



GAMING HABITS AND PSYCHOLOGICAL WELL- BEING OF GAMERS

PRESENTED BY GROUP 8:
MANISH CHAMARAJANAGAR MAHESH
MOUNISH MANI KUMAR MANDALAPU
NIVEDITA J



INTRODUCTION

- Analyzation of international dataset about the Anxiety, Life Satisfaction and Social Phobia of over 13000 gamers.
- Gamers data is from 109 different countries, most of them from USA, Germany, UK and Canada.
- It has various socio-economic factors and measures of anxiety, social phobia, life satisfaction and narcissism of gamers.

PROJECT STAGES

- 01 Research Problem
- 02 Data Preprocessing
- 03 Exploratory Data Analysis
- 04 Feature Selection
- 05 Data Modeling
- 06 Model Deployment



PROBLEM DESCRIPTION

CAN MACHINE LEARNING MODELS PREDICT
PSYCHOLOGICAL WELL-BEING BASED ON
GAMING HABITS AND SOCIO-ECONOMIC
FACTORS?



GAMING HABITS & SOCIO-ECONOMIC FACTORS

- 01 Hours played per week
- 02 Platform (PC/Mobile)
- 03 Motivation (Fun/Competitive)
- 04 Age and Gender
- 05 Country of Residence
- 06 Education level & Employment Status

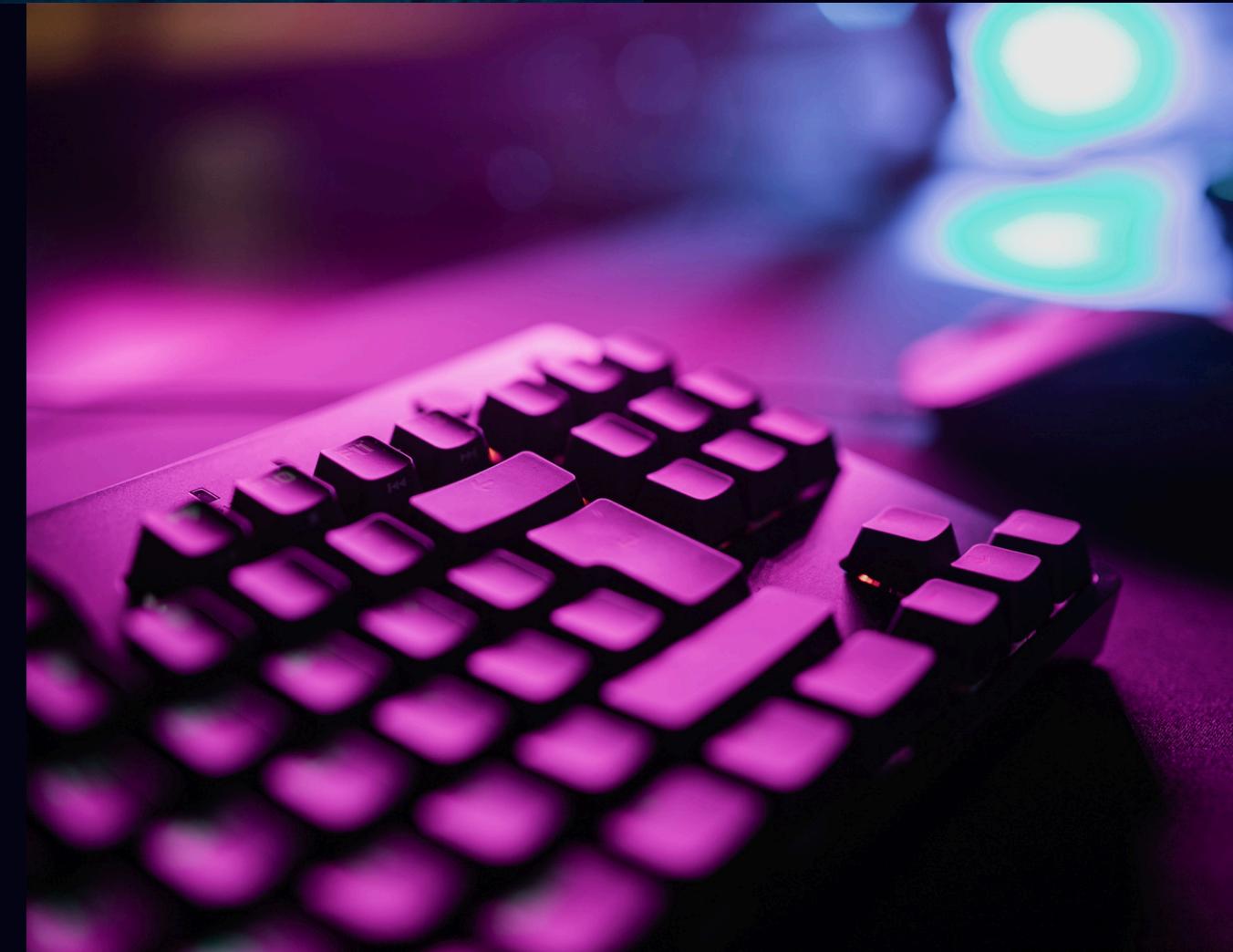
PROBLEM MOTIVATION

- Increasing prevalence of gaming and its potential impact on mental health, emphasizing the need for deeper understanding to guide public health responses.
- How socio-economic variables, combined with gaming habits, could lead to varied psychological outcomes.
- To uncover correlations between gaming habits and the psychological well-being of gamers through the application of machine learning models.



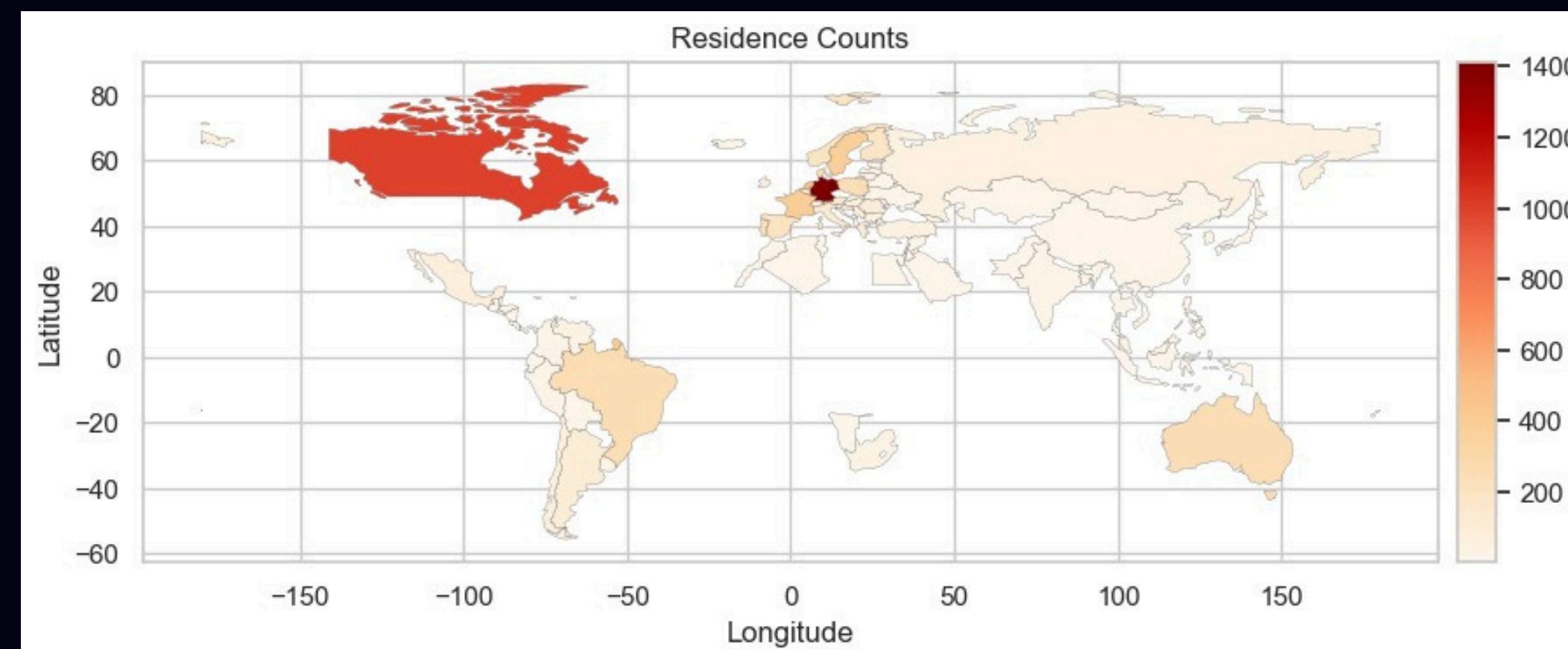
DATA PRE-PROCESSING

- Removed irrelevant columns and extreme outliers
- Imputed missing values
- Standardised categorical data
- Handled missing data



