Sentiment Based Product Recommendation System

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This project has the following structure:

1. **Jupyter Notebook**: *Sentiment_Based_Product_Recommendation_System.ipynb*
   An end-to-end Jupyter Notebook, which consists of the entire code (data cleaning steps, text pre-processing, feature extraction, ML models used to build sentiment analysis models, two recommendation systems and their evaluations, etc.)

2. **Documentation**: *SBPRS_Heroku-URL+Documentation.pdf*
   (This document)

3. **Flask Directory:** *SBPRS_FlaskProject*
   Contains all the files required, along with model pickle files. It has the following structure.

   1) **dataset -** Contains the following:
      i. *cleanedProductData.csv*: Cleaned version of original dataset
      ii. *processedTrainData.csv*: Pre-processed Training Data, has the product-reviews mapping (USED IN SBPRS)
   2) **pickle -** Contains the following pickle files:
      i. *vectorizer.pkl*: Trained TF-IDF Vectorizer (USED IN SBPRS)
      ii. *sentimentClassifier_logit.pkl*: Trained Logistic Regression model for Sentiment Classification (USED IN SBPRS)
      iii. *productRecommendationSystem*: Trained Item-based Product Recommendation System (USED IN SBPRS)
   3) **images -** Contains images used in the deployed UI
   4) **static -** Contains the CSS styling file for customizing UI look & feel
   5) **app.py -** Flask file to connect the backend ML model with the frontend HTML code
   6) **model.py -** Contains the ML model and the recommendation system along with the entire function to recommend products to users
   7) **constants.py -** Contains path of all models and data files used in SBPRS
   8) **requirements.txt -** Contains the list of libraries required in project
   9) **Procfile -** Contains the endpoints required for deployment on Heroku