# Assignment #1:

# Charts and plots

**Due on September 5th, before midnight**

## Goals:

The goal of this project is to get familiar with the **principles** of generating effective graphical representation (specifically, charts and plots) for storytelling.

You will be given a number of information data sets to choose from (see below). You are required to choose (any) TWO from the given options to finish the specified tasks. You are free to choose the tools to generate the appropriate plots and charts. **But you need to specify which tool you use to finish this assignment**.

The submission of this assignment is **in the form of a report** with the generated plots/charts and corresponding descriptions (see below).

## Options of the Data:

Please choose **TWO** from the following options. The meaning of attributes of those data should be straightforward based on their names. Most of the options are from data.gov, except for the time-series data from the unsteady flow data.

- Time-series data that describe the change of certain physical quantity measured at different locations of the domain over time
- Degree awarded versus races
- Types of financial aids received versus Geographical Regions
- Population data
- Pollution data
- Houston housing data

## Tasks:

### 1. Writing question (10 points)

Please provide one example each for scientific data and information data. Describe why you think the data you select is a scientific (or information) data. DO NOT USE THE EXAMPLES FROM THE CLASS LECTURