

Drug Use Classification Using Personality Traits

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5/15/2019

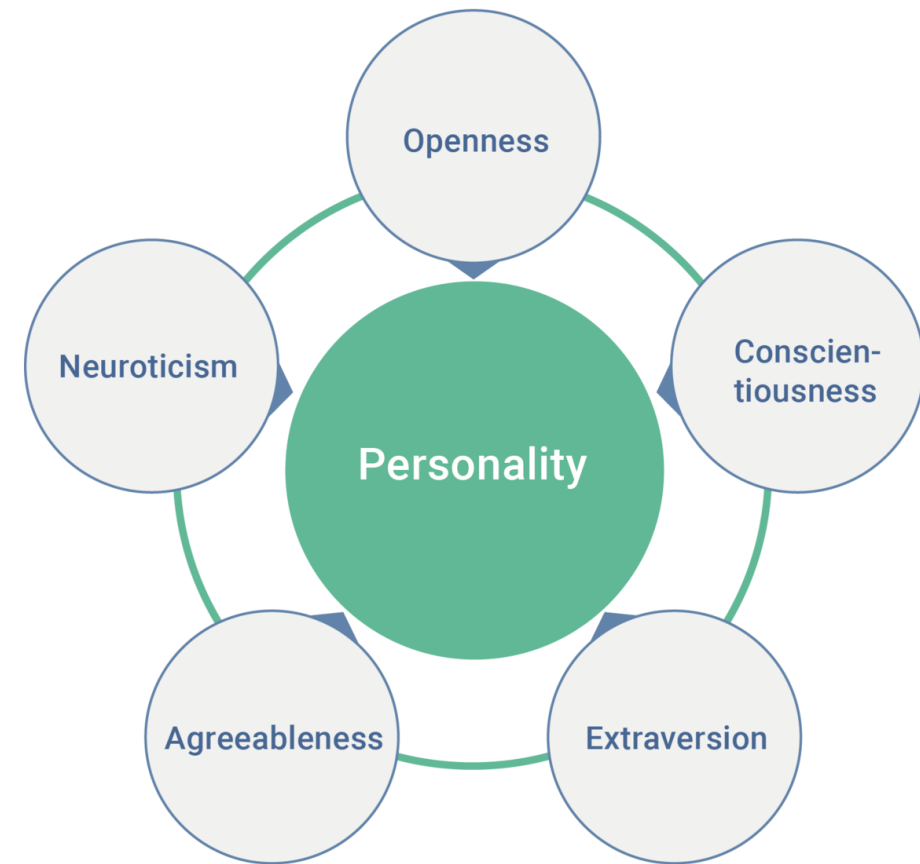


Project Objectives

- Develop a model that can predict whether or not someone is a user of....
 - Nicotine
 - Cannabis
 - Other Illegal Drugs
- Assess personality trait differences between users and non-users for each category