EXPLORATORY DATA ANALYSIS

Visualization 1

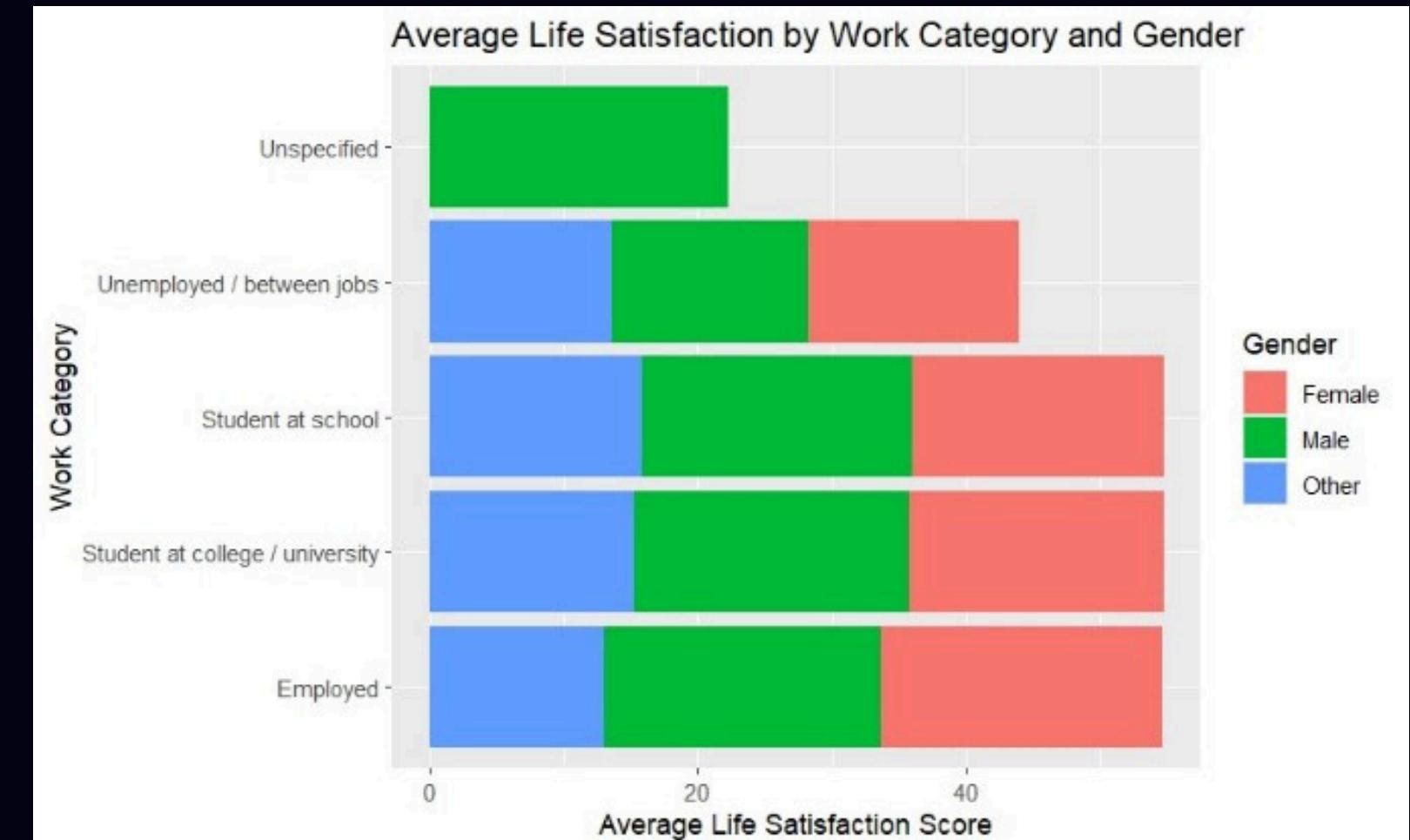


- The map highlights the geographic distribution of gamers in different countries.
- Countries like the USA and Canada, along with parts of Western Europe, show the highest counts of gamers who participated in this survey.

EXPLORATORY DATA ANALYSIS

Visualization 2

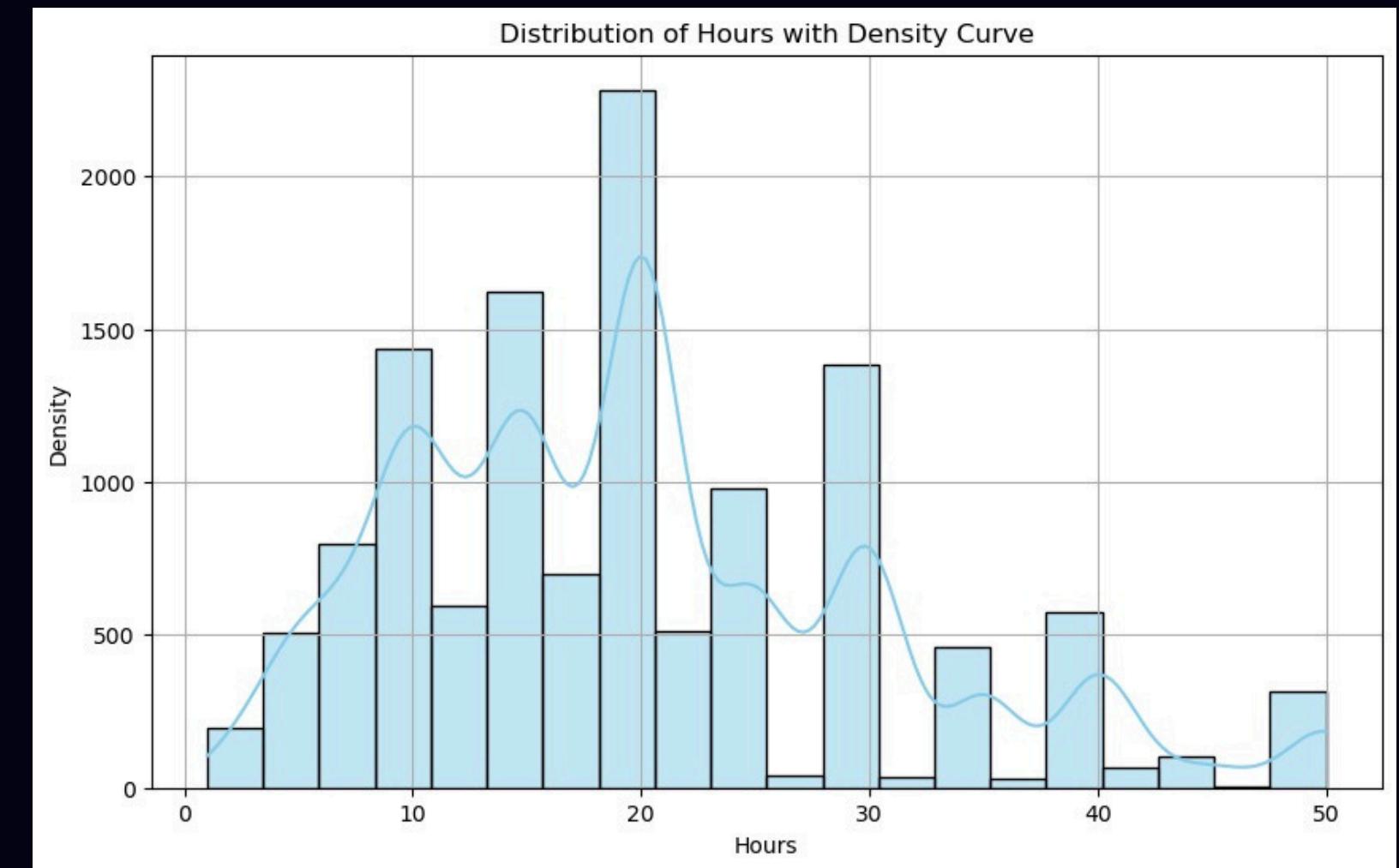
- This stacked bar graph shows relation between life satisfaction and different work category.
- Only gamers with Unspecified/between jobs having lesser life satisfaction.
- Rest other work category gamers having similar life satisfaction results.



EXPLORATORY DATA ANALYSIS

Visualization 3

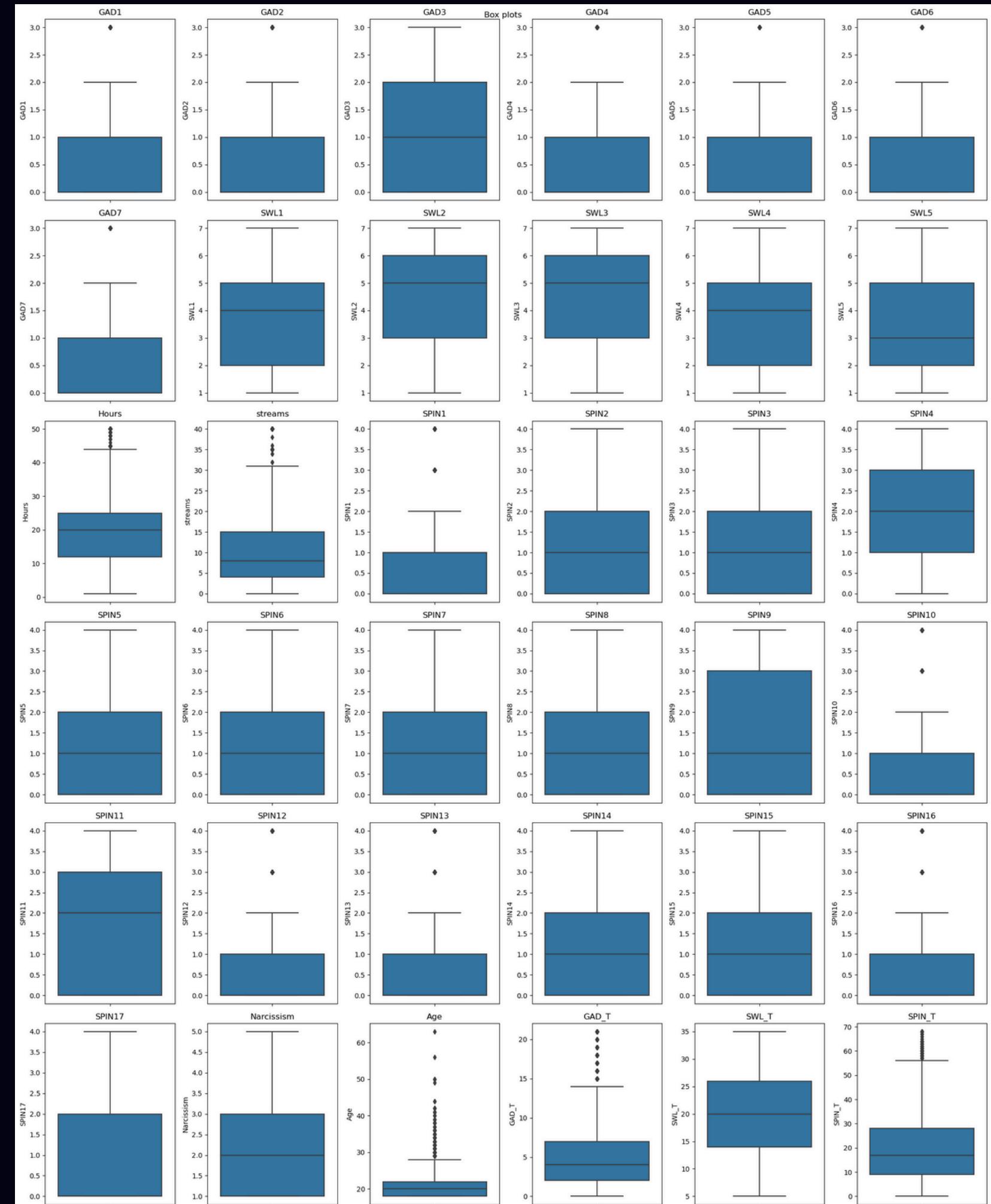
- The histogram tells about the distribution of gaming hours played by gamers.
- The distribution reveals a peak around 10-20 hours per week.
- The histogram shows a right-skewed distribution, by this we can see less observations for more than 40 hours.



EXPLORATORY DATA ANALYSIS

Visualization 4

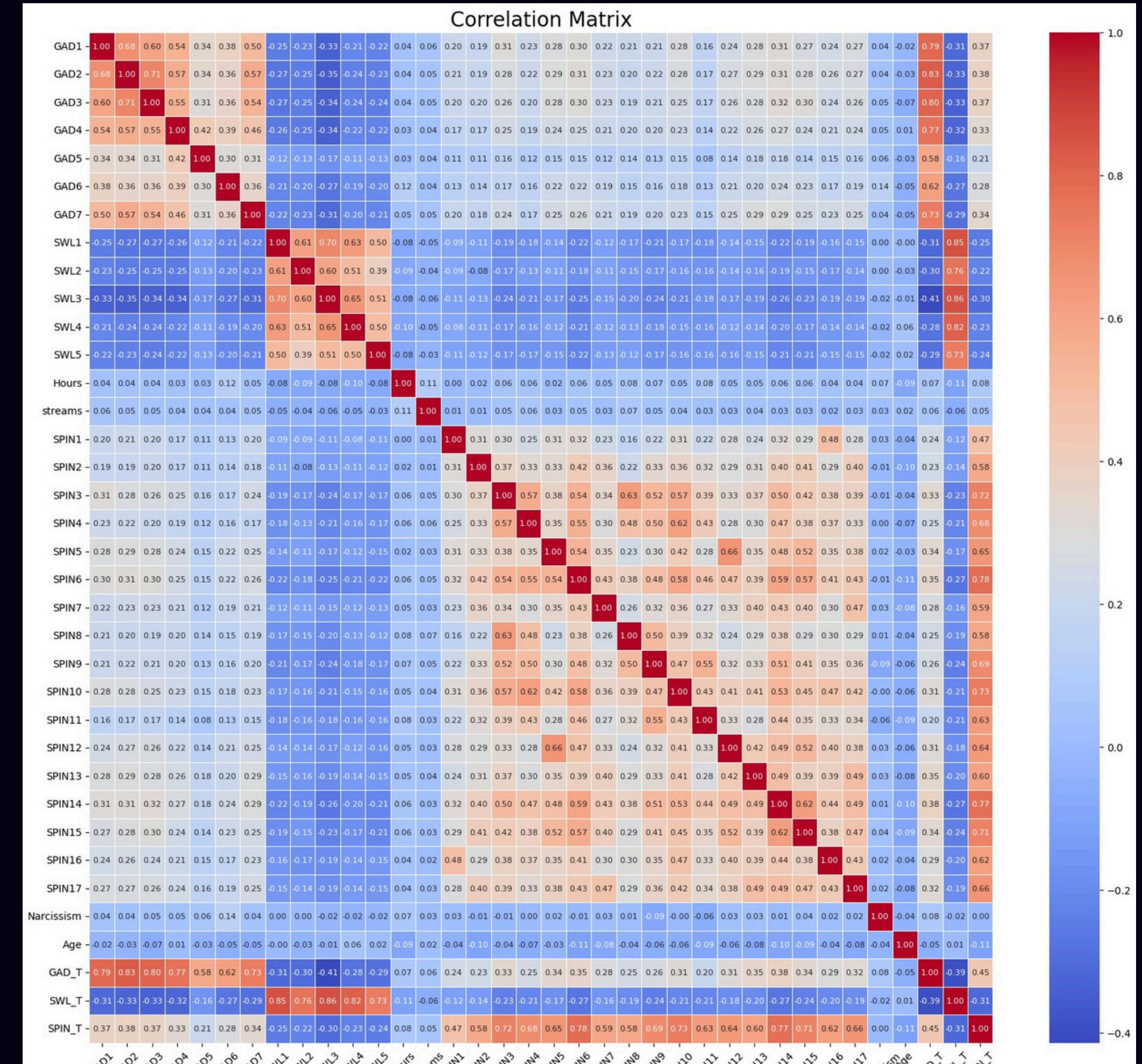
- The box plots display a wide range of distributions for various psychological and behavioral metrics of Gamers.
- Several plots, notably those for the SPIN scores and hours streamed, exhibit outliers, highlighting cases that deviate significantly from typical patterns.
- This could be important for identifying extreme behaviors or reporting errors.



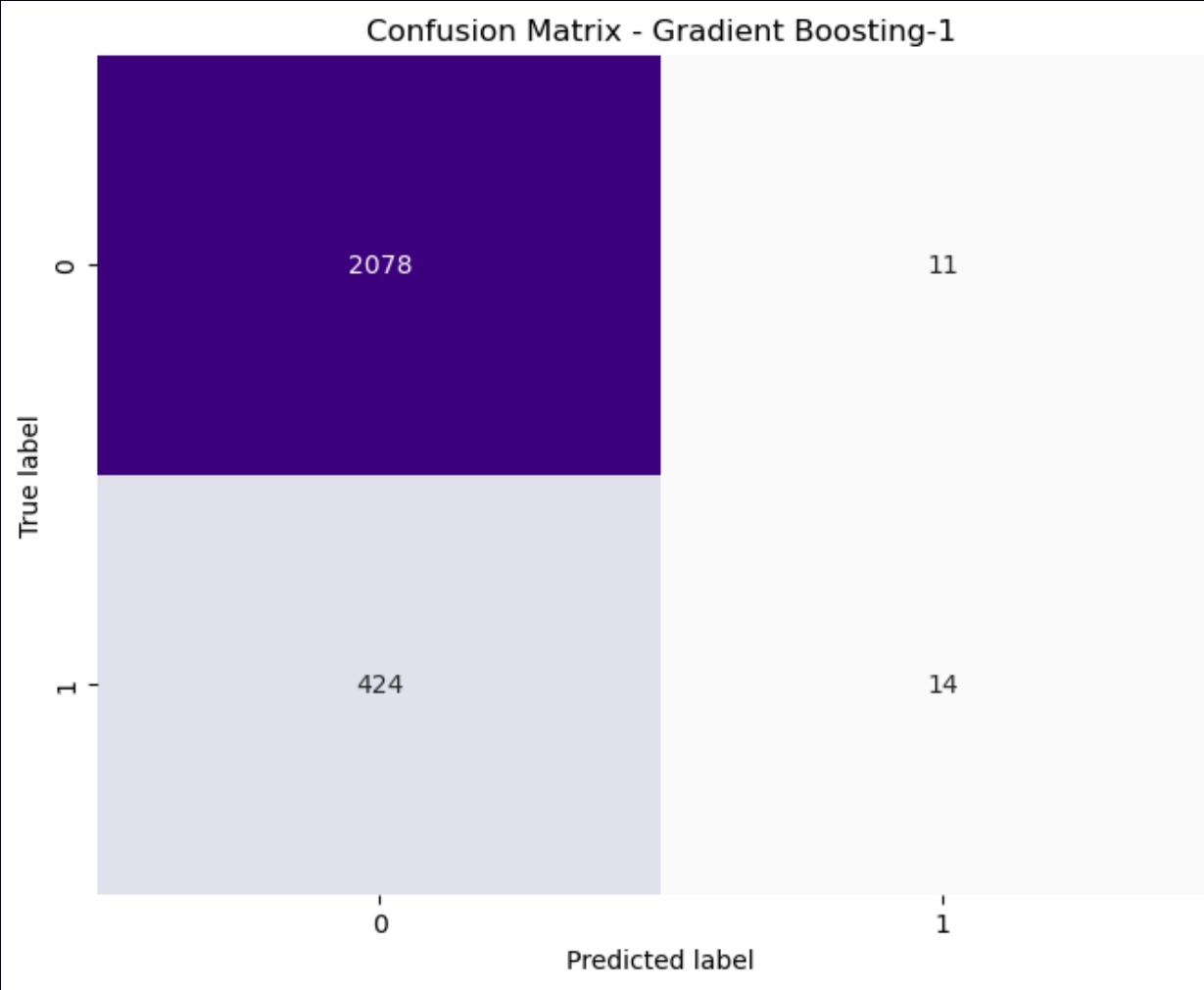
EXPLORATORY DATA ANALYSIS

Visualization 5

- The matrix provides a comprehensive overview of the relationships between various psychological and behavioral metrics of Gamers.

