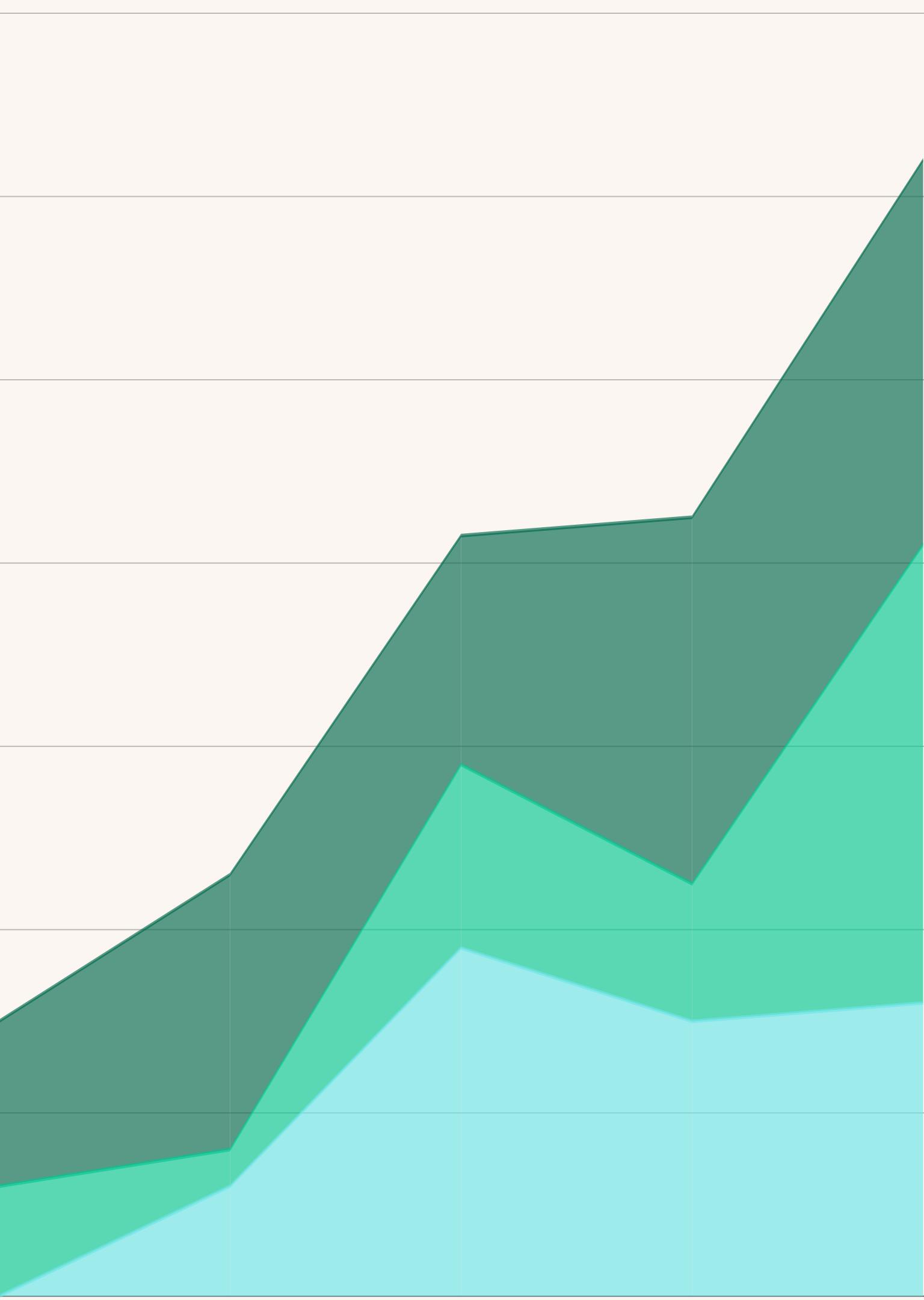


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MENTAL DISORDER ANALYSIS AND PREDICTIONS



Introduction

In the realm of mental health, predicting and understanding disorders play a pivotal role in early intervention and treatment. This project aims to leverage advanced data science techniques to predict mental health disorders based on symptoms. By utilizing machine learning algorithms like decision trees , the goal is to develop a predictive model capable of accurately identifying potential disorders from the symptoms.

