Abstract

Proposing the analysis of data obtained from public domains to identify trends of abuse of prescription drugs among high school students age 12-17. Objective is to compare data and identify correlation between age, demographics and socio-economic background to drug abuse.

prescription drug abuse

Of High School Students

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**Table Of Contents**

[Scope Statement: 2](#_Toc13631125)

[Summary: 2](#_Toc13631126)

[Data Sources 2](#_Toc13631127)

[Expected Results 2](#_Toc13631128)

[Guidelines 3](#_Toc13631129)

[Technical requirements 7](#_Toc13631130)

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# Scope Statement:

Analyze data on prescription drug abuse in high schools students age 12-17.

# Summary:

Data analysis of drug abuse in schools pertaining to

* Ratio of student population abusing prescription drugs
* What is the most common prescription drug
* Find out the social economic backgrounds / Demographics
* What pockets of City/State is impacted

# Data Sources

Sources of data available from public domain including

* Substance abuse by gender, race, 8th,10th & 12th graders and from years 1980 thru 2016

(Table 51, https://www.cdc.gov/nchs/contents2017.htm#051)

* Drug overdose death rates by age

(Table 27, https://www.cdc.gov/nchs/contents2017.htm#027)

# Expected Results

Using .csv files downloaded from the cdc.gov, we will analyze relationships between Age groups vs Drugs Usage, Drugs Usage vs Race. And if time permits identify API that will provide correlation to Family income vs Drug use.

# Guidelines

**# Guidelines for Project 1**

This document contains guidelines, requirements, and suggestions for Project 1.

**## Team Effort**

Before anything, remember that Projects are a **\*\*group effort\*\***: Working closely with your teammates is a requirement. This both helps teach real-world collaborative workflows, and enables you to tackle more difficult problems than you'd be able to working alone.

In other words, working in groups allows you to **\*\*work smart\*\*** and **\*\*dream big\*\***. Take advantage of it!

**## Project Proposal**

Before you start writing any code, your group should outline the scope and purpose of your project. This helps provide direction and prevent [scope creep](https://en.wikipedia.org/wiki/Scope\_creep).

Write this as a brief summary of your interests and intent, including:

\* The kind of data you'd like to work with/field you're interested in (e.g., geodata, weather data, etc.)

\* The kinds of questions you'll be asking of that data

\* Possible source for such data

In other words, write down what kind of data you plan to work with, and what kinds of questions you'd like to ask of it. This constitutes your Project Proposal/Outline, and should look something like this:

> Our project is to uncover patterns in criminal activity around Los Angeles. We'll examine relationships between types of crime and location; crime rates and times of day; trends in crime rates over the course of the year; and related questions, as the data admits.

**## Finding Data**

Once your group has written an outline, it's time to start hunting for data. You are free to use data from any source, but we recommend the following curated sources of high-quality data:

\* [data.world](https://data.world/)

\* [Kaggle](https://www.kaggle.com/)

\* [Data.gov](https://www.data.gov)

\* [Public APIs](https://github.com/abhishekbanthia/Public-APIs)

\* [Awesome-APIs List](https://github.com/Kikobeats/awesome-api)

\* [Medium APIs List](https://medium.com/@benjamin\_libor/a-curated-collection-of-over-150-apis-to-build-great-products-fdcfa0f361bc)

Chances are you'll have to update your Project Outline as you explore the available data. **\*\*This is fine\*\***—adjustments like this are part of the process! Just make sure everyone in the group is up-to-speed on the goals of the project as you make changes.

Make sure that your data is not too large for local analysis. **\*\*Big Data\*\*** datasets are difficult to manage locally, so consider a subset of that data or a different dataset altogether.

**## Data Cleanup & Analysis**

With data in hand, it's time to tackle development and analysis. This is where the fun starts!

Inevitably, the analysis process can be broken into two broad phases: **\*\*Exploration & Cleanup\*\*** and **\*\*Analysis\*\*** proper.

As you've learned, you'll need to explore, clean, and reformat your data before you can begin to answer your research questions. We recommend keeping track of these exploration and cleanup steps in a dedicated Jupyter Notebook, both for organization's sake and to make it easier to present your work later.

Similarly, after you've massaged your data and are ready to start crunching numbers, you should keep track of your work in a Jupyter Notebook dedicated specifically to analysis.

During both phases, **\*\*don't forget to include plots\*\***! Don't make the mistake of waiting to build figures until you're preparing your presentation. Creating them along the way can reveal insights and interesting trends in the data that you might not notice otherwise.

We recommend focusing your analysis on techniques such as aggregation, correlation, comparison, summary statistics, sentiment analysis, and time series analysis.

Finally, be sure that your projects meet the [technical requirements](TechnicalRequirements.md).

**## Presentation**

After you've analyzed your data to your satisfaction, you'll put together a presentation to show off your work, explain your process, and discuss your conclusions.

This presentation will be delivered as a slideshow, and should give your classmates and instructional staff an overview of your work. PowerPoint, Keynote, and Google Slides are all acceptable for building slides.

As long as your slides meet the [presentation requirements](PresentationRequirements.md), you are free to structure the presentation however you wish, but students are often successful with the format laid out in the [presentation guidelines](PresentationGuidelines.md).

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# Technical requirements

**# Technical Requirements**

The technical requirements for Project 1 are as follows.

\* [ ] Use Pandas to clean and format your data set(s)

\* [ ] Create a Jupyter Notebook describing the **\*\*data exploration and cleanup\*\*** process

\* [ ] Create a Jupyter Notebook illustrating the **\*\*final data analysis\*\***

\* [ ] Use Matplotlib to create a total of 6-8 visualizations of your data (ideally, at least 2 per "question" you ask of your data)

\* [ ] Save PNG images of your visualizations to distribute to the class and instructional team, and for inclusion in your presentation

\* [ ] Optionally, use at least one API, if you can find an API with data pertinent to your primary research questions

\* [ ] Create a write-up summarizing your major findings. This should include a heading for each "question" you asked of your data, and under each heading, a short description of what you found and any relevant plots.

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