# Submission-Week-12

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## Week-9: Webpage + Diary Entry

### What is the topic that you have finalised?

I have finalised on the topic of drug abuse and rehabilitation trends in Singapore over the years.

### What are the data sources that you have curated so far?

I have curated some data sets from https://beta.data.gov.sg/, Singapore's national open data collection site. The data sets that I have collated thus far are namely the demographics of inhalant abusers arrested and the inmates undergoing rehabilitation in the Drug Rehabilitation Centre (DRC) as well as the quantity and type of controlled drugs that have been seized.

## Week-10: Diary Entry

### What is the question that you are going to answer?

How effective have current efforts been in addressing the problem of drug abuse in Singapore and how can they be improved?

### Why is this an important question?

Drug abuse and addiction can have serious adverse effects on an individual's life. Tackling drug abuse requires a multifaceted approach given the nuanced factors involved. Recognising current trends related to drug abuse could prove crucial in designing more targeted and effective policies to resolve the issue in the long-term.

### Which rows and columns of the dataset will be used to answer this question?

Multiple variables of the different collated data sets will be used, namely the quantities and types of drugs that have been seized over the years, the demographics of the inhalant abusers arrested by age, ethnicity, gender and status over the years as well as the demographics of inmates in the DRC by age, education level and gender. A challenge that I faced was the inconsistency of some variables such as the unit of measurement (kilograms, grams, tablets) in the data set on quantities and types of drugs seized. To overcome this, I separated the drugs that had their quantities in tablets while converting the drugs that had their quantities in grams to be reflected as kilograms.

# Week-11: Diary Entry + Placeholders Integrated with Webpage

## List the visualisations that you are going to use in your project.

I am going to use grouped bar plots to visualise the following data:

- Controlled Drugs Seized by Measurements, i.e. Kilograms, Grams, Tablets
- Inhalant Abusers Arrested by Status, Age, Gender & Ethnicity
- Population of Inmates in the DRC by Age (Before & After 2020), Gender & Education Level

## How do you plan to make it interactive?

I plan to make the visualisations interactive by using "plotly" so that users can zoom in and explore the specific values of each bar in all the grouped bar plots. I also plan to use "shiny" so that users can choose which bar chart to look at on the specific page that they are on.

## What concepts incorporated in your project were taught in the course and which ones were self-learnt?

Week 3 - Explicit Coercion of Variable Types

Week 4 - Selection & Creation of Columns; Slicing of Rows

Week 7 - Customisation of Bar Plots

Week 8 - "shiny"

Self-Learnt - Renaming of variables and values; "plotly"; Grouped Bar Plots

While I had converted the drugs that had their quantities in grams to be reflected as kilograms earlier, I decided to revert this so as to present the drugs which had their original quantities in grams on their own plot. I realised that comparing them directly with the drugs that had their original quantities in kilograms would indirectly reduce their significance due to their extremely small values by comparison. Another hurdle I faced was the inability to generate proper and accurate plots, for which I later realised the issue was due to the variables of the original data sets being of the incorrect type, e.g. character or double, and I utilised explicit coercion to address this.

# Week-12: Diary Entry

## What were the challenges and errors faced and how were they overcome?

The biggest challenge I faced was implementing "shiny" for users to be able to toggle through the different data plots on each tab of the website. I realised that, to generate interactive models showcasing different data plots, "shiny" generally functions by using a singular data set which it then derives specific variables selected by the user to display in a data plot. In contrast, almost all data plots used on the website were derived from separate data sets each, that are also largely two-dimensional in nature. This was due to the manner in which the data sets used for this project were published by the Central Narcotics Bureau of Singapore (CNB) on https://beta.data.gov.sg/, that had already separated data sets entirely according to variables, e.g. age, education level, gender. Furthermore, I had already made various changes to the variables and values to the different data sets beforehand and combining the data sets into a singular one would require further time and effort.

As such, I decided to halt the pursuit of a solution to implementing "shiny" since the only interactivity it offered was to toggle between separate plots to display at a time. After all, I had already utilised "plotly" to enable users to interact with each data plot and explore the specific values of different variables that might be of interest. I also shifted my focus and time to implementing sections that embedded YouTube videos that can capture the interest and attention of users while providing relevant and interesting information.