Understanding the dataset

01.

Categorical dataset
more specifically
binary dataset.

02.

Comprises of 637 rows
and 29 columns

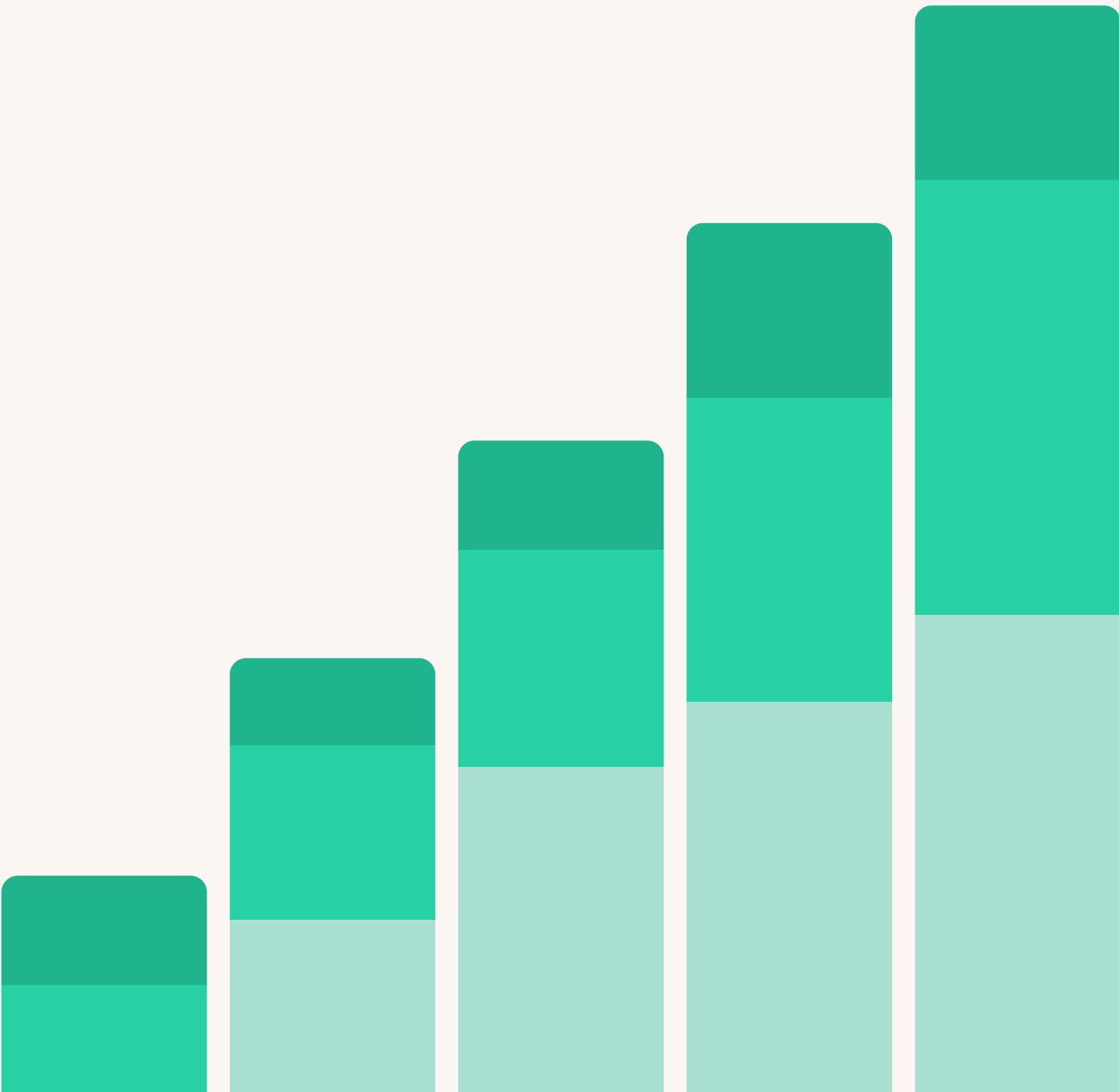
03.

