CS 418 Final Project

Manasa Kandimalla, Shyam Patel, Carlos Antonio McNulty December 3, 2019

- 1. Problem Selection
- 2. Data Collection
- 3. Data Preparation
- 4. Data Exploration

Figure 1: Drug Usage

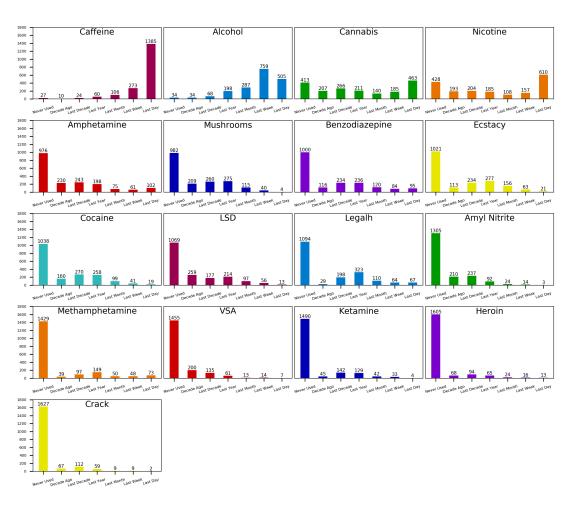


Figure 2: Illegal Drug Usage by Gender

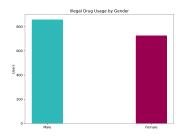


Figure 3: Illegal Drug Usage by Personality Trait

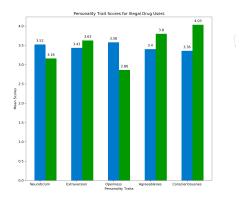


Figure 4: Heatmap of Correlation Matrix

			_												4.00
Age -	1	0.12			-0.054	-0.11	-0.039	-0.22	0.086		-0.16	-0.3	-0.2		1.00
Gender -	0.12	- 1	0.2		0.0024	0.098	0.049	-0.13			-0.17	-0.25	-0.18		
Education -			1		-0.024	-0.073	0.1	0.058	0.11		-0.15	-0.14	-0.1		0.75
Country -			0.22		-0.12	-0.1	0.093	-0.35			-0.25	-0.34	-0.3		
Ethnicity -	-0.054	0.0024	-0.024	-0.12	1	0.046	0.02	0.085	-0.037	-0.042	0.076	0.083	0.16	ı	0.50
Nscore -	-0.11	0.098	-0.073	-0.1	0.046	1	-0.42	-0.005	-0.21	-0.37	0.16	0.052	0.12		
Escore -	-0.039	0.049	0.1	0.093	0.02	-0.42	1			0.31	0.12		-0.075		0.25
Oscore -	-0.22	-0.13	0.058	-0.35	0.085	-0.005		1	0.045	-0.05			0.24		0.20
Ascore -	0.086		0.11		-0.037	-0.21		0.045	1		-0.23	-0.21	-0.15		
Cscore -					-0.042	-0.37		-0.05	0.25		-0.33	-0.22	-0.25		0.00
Impulsive -	-0.16	-0.17	-0.15	-0.25	0.076		0.12		-0.23	-0.33	1	0.61	0.24		
SS -	-0.3	-0.25	-0.14	-0.34	0.083	0.052			-0.21	-0.22	0.61		0.3	ŀ	-0.25
Drug User -	-0.2	-0.18	-0.1	-0.3		0.12	-0.075		-0.15	-0.25	0.24	0.3	1		
	Age	Gender	Education	Country	Ethnicity	Nscore	Escore	Oscore	Ascore	Cscore	Impulsive	SS	Drug User		

5. Data Modeling

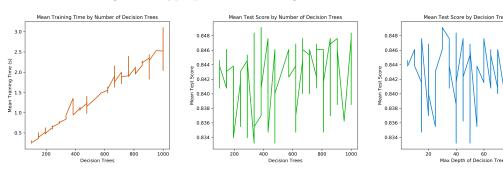
Decision Tree Classifier

Random Forest Classifier

Feature Selection

Grid Search

Figure 5: Hyperparameter Tuning with Grid Search



Clustering

6. Results