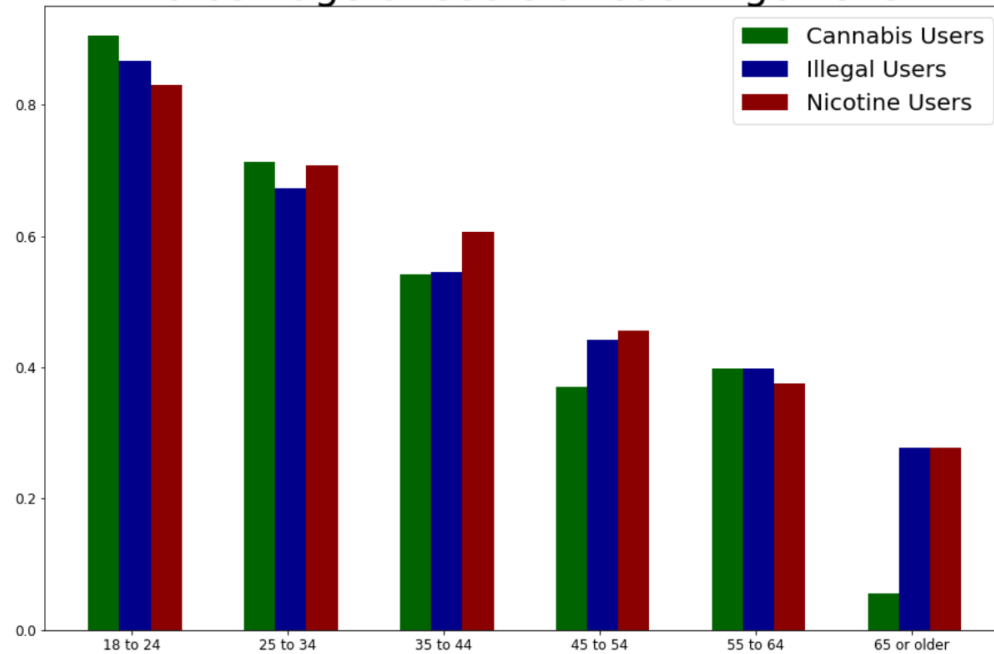
User/Non-User Predictors

- Demographics
 - Age
 - Gender
 - Education
 - Country
 - Ethnicity
- Personality Traits
 - Neuroticism
 - Extraversion
 - Openness to Experience
 - Conscientiousness
 - Agreeableness
 - Impulsiveness
 - Sensation Seeking

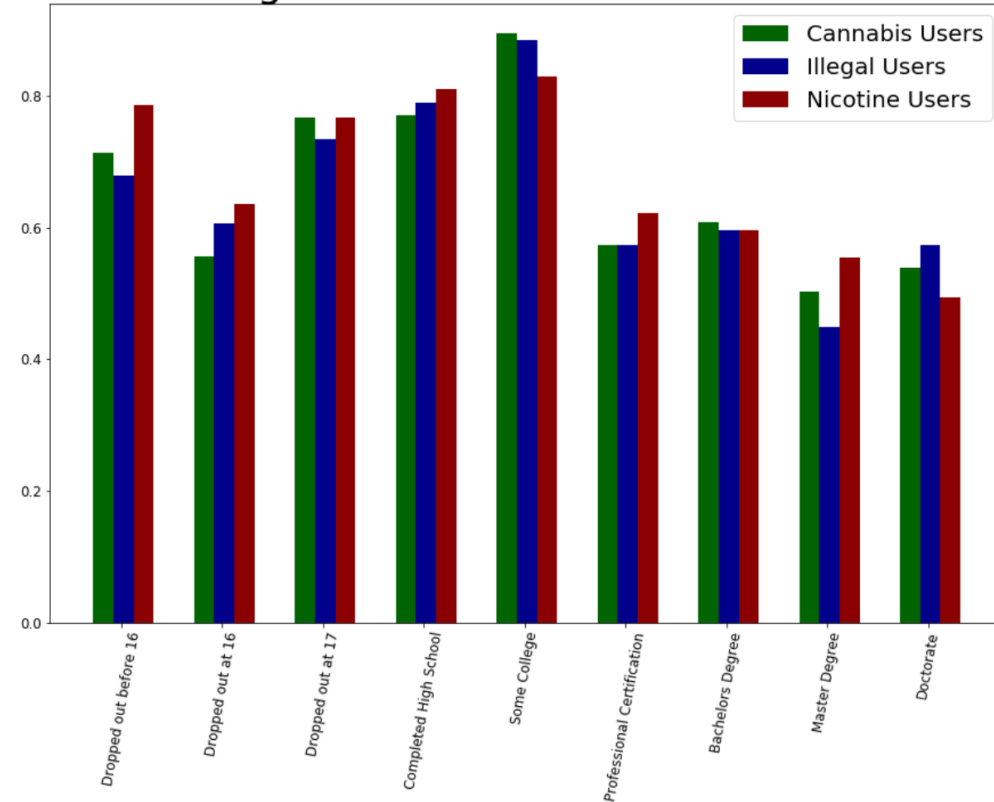


Demographic Exploration

Percentage of Users at each Age Level

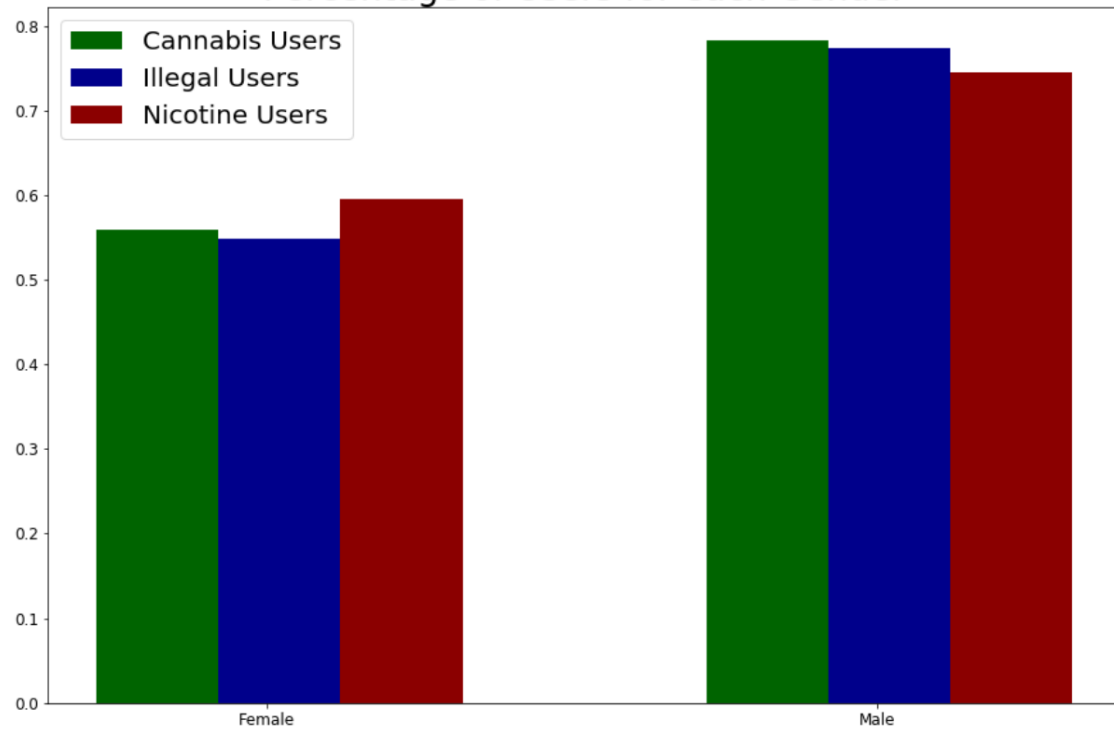


