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Primary Questions:
Overburdened by studies, many students conform to drug use and alcoholism. They are also often worst affected by mental health. Substance abuse is known to trigger or intensify the feelings of loneliness, sadness and hopelessness often associated with depression (*Depression and Substance Abuse - Addiction Center*, 2021). How many students are affected by mental illness or substance abuse? Is there any relation between the two? How many students are aware of their illness/abuse and choose to seek counselling?

The **general goal** of the project was to analyse the usage of the most common drugs/substances among students in Canada and come up with a process that would assist universities in diagnosing students with mental health disorders in an efficient manner if there is a relationship between the two.

Methodology:
We selected the Canadian dataset and narrowed our focus to only Canadian university students. This was done by filtering (DEM_STDNT==1). Since there were a lot of drugs provided, we decided to only concentrate on Cannabis and Alcohol which are very popular and widely available among university students. We started by doing exploratory data analysis and found some interesting insights such as the relationship between recreational Cannabis use and anxiety. From our EDA, we built a **logistic regression** model where the selection of predictors were influenced by EDA. The process starts with students filling out a questionnaire form (shown below) which is based on the predictors from our logistic regression model.

Questionnaire:
1. What is your gender?
2. How old are you?
3. Are you currently a healthcare professional (providing care to patients)?
4. Have you ever attempted to get a prescription from a physician for a medication that you did not need and intended to misuse?
5. How often did you drink alcoholic beverages during the past 12 months?
6. Have you ever used Cannabis (non-medical, recreational, or illicit marijuana) and how often?
7. Have you ever used Cannabis (medical marijuana) and how often?
8. Have you ever had blackouts or flashbacks as a result of drug use?
9. Do you ever feel bad or guilty about your drug use?
10. Does your spouse (or parents) ever complain about your involvement with drugs?

The answers of our questionnaire form would act as the input of the model and that would be used to calculate the accuracy through 5 or 10-fold cross validation. In our experiment, we obtained **70.73% accuracy through 5-fold cross validation** which is excellent considering the time constraint. From these results, the university can take actions and narrow down the diagnosis making the overall process much faster, promoting awareness through workshops about mental health to targeted students, and facilitating the appropriate treatment to students.

There are a few concerns regarding accuracy especially because the mental health data refers to students being informed about their disorders at any point in their life. There wasn't enough data to deduce whether mental health disorders promoted drug/alcohol consumption, or vice versa. Furthermore, the amount of analysis to deduce the relationship among predictors was limited due to the time constraints and there is still room for deeper analyses in this area. Next steps include, analysing new/stronger predictor variables and also designing a more efficient flow to the diagnosis process after collaborating with key stakeholders such as the university and mental health specialists.

Citations

- *Depression and Substance Abuse - Addiction Center*. (2021, March 25). Addiction Center.

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- (*Summary Report Canadian Centre on Substance Abuse • Centre canadien de lutte contre les toxicomanies What Students Think about Drinking and Alcohol Policies: Feedback on the #RethinkTheDrink Talkback Tour*, n.d.)

  https://www.ccsa.ca/sites/default/files/2019-04/CCSA-Students-Drinking-Alcohol-Policies-Summary-Report-2017-en.pdf

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