Assignment 4: Principal component analysis (PCA) and expectation-maximization (EM) algorithm

CSE472 (Machine Learning Sessional)
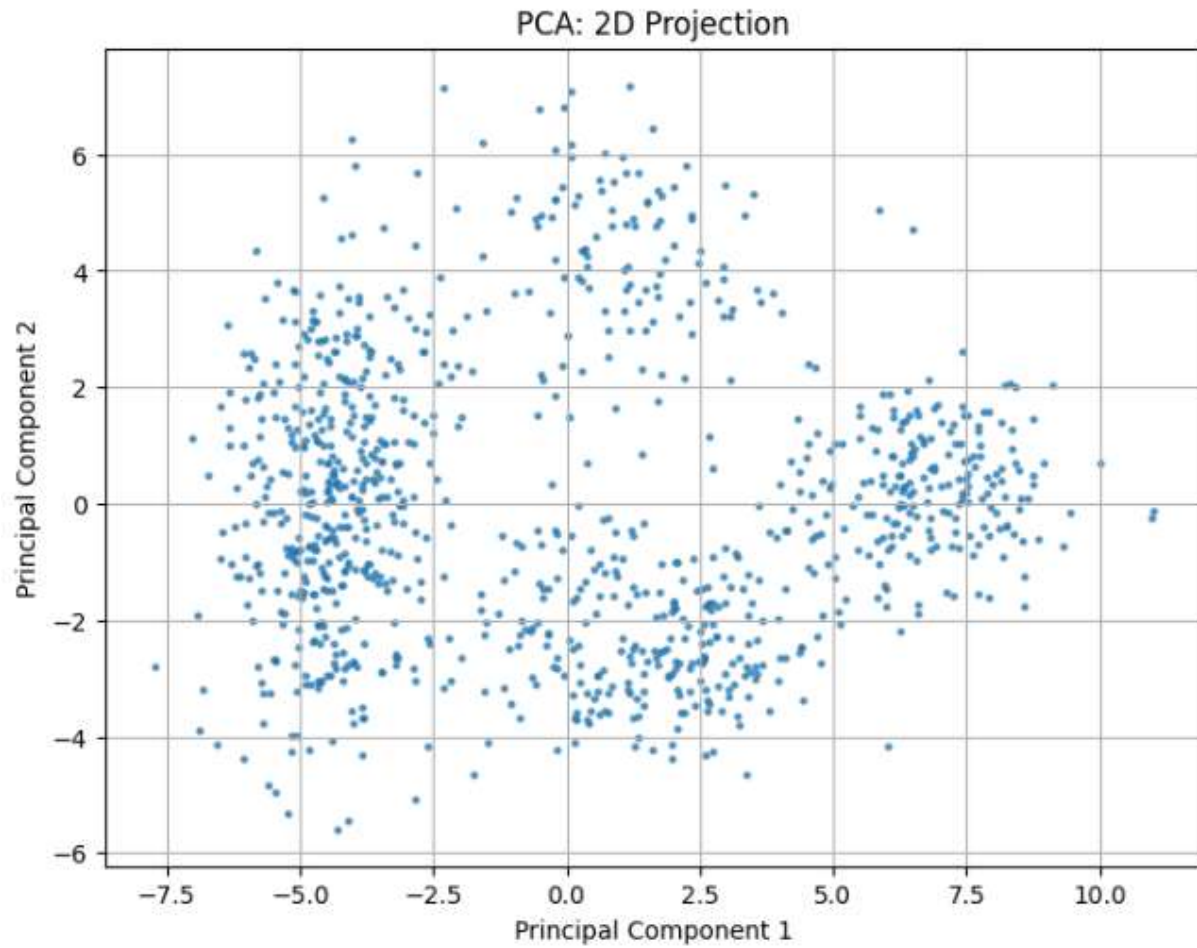

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Instructions to run the code