Columns consists of
attributes such as age ,
symptoms and the
disorders

Methodology used in the prediction

The model was constructed using a comprehensive dataset comprising diverse symptom profiles. The dataset was divided into training and testing parts and the Decision Tree model was trained on it, with 0.0028 mean absolute error in predictions when it was performed on the testing part dataset.

The model was also checked for generating Inconclusive Results and it was found that the original dataset does not contain inconclusive type but during predictions, the results included inconclusive output too.





WORKFLOW

**DATA COLLECTION &
PREPROCESSING**

DATA SPLITTING

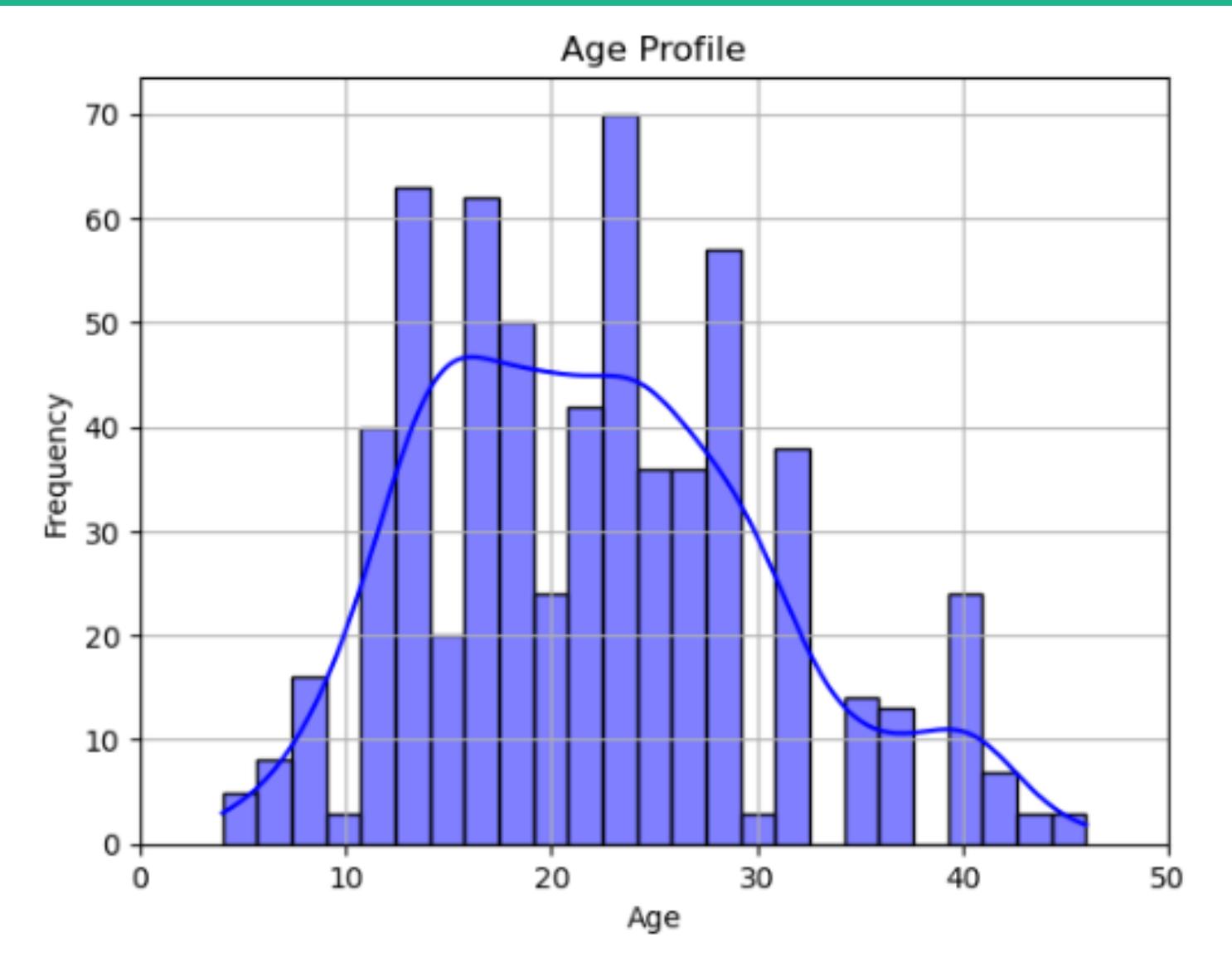
**MODEL SELECTION &
TRAINING**

MODEL EVALUATION