Percentage of Users at each Education Level

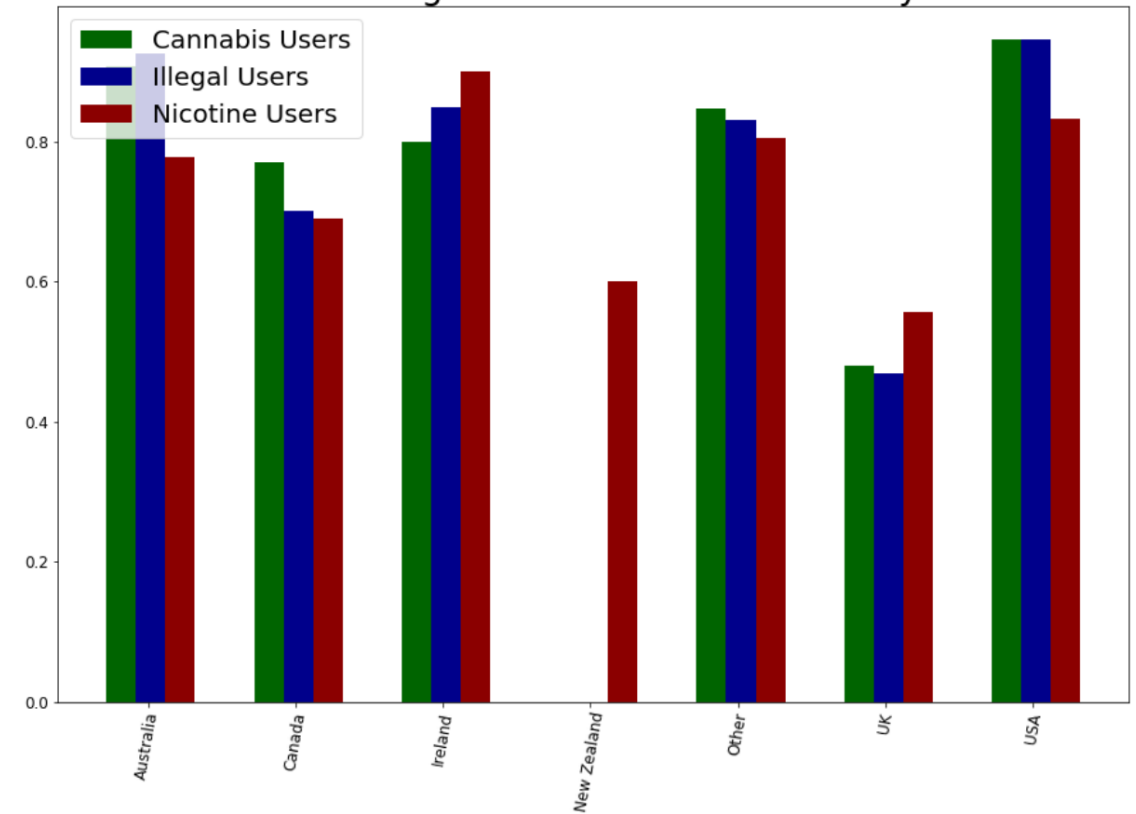


Demographic Exploration (cont'd)