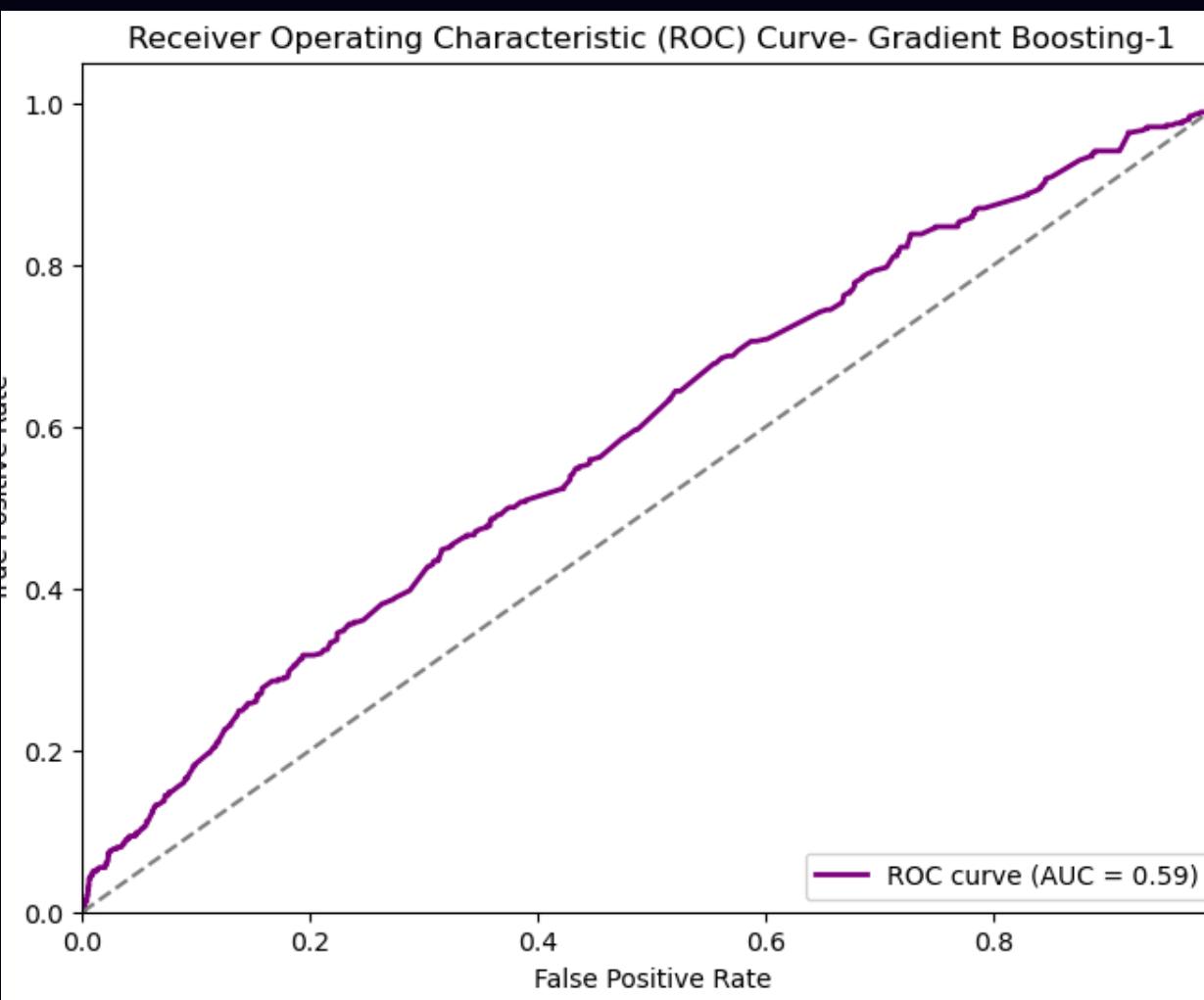


Confusion Matrix - Gradient Boosting-1

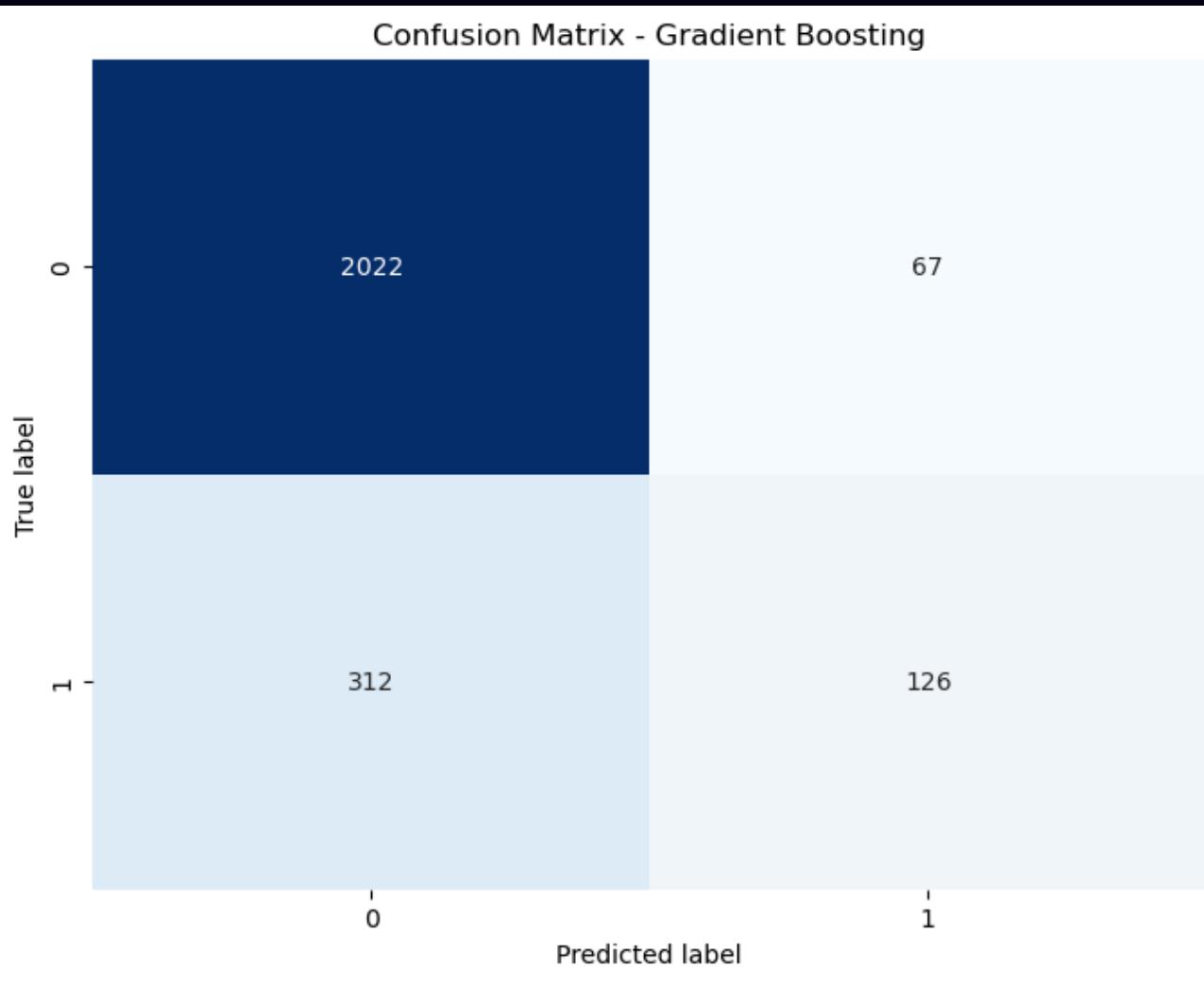


GRADIENT BOOSTING FIRST FIT

- Achieving an accuracy rate of 82.78%, our model effectively predicts 'Anxiety' based on gaming behavior and psychological factors.
- The model predicted 2078 true negatives and 14 true positives accurately.
- With an AUC of 0.59, the ROC curve underscore the model's strong predictive performance and its ability to discern between classes effectively.