Upload notebook in Kaggle: Log into Kaggle account and go to the code section. Click on new notebook and then select the upload notebook option to upload the 1905052.ipynb file.
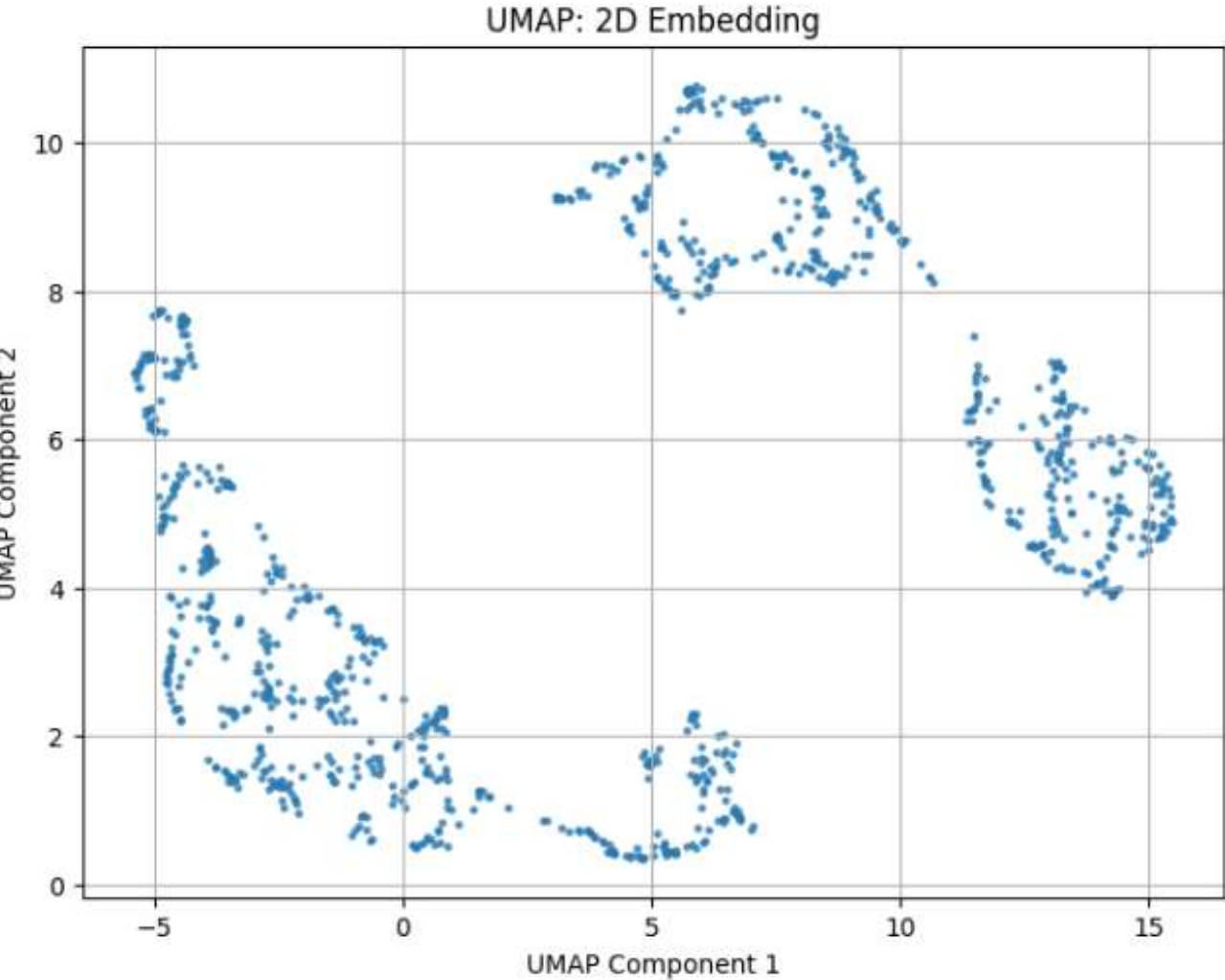
Upload dataset: Go to the Input section at right side of the page. Then click on the Upload button and then new dataset and finally upload the dataset em_data.txt with name em-data and then upload the pca_data.txt with name pca-data.

