1. Installing and importing library packages
2. Building a data frame for the dataset

   ```
   Three kinds of techniques are used to create the audio data
   augmentation. Namely,
   'Frequency modulation' that performs the time stretch.
   'Pitch shift' that performs the signal pitch shift.
   'Amplitude modulation' that performs the gain stretch.

   The total of 400 files for each genre shall be created for each genre.
   300 form the augmentation and 100 original.


   'Melspectrogram' method retrieves the features of the audio file, and the
   respective features are horizontally stacked to create a dataset.
   ```

3. PCA Analysis for dimensionality reduction

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   Usually more than 90% of data variance coverage is enough. This belongs
   to only one PC component. Although at most only 2 PC components shall be
   required, I had considered 4 PC components for very minimal betterment of
   model training.

   Also, the pair plot demonstrates the distribution of PC components with
   one another. Not much variance difference is observed with more than two
   PC components.
   ```

4. Finding the optimal K value

   ```
   Following methods are used to find the optimal K value:
   Elbow method: defines k = 2
   Gap Statistic Method: k value is unmeasurable.
   Silhouette Method: Defines k = 2
   ```

5. Building a Model

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   K value is identified as 2
   Train Accuracy and Test Accuracy are identified
   The grid search hyperparameter tuning is performed for enhancement of
   model behavior.
   ```