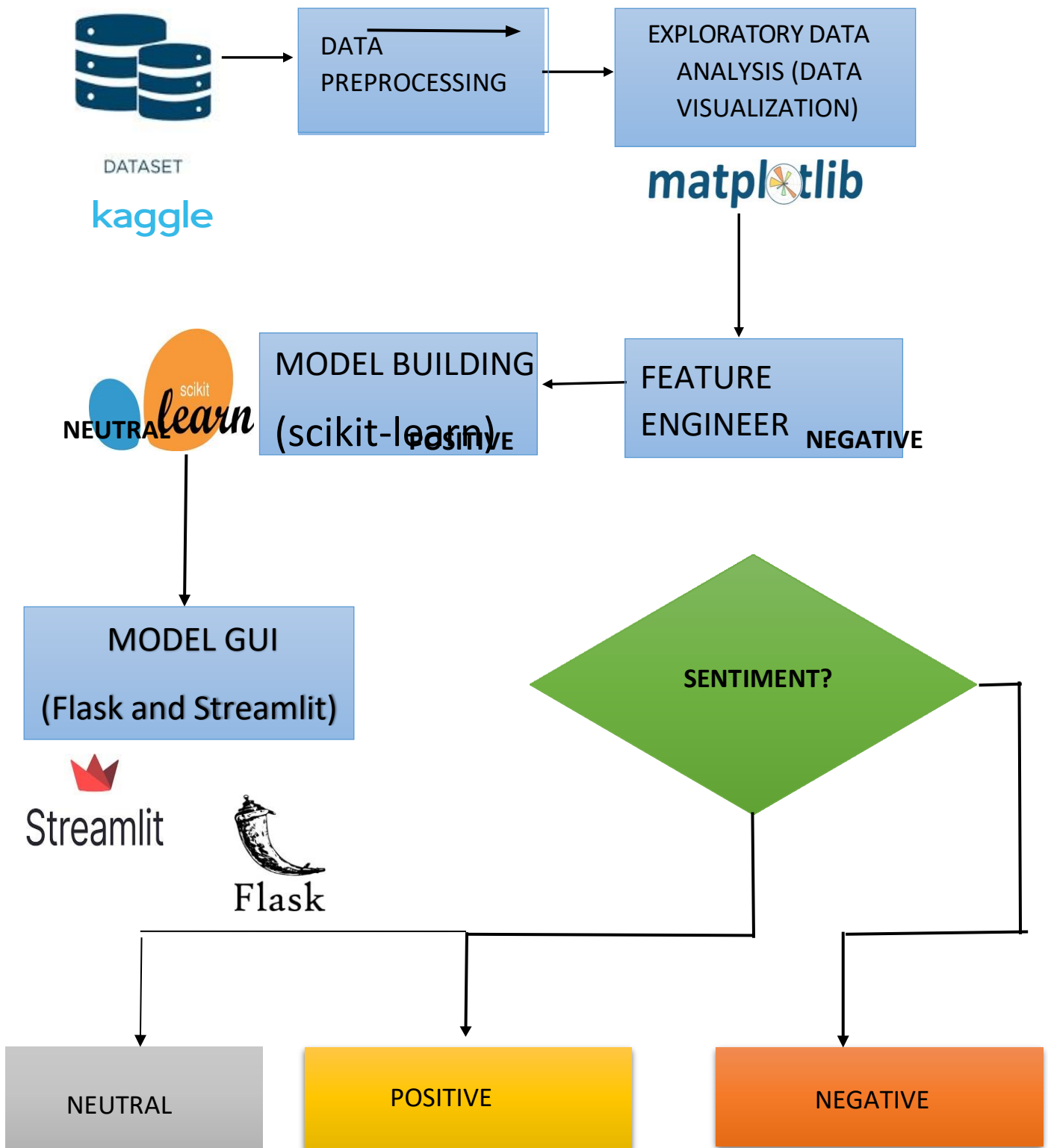
The initial phase focuses on preprocessing techniques, including text normalization, tokenization, and stopword removal, to enhance the quality of the input data. Subsequently, various feature extraction methods are explored, such as word embeddings (e.g., Word2Vec, GloVe) and deep learning-based approaches (e.g., BERT, GPT-3). These techniques are compared to evaluate their effectiveness in capturing nuanced sentiments.

The sentiment classification phase involves training and fine-tuning a diverse range of machine learning models, including traditional classifiers (e.g., Support Vector Machines, Random Forests) as well as deep learning architectures (e.g., Convolutional Neural Networks, Long Short-Term Memory networks). Additionally, transfer learning techniques are employed to leverage pre-trained models for sentiment analysis tasks, enabling the model to adapt to specific domains with limited labeled data.

DATASET LINK :

<https://www.kaggle.com/datasets/crowdfunder/twitter-airline-sentiment>

Design Techniques:



APPROACHES :
Machine learning like :

1. DATA UNDERSTANDING

Data understanding is a critical phase in the data analysis process that involves acquiring, exploring, and comprehending the dataset. It helps establish a solid foundation for subsequent analysis and modeling.

2.DATA PREPROCESSING

Data preprocessing is a crucial step in preparing raw data for analysis or machine learning tasks. It involves various techniques to clean, transform, and organize data, making it suitable for further processing. Common steps include handling missing values, scaling features, encoding categorical variables, and splitting data into training and testing sets.

3.EDA (EXPLORATORY DATA ANALYSIS)

EDA stands for Exploratory Data Analysis. It's an approach to analyzing datasets to summarize their main characteristics, often with visual methods. EDA helps in understanding the structure, patterns, and relationships in the data. It involves techniques like summary statistics, visualizations, and data cleaning.

4.FEATURE ENGINEERING

Feature engineering refers to manipulation — addition, deletion, combination, mutation — of your data set to improve machine learning model training, leading to better performance and greater accuracy. Effective feature engineering is based on sound knowledge of the business problem and the available data sources.

5.MODEL BUILDING AND EVALUATION

Model evaluation is the process that uses some metrics which help us to analyze the performance of the model. As we all know that model development is a multi-step process and a check should be kept on how well the model generalizes future predictions.

6.MODEL GUI

A graphical user interface (GUI) is a type of user interface through which users interact with electronic devices via visual indicator representations.

7.USING NLP FOR ANALYSING THE NEWS ARTICLE

This project will involve investigating and experimenting with different NLP approaches to extract information from news articles, and then classify them .

RESULT :

Develop a machine learning model to analyse and calculate a percentage of positive and negative review .

LEARNING OUTCOMES :

1. Developing profusion in phyton programing language and it's data analysis libraries (panda,numpy, matplotlib,seaborn,scikid-learn,NLP libraries and GUI libraries)
 2. gaining experience in data preprocessing techniques such as handling missing data outlayer and data normalisation
 3. Understanding and visulation the data using EDA technique
 4. Learning and applying machine learning techniques such as regression and classification
 5. Buliding and optimising ML model using appropriate evaluation Matrix
 6. Experience in feature Engineering techniques to create new information representation of the data 7
- developing web application using GEY
8. Understanding and the challenges and best practices in the multimedia and how Machine can solve them.