

Report on PCA and EM

CSE 472 - Machine Learning Sessional

Running the ipynb

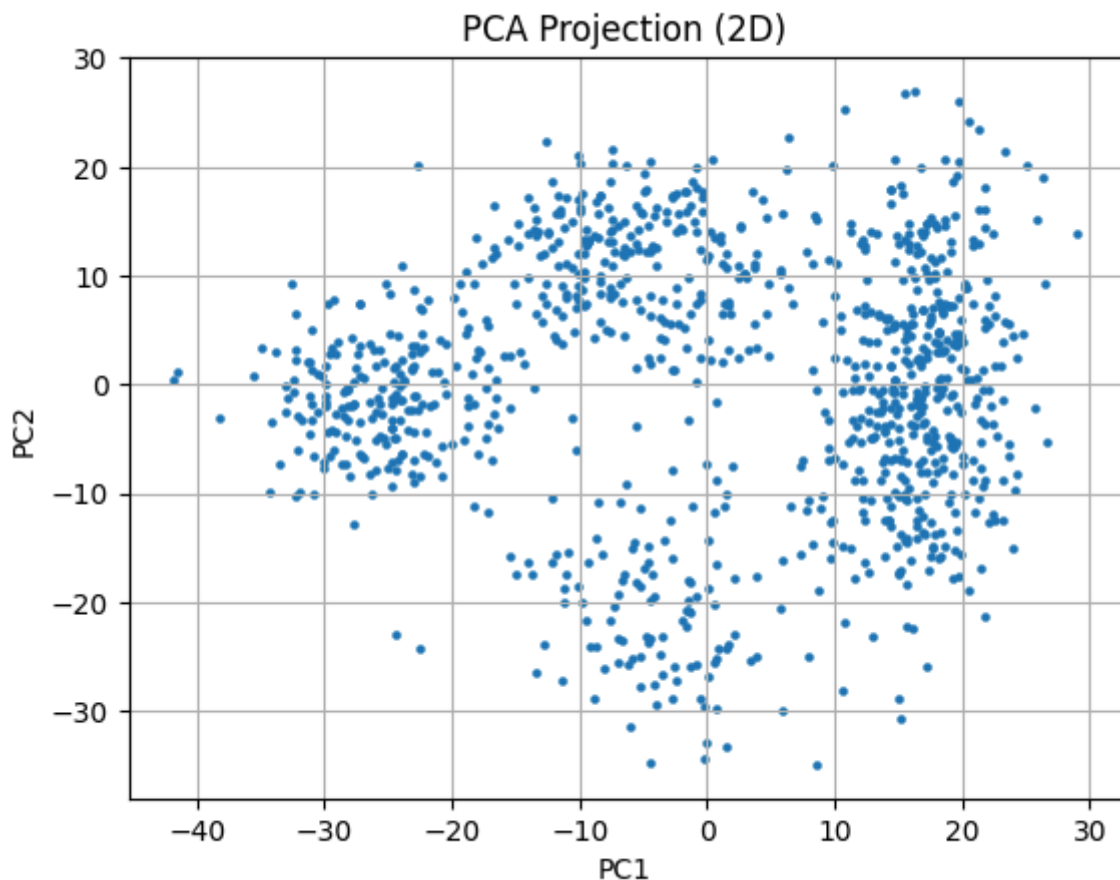
Press **RUN ALL** which would execute the PCA (Related Graphs) and EM with corresponding results.