Percentage of Users for each Gender



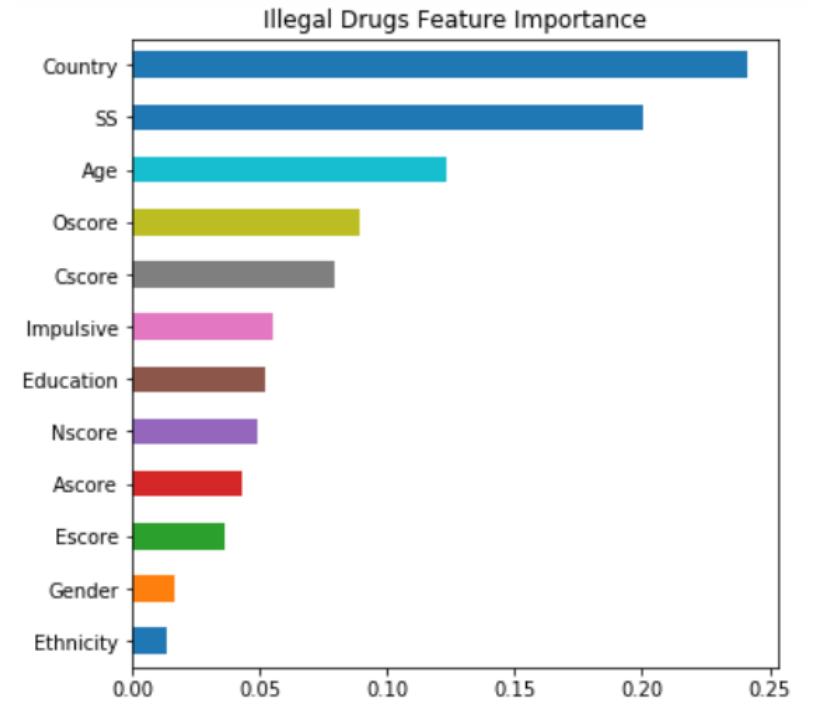
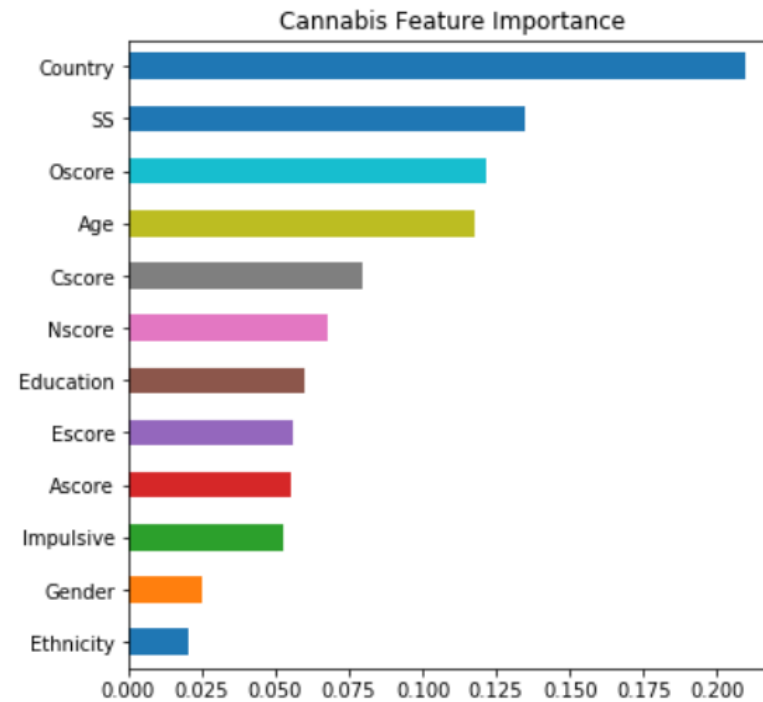
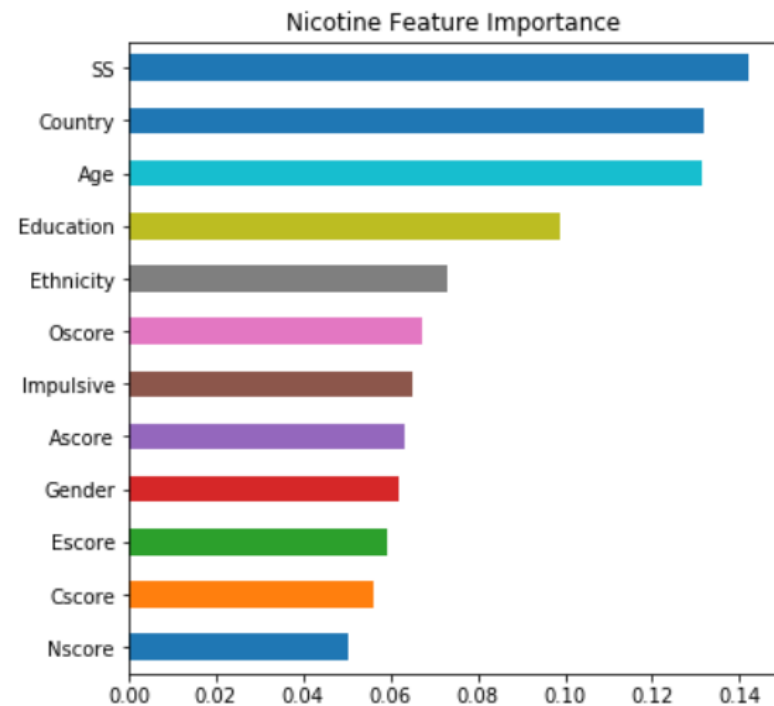
Percentage of Users for each Country



