

Data Collection

Use of publicly available
StudentLife dataset

Data Pre-processing

Transforming UNIX timestamps
Dealing with missing values
Generating features

Finding Behavioural Groups

Data Normalization
Comparison and selection of clustering
algorithms
Application of IDBSCAN algorithm for final
clustering

Loneliness Detection for each group

Addressing class imbalance with SMOTE
Training four distinct binary classifiers for each of the
subgroups
Evaluation of these models using accuracy, precision,
recall, and F1 Score

Loneliness Detection Using all Students Data

Training generalized machine learning models
Evaluation of these models using the same metrics