Run the notebook: Once uploaded, we can run the notebook by clicking on the "Run All" button which will execute all the cells in sequence
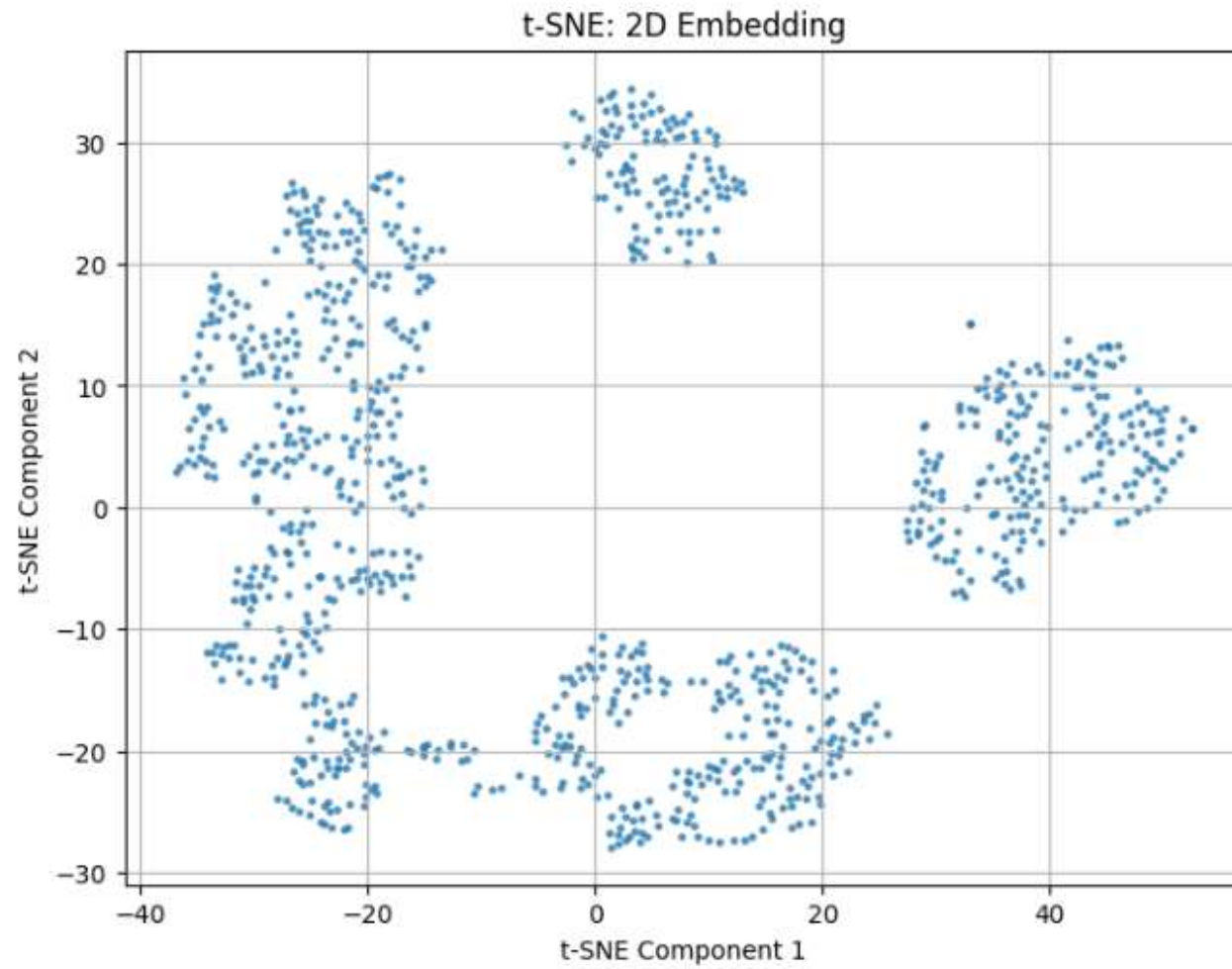
My plots for PCA from my code:

PCA: 2D Projection

UMAP (Library):

UMAP: 2D Embedding

tSNE (Library):

Expectation-maximization (EM) algorithm:

```
Estimated parameters:
Mean for group without family planning: 4.91
Mean for group with family planning: 1.78
Proportion without family planning: 0.64
Proportion with family planning: 0.36
```