Tasks:

1. **Text classification using BERT (transformer architecture) and comparison with simple LSTM model performance:** Utilize a BERT model for multi-class classification (Data : bert\_sample.xlsx)
   1. Perform basic text preprocessing and cleaning of text
   2. Apply BERT embedding for feature engineering
   3. Then, train the classification layer for BERT with the given training set
   4. Fine tune your model using appropriate optimization hyper-parameters and attempt improvement in model performance
   5. Predict labels for new data (test data)
   6. Evaluate your model and show relevant performance metrics.
   7. Compare your BERT model performance with LSTM model output on the same data and highlight differences between two.
2. **Text based clustering (NLP) :** Perform unsupervised topic modelling of unlabeled text descriptions (use bert\_sample for this excersice)
   1. Perform preprocessing and cleaning text data
   2. Execute feature engineering method to extract text features (use TF-IDF or BOW or any other appropriate method)
   3. Run topic modelling clustering algorithm to label text descriptions with proper category
3. **Write a function that takes text array as input and returns the data with corrected spellings.**

Use the bert\_sample data for this exercise. Pass ITEM\_NAME as input and it returns the clean, spell corrected text.