**PREDICTION AND
EVALUATION**

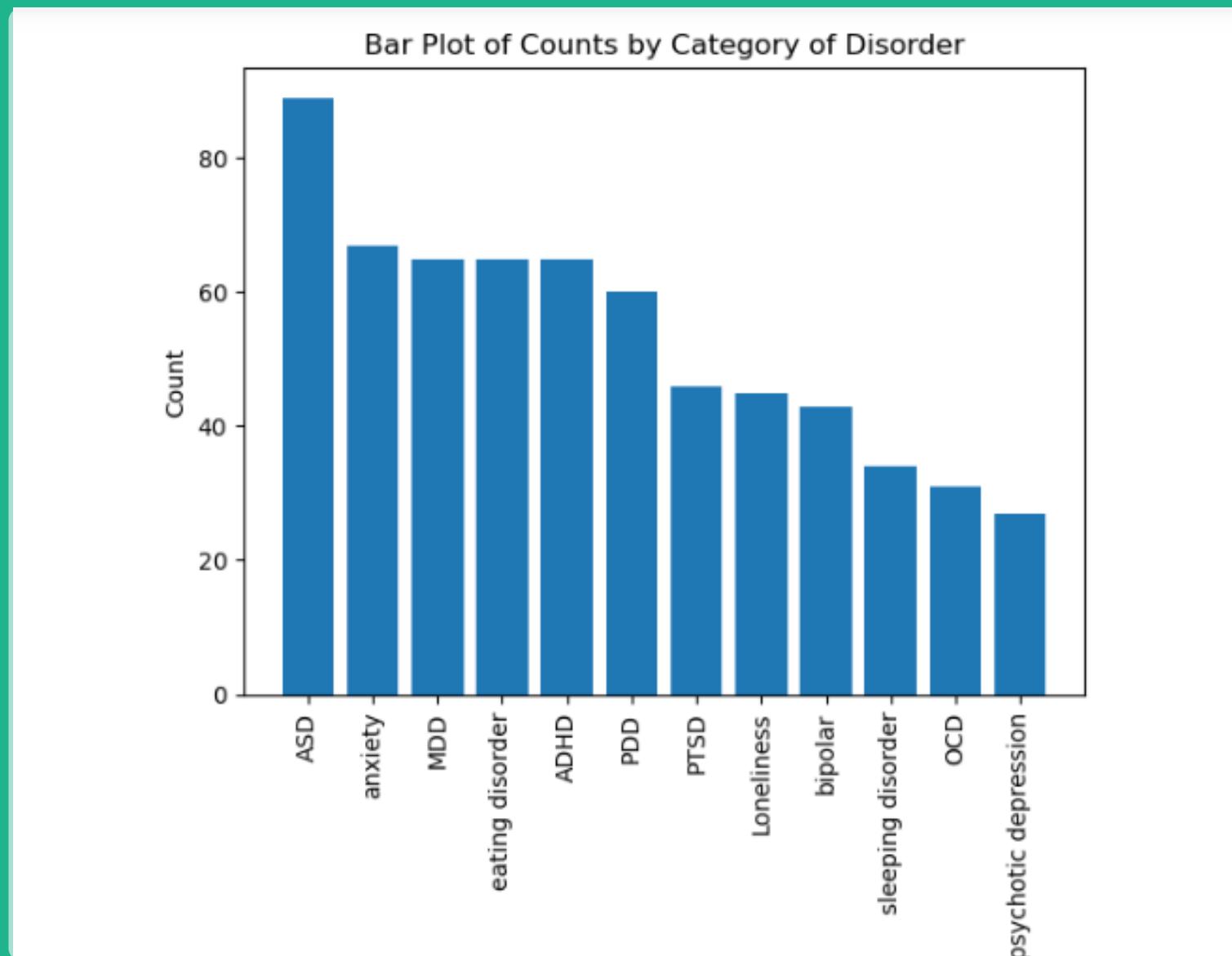


Age Profile



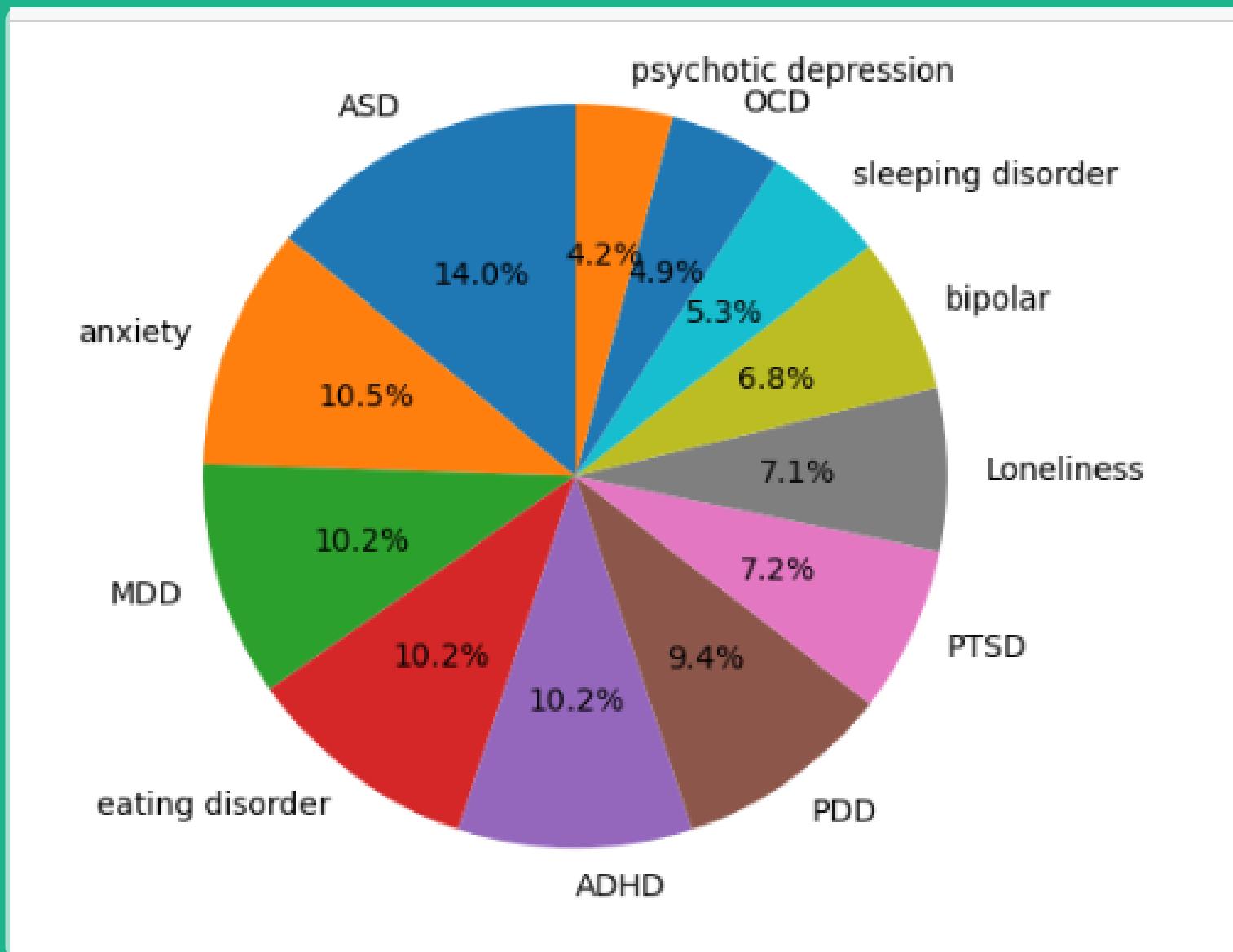
- People of age group 20-25 are more prone to Mental Health Disorders,
- Sum of different Normal distributions with different mean and standard deviation.
- Individuals above and below the age of 40 and 5 years are less likely to get affected by these disorders.

