Sentiment Analysis Project - Step by Step Explanation

## 1. Installing Required Libraries

I installed the Kaggle API using the command:  
**!pip install Kaggle** # Using this command   
This helps to download datasets from Kaggle directly into the notebook.

## 2. Importing Required Python Libraries

I imported essential libraries for:  
**- File handling (os, json, zipfile)  
- Data processing (pandas)  
- Machine learning (scikit-learn)  
- Deep learning with LSTM (TensorFlow Keras)**

## 3. Downloading Dataset from Kaggle

Using **Kaggle API** to fetch the dataset and unzip it to make it ready for processing.

## 4. Loading and Viewing Dataset

I used pandas to read the dataset using read\_csv and then viewed the first few rows using .head().

## 5. Preprocessing Text Data

Steps included:  
**- Use of tokenizer (converting words to numbers)  
- Padding sequences so all inputs are of equal length**

## 6. Splitting Data

Split the dataset into training and testing sets (80% for training and 20% for testing) using train\_test\_split.

## 7. Building the LSTM Model

Created a Sequential model with:  
**- Embedding Layer  
- LSTM Layer (to handle sequences)  
- Dense Layer with sigmoid activation to classify sentiment (positive or negative).**

## 8. Compiling and Training

Used binary crossentropy as loss, Adam as optimizer, and trained the model on training data while validating on the test data.

## 9. Evaluating the Model

Evaluated the model performance using test data and printed the accuracy. Used Examples for both positive and negative outputs so that it works.