The predict\_sentiment function takes a sample review, preprocesses it, and then predicts its sentiment using the trained classifier. Here's the explanation of each step within the function:

* **Data Preprocessing**:
  + re.sub(pattern='[^a-zA-Z]', repl=' ', string=sample\_review): This line removes any characters that are not alphabets from the sample\_review.
  + sample\_review = sample\_review.lower(): Converts the sample\_review to lowercase.
  + sample\_review\_words = sample\_review.split(): Splits the sample\_review into individual words.
  + sample\_review\_words = [word for word in sample\_review\_words if not word in set(stopwords.words('english'))]: Removes the stopwords from the sample\_review\_words.
  + ps = PorterStemmer(): Initializes the Porter Stemmer for word stemming.
  + final\_review = [ps.stem(word) for word in sample\_review\_words]: Stems each word in the sample\_review\_words using the Porter Stemmer.
  + final\_review = ' '.join(final\_review): Joins the stemmed words back into a single string.