Bar plot of Disorders



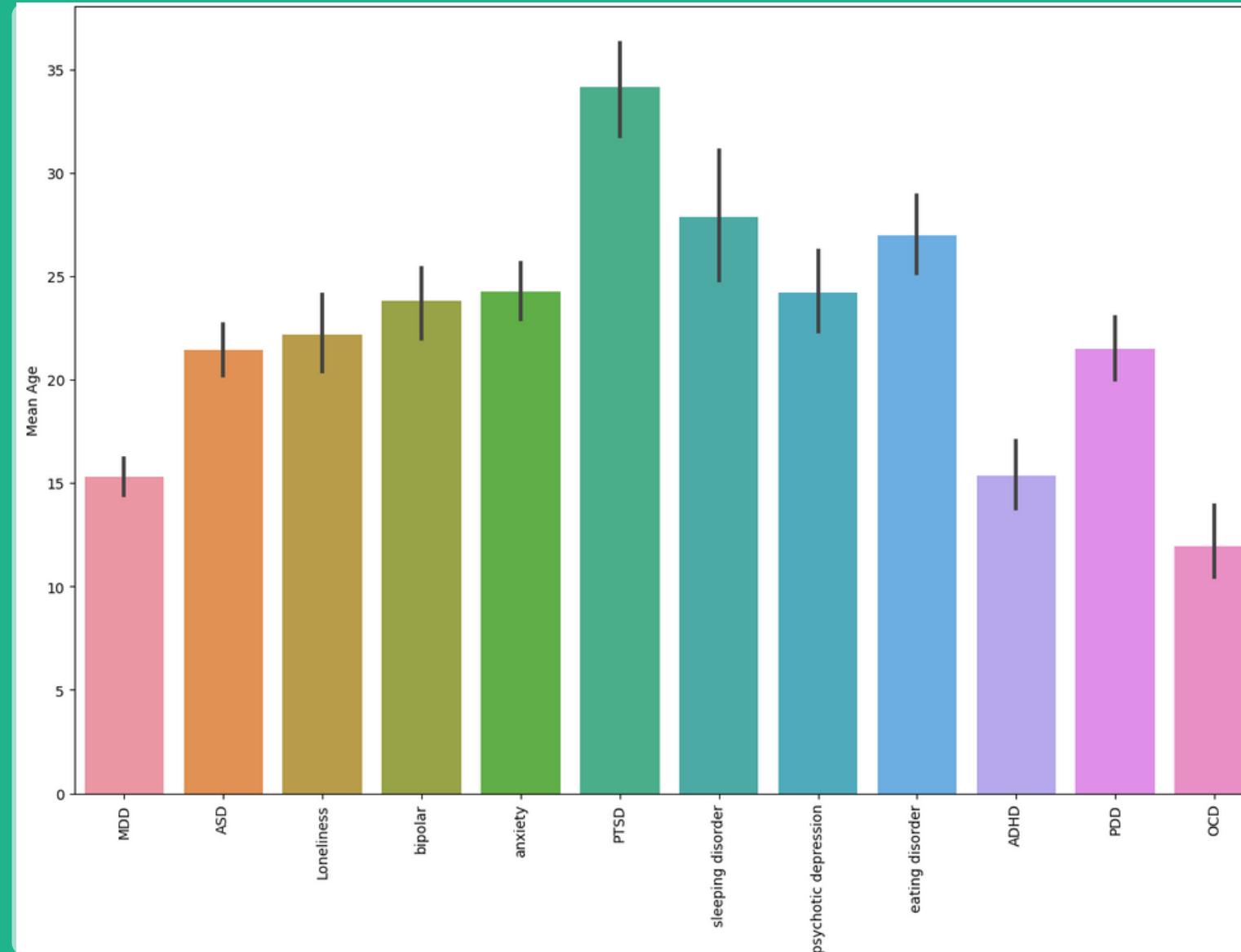
- Among all the disorders ASD is exceptionally the most frequent one which is diagnosed in 89 individuals among 637.
- Psychotic depression and OCD are very rare ,their counts are 27 and 31 respectively.