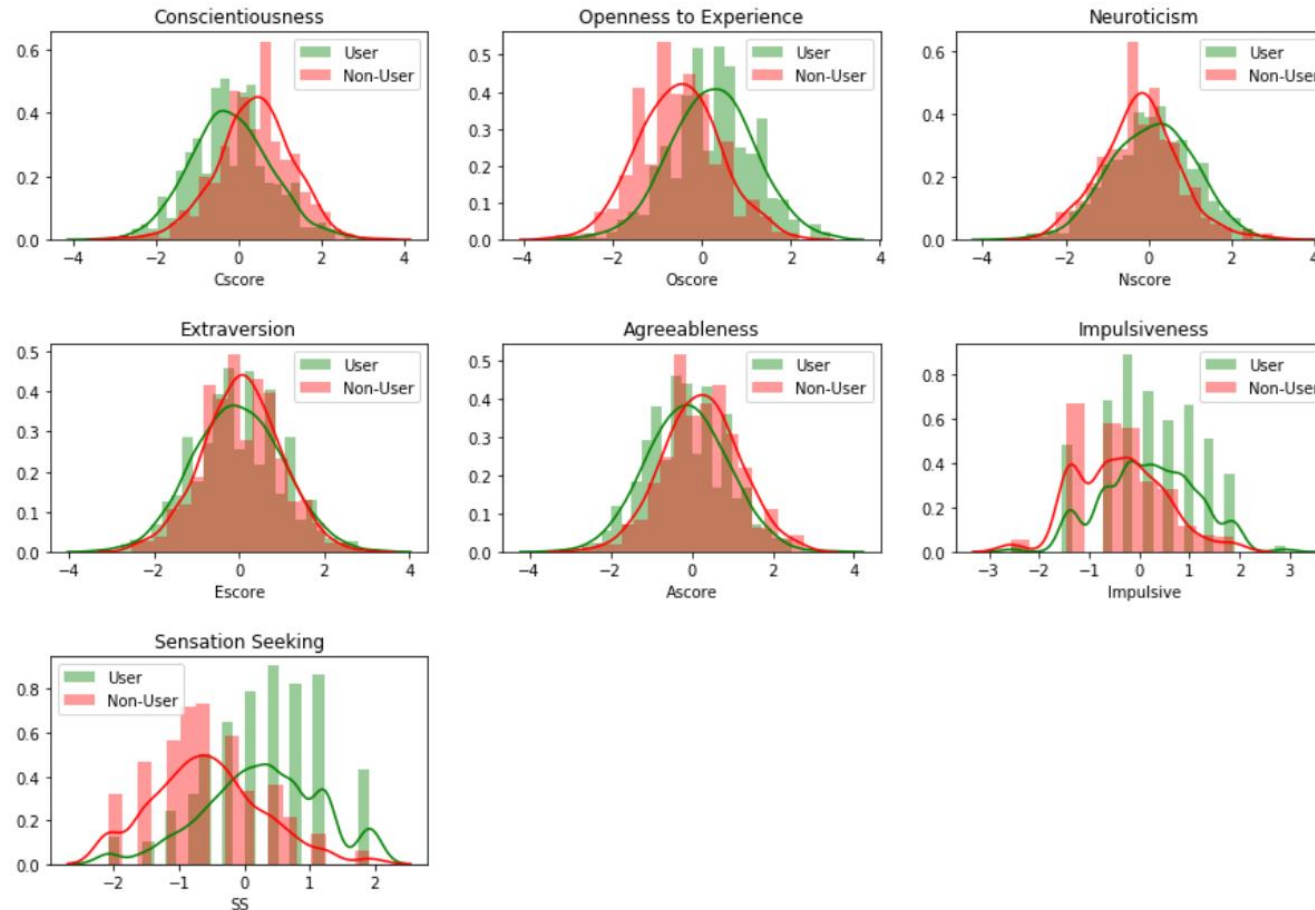
Models and Accuracies

Classification Variable	Best Fitting Model	Accuracy Score
Nicotine User	XGB	73.7%
Cannabis User	SVC	81.1%
Illegal Drug User	SVC	80.9%

Feature Importance



Exploring Personality Differences for Cannabis



Significant Personality Differences

Users	Non-Users
Higher Neuroticism <ul style="list-style-type: none">• Moody, tense, less stable	Higher Agreeableness <ul style="list-style-type: none">• Friendly, cooperative, sympathetic
Higher Openness To Experience <ul style="list-style-type: none">• Insightful, imaginative, many interest	Higher Conscientiousness <ul style="list-style-type: none">• Organized, methodic, thorough• Self disciplined
Higher Impulsiveness	
Higher Sensation Seeking	

Conclusions & Recommendations

- Risk assessment tool for at-risk youth
- More difficult to predict nicotine use
 - Environmental factors outside scope of study
- Country, SS, and Oscore are best predictors
- Users are generally more open to experience

Future Work

- Analyze addictive behavior
- Predict drug abusers
- More detailed demographic analysis
- Sample more representative of population

Thank you! Questions?