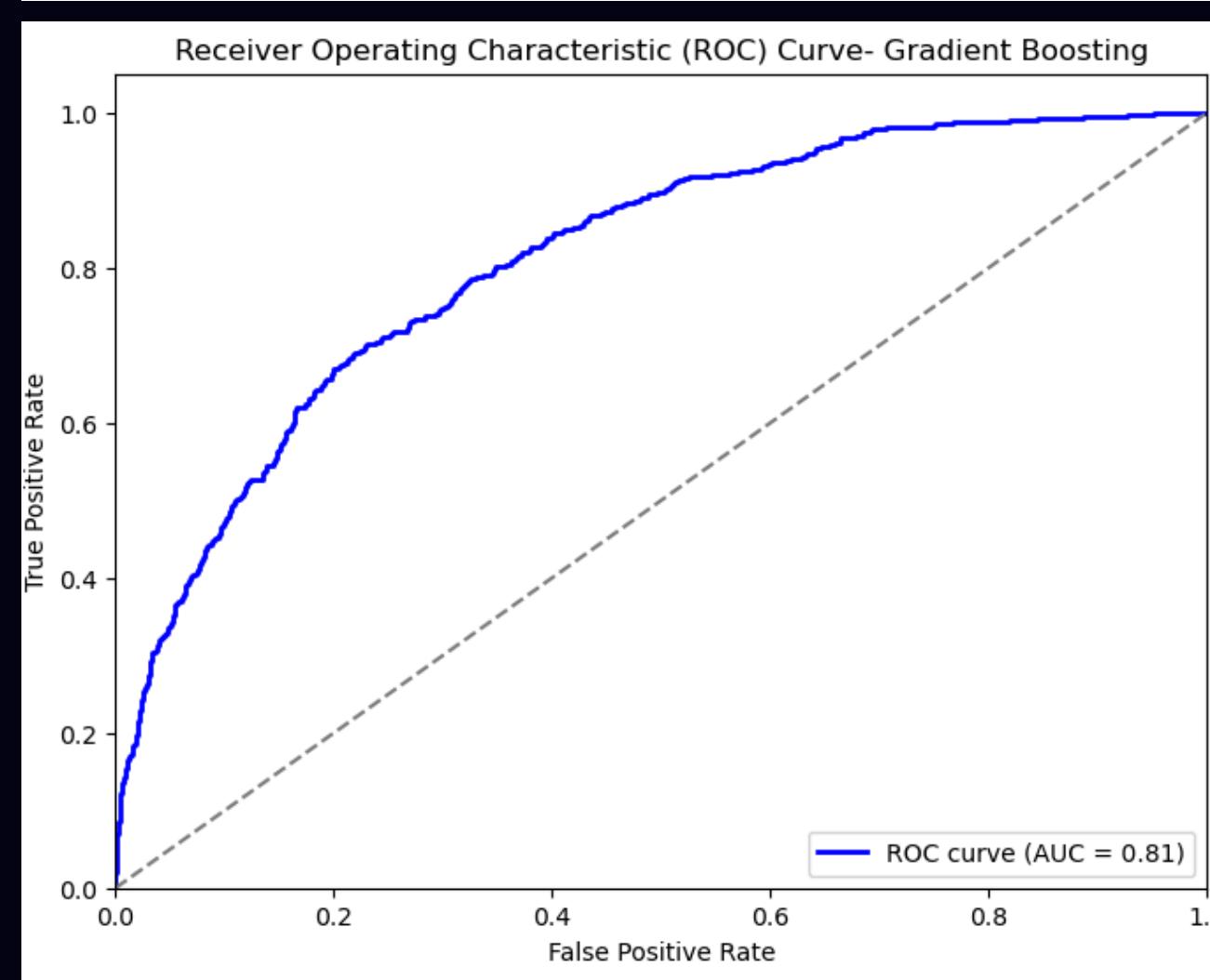


Confusion Matrix - Gradient Boosting



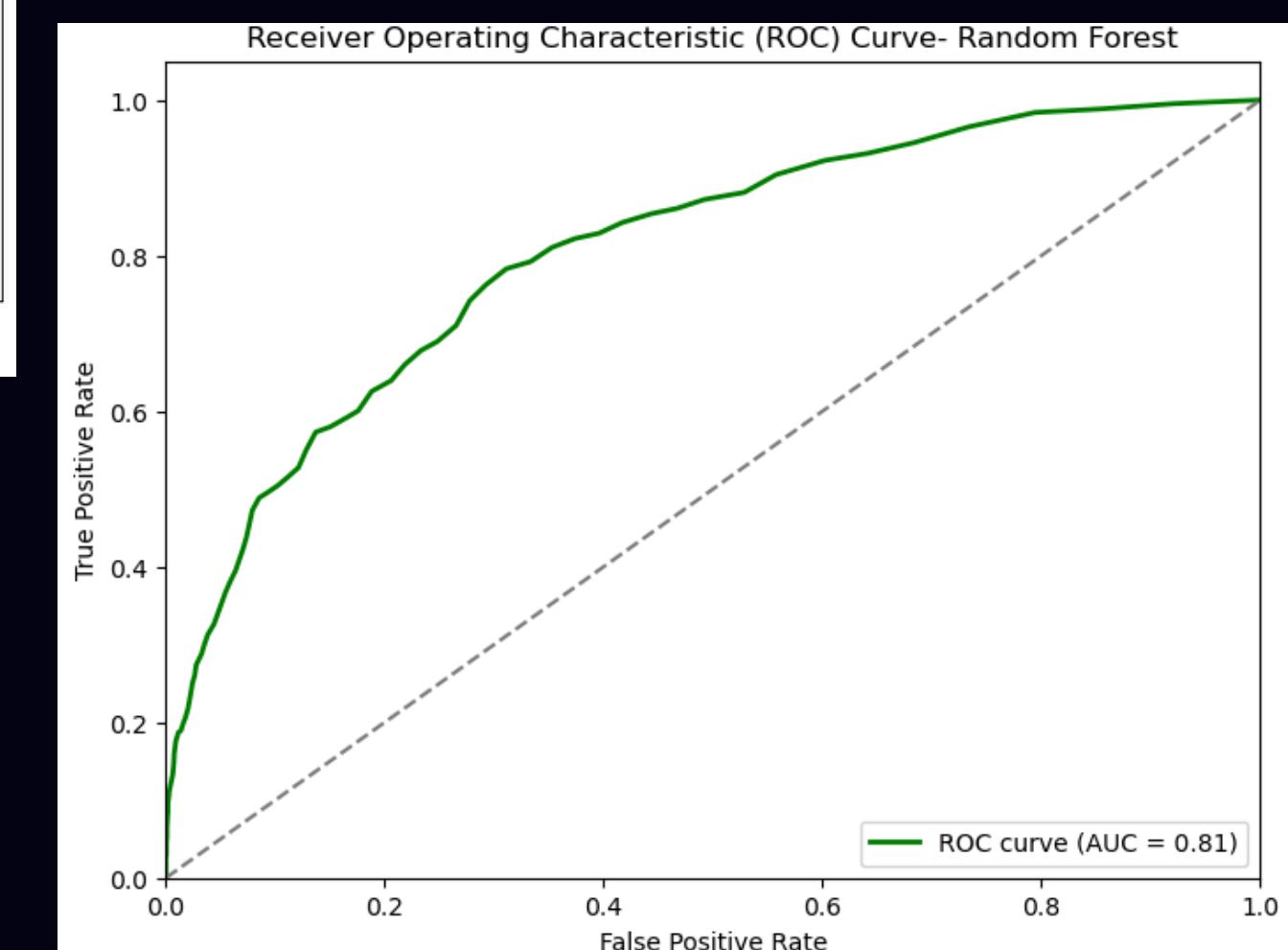
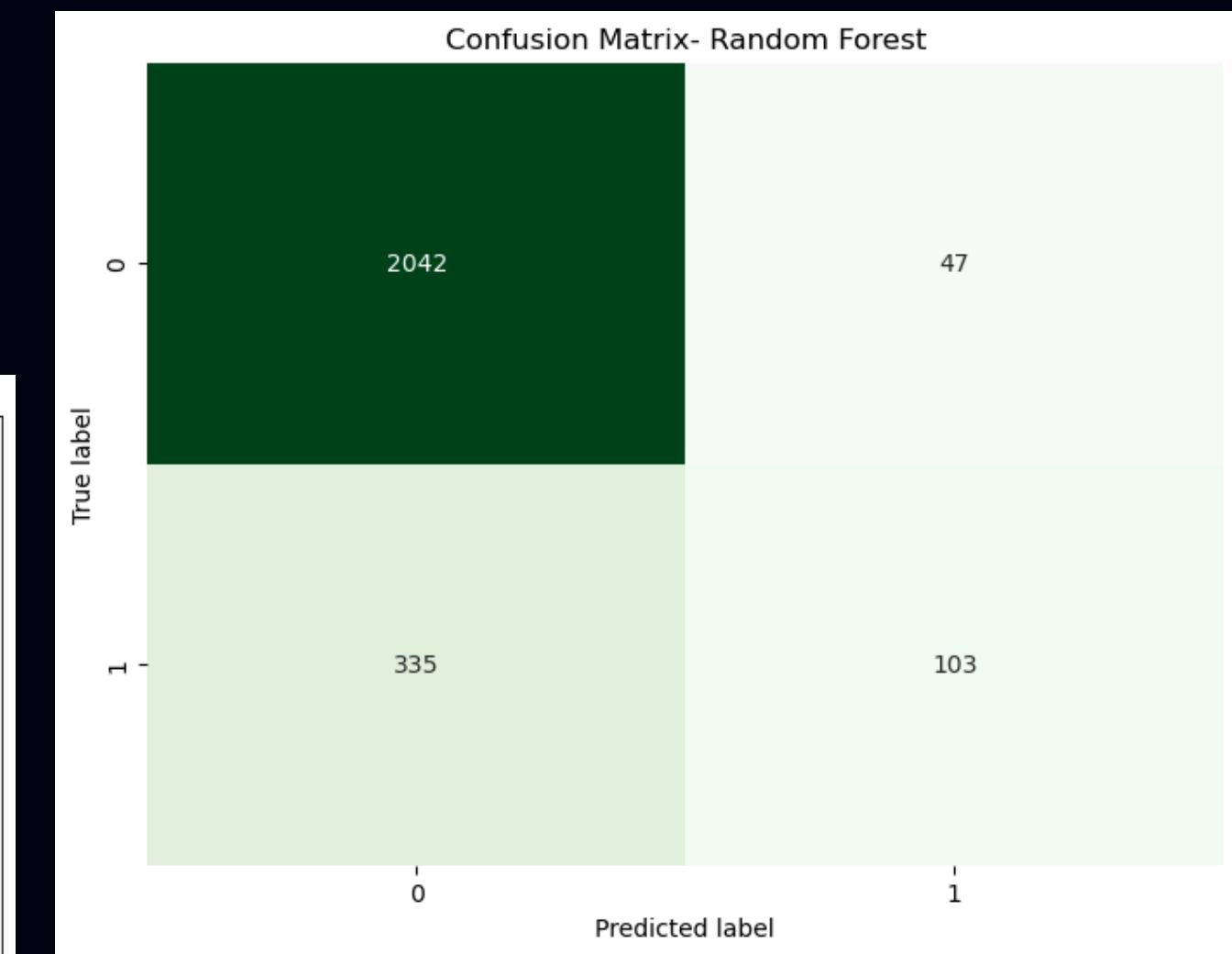
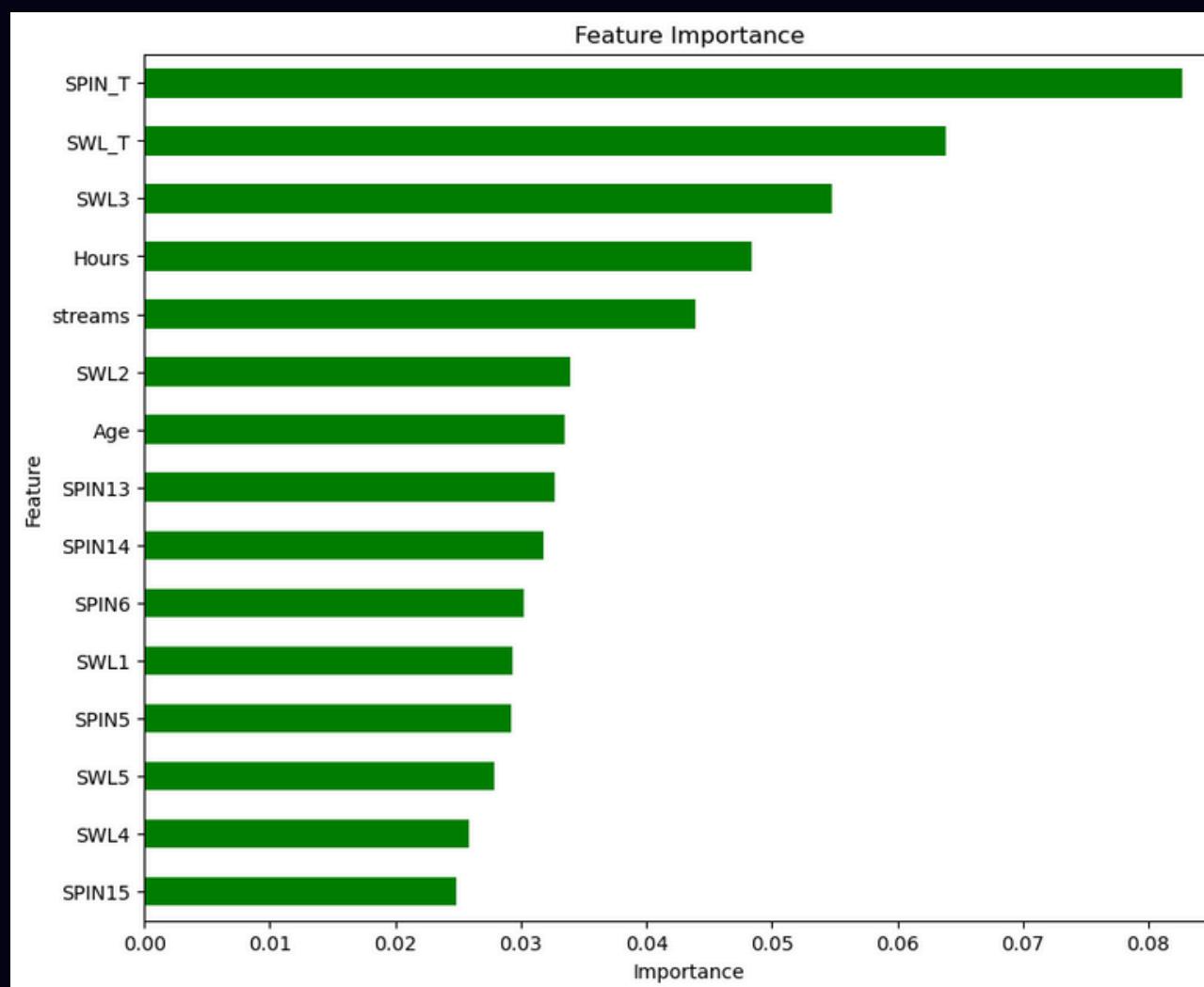
GRADIENT BOOSTING FIT - 2

- Achieving an accuracy rate of 84.56%, our model effectively predicts 'Anxiety' based on gaming behavior and psychological factors.
- The model predicted 2022 true negatives and 126 true positives accurately.
- With an AUC of 0.81, the ROC curve underscore the model's strong predictive performance and its ability to discern between classes effectively.