Pie Chart of Disorders



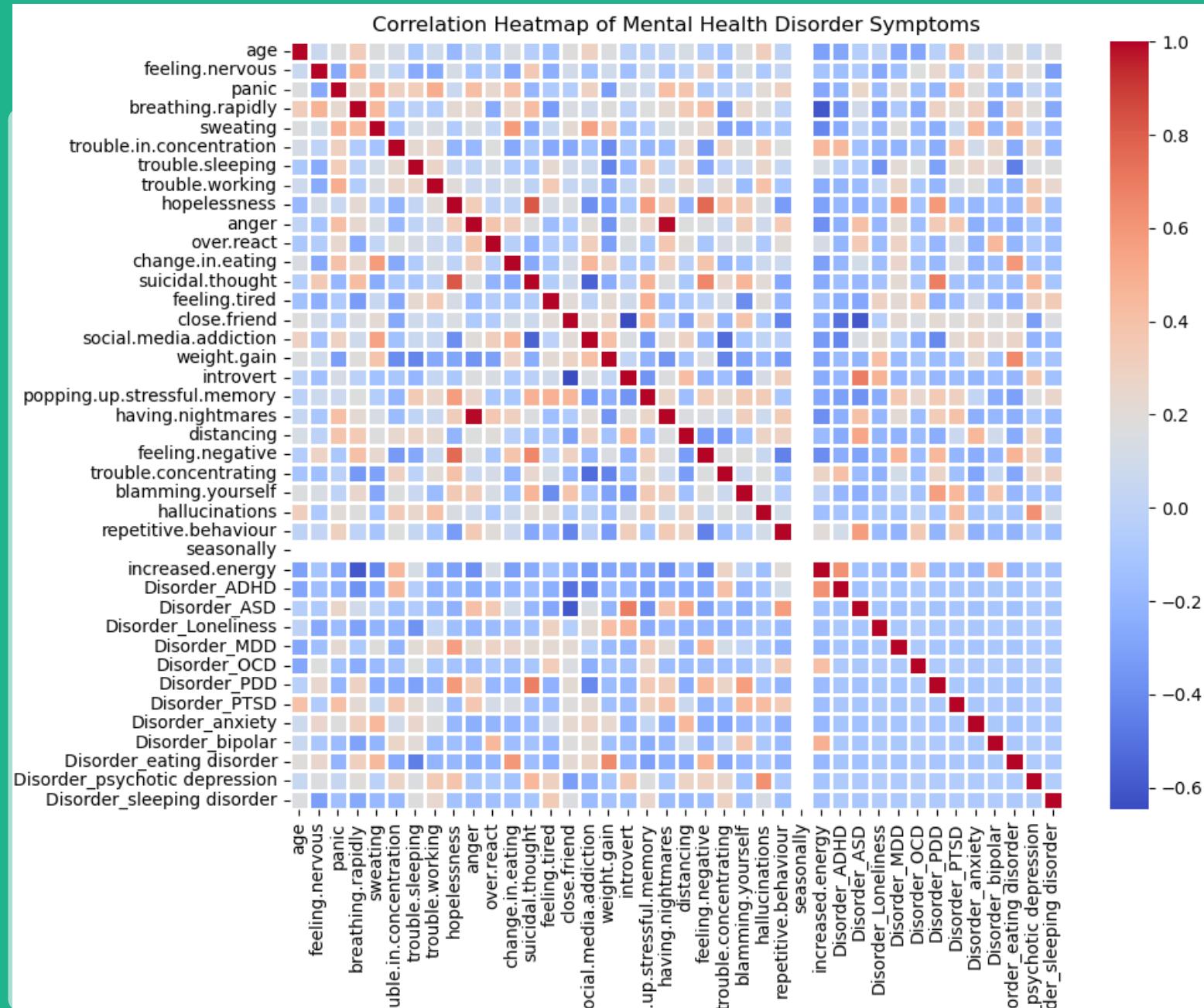
- Pie chart gives information about frequencies of different disorders.
- ASD is diagnosed in highest number of individuals numerically 14%.
- Psychotic depression is the rarest one and is present in 4.2% of total 637 people studied.