NB: May need to change the dataset path

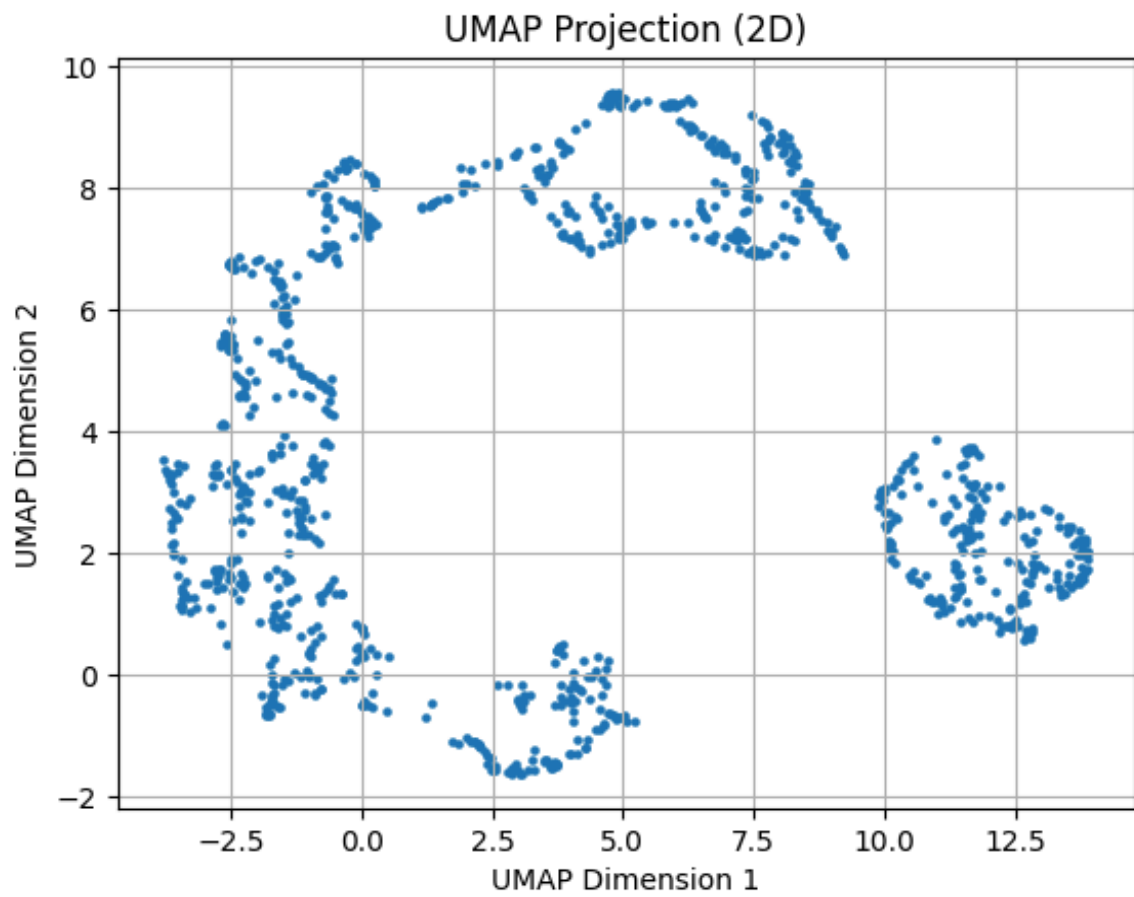
PCA - Principal Component Analysis

Projecting the 500 dimensional data to 2 dimensional space

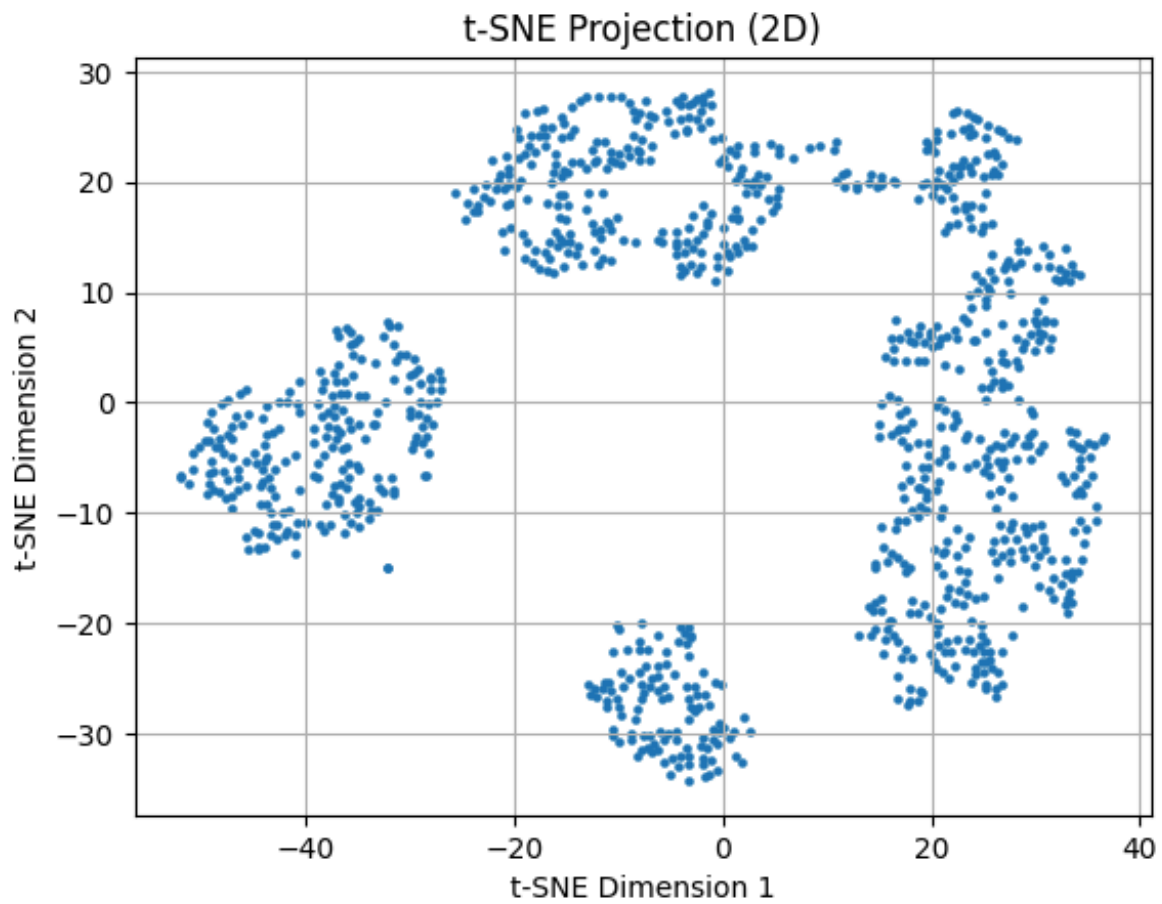
Scatter Plot (My Code)



UMAP library



t-SNE library



EM - Expectation Maximization

Data clustering analysis

| Plan | Mean number of children in families | Proportion of families |
|-------------------------|-------------------------------------|------------------------|
| With Family Planning | 1.790460 | 0.358643 |
| Without Family Planning | 4.917852 | 0.641357 |

Report by -

1905096 - Apurbo Banik Turjo

Level-4 / Term-2

Computer Science and Engineering, **BUET**