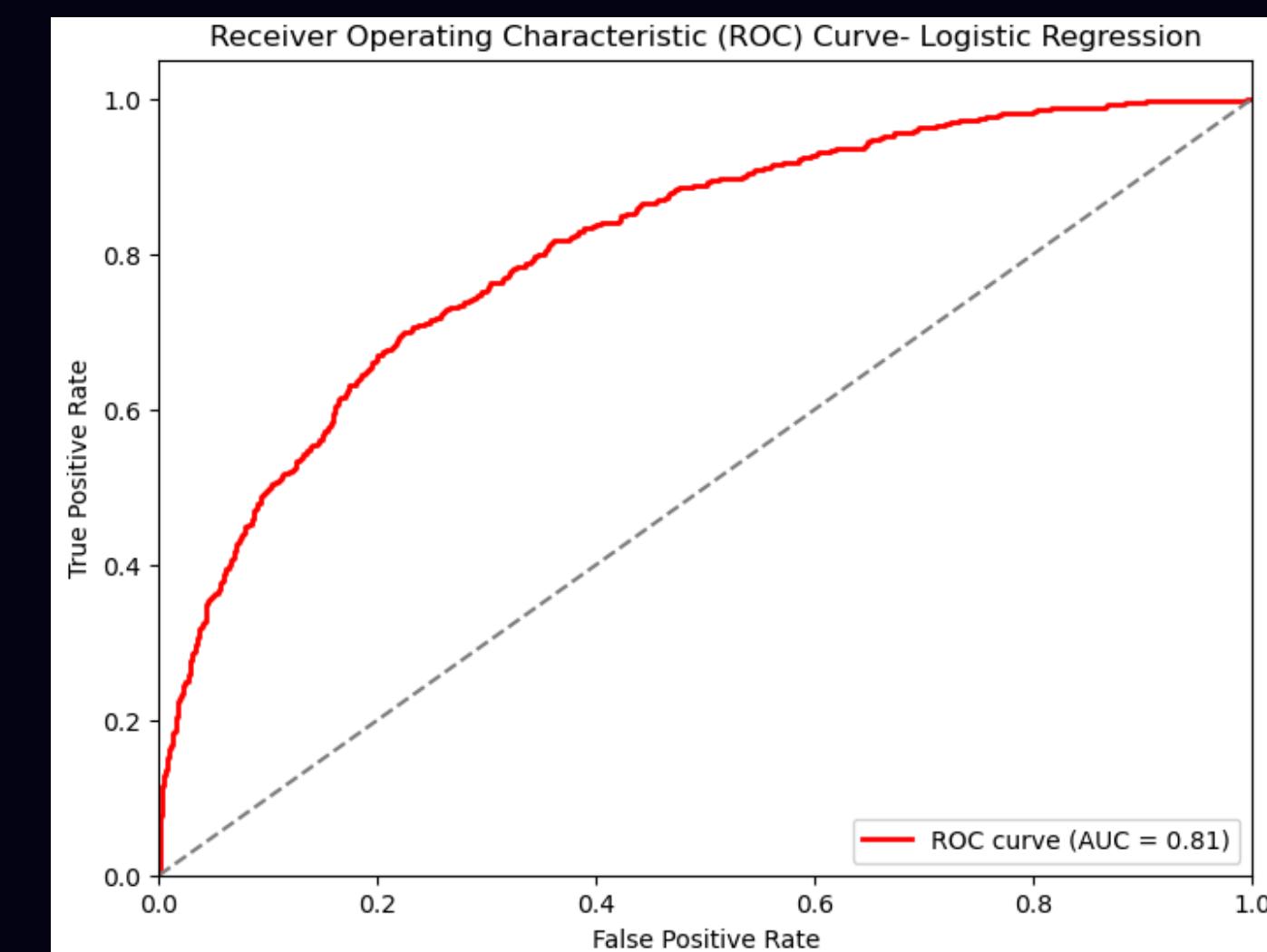
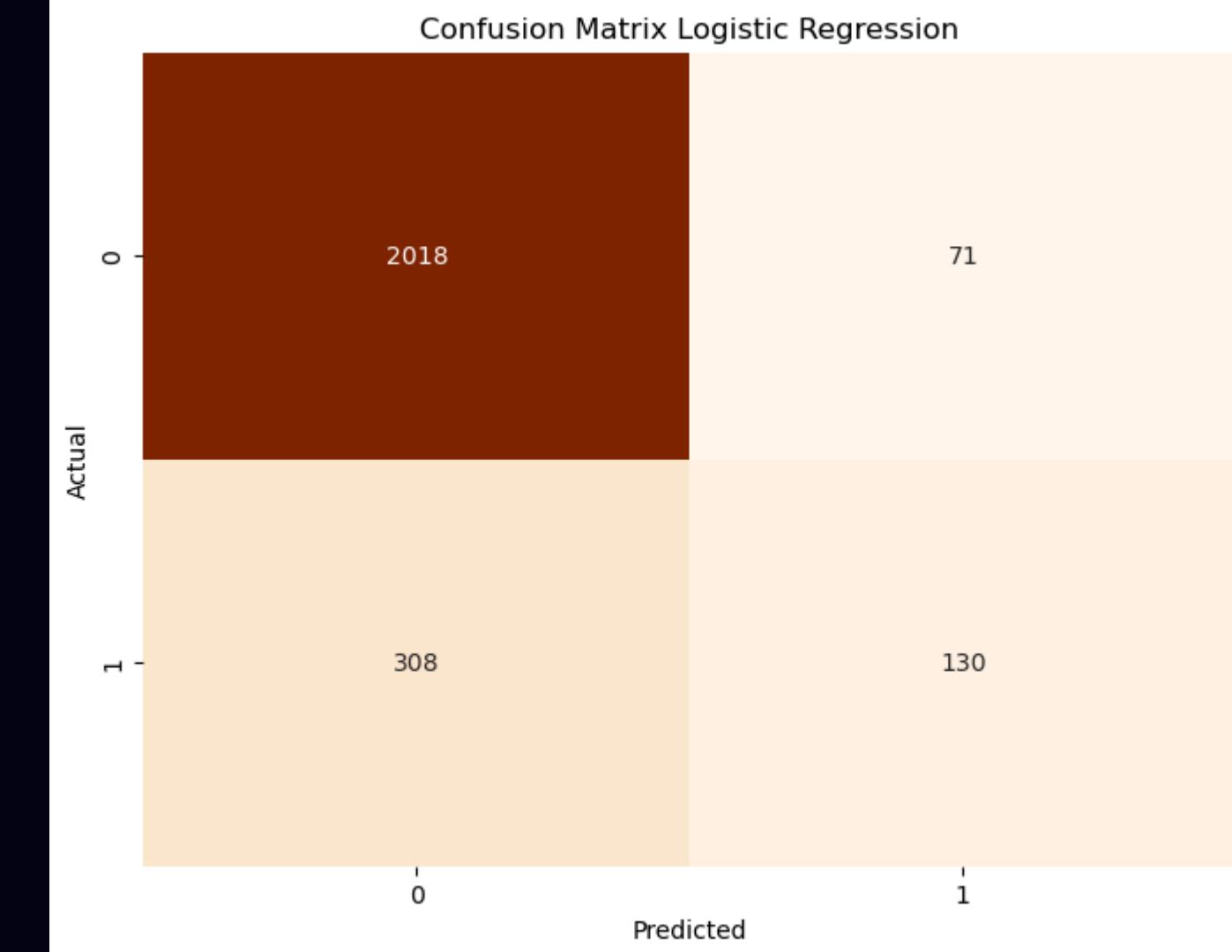
RANDOM FOREST

- Achieving an accuracy rate of 84.88%, our model effectively predicts 'Anxiety' based on gaming behavior and psychological factors.
- Key Predictors: Notable predictors like SPIN_T, SWL_T, and hours played emerge as influential factors, shaping the model's predictions significantly.
- Model Validation: With an AUC of 0.81, the ROC curve and confusion matrix underscore the model's strong predictive performance and its ability to discern between classes effectively.



LOGISTIC REGRESSION

- Achieving an accuracy rate of 85.001%, our model effectively predicts 'Anxiety' based on gaming behavior and psychological factors.
- The model predicted 2010 true negatives and 130 true positives accurately.
- With an AUC of 0.81, the ROC curve underscore the model's strong predictive performance and its ability to discern between classes effectively.



CONCLUSION

- The Logistic Regression model achieved roughly 85% accuracy, effectively predicting whether the gamer has anxiety or not.
- Significant gaming behaviors like Hours, streams are directly impacting anxiety levels of gamers.
- The use of Random Forest and Logistic Regression provided a robust method for handling complex datasets efficiently.



FUTURE WORK

- By incorporating more detailed psychological variables, researchers can better identify subtle patterns of gaming behavior.
- Expanding research to include diverse demographic groups across different geographical locations can help understand cultural and socioeconomic factors influencing gaming behavior.
- Utilizing more sophisticated machine learning techniques, such as deep learning or ensemble methods, to improve the accuracy and reliability of predictions





THANK YOU FOR LISTENING!