Mean Onset Age of Various Disorders



- Mean onset age of various disorders gives an insight by which the particular disorder is prevalent.
- PTSD is diagnosed in comparatively higher age groups .
- MDD ,OSD,ADHD starts affecting people at young age.

Heat Map

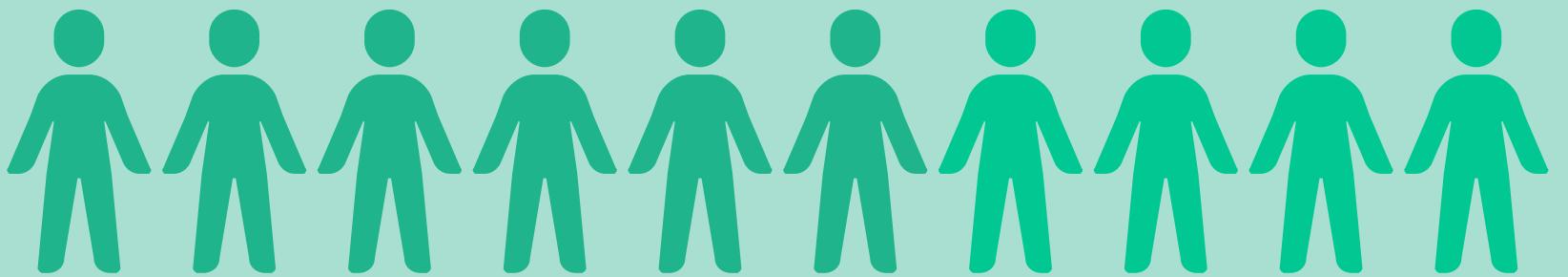


- Heat map gives the correlation between all attributes and disorders by making a dummy dataset of disorders.
- The intensity of color defines the extent of correlation .

Used Cases

01.

Disease Risk Assessment: Predicts likelihood of disorder based on age and symptoms.



02.

Early Intervention: Identifies at-risk individuals for timely action.

03.

Research Prioritization: Identifying correlations between symptoms and disorders at different ages can guide research priorities.



Conclusion

In this project centered on predicting mental health disorders using age and binary symptoms data, a comprehensive analysis was conducted to discern patterns and associations between symptoms, age groups, and the likelihood of various mental health conditions. While acknowledging limitations such as data constraints, ethical considerations, and model refinements, this project advocates for the impactful utilization of data-driven insights to enhance mental health support systems, and early intervention initiatives in addressing mental health challenges.



Thank
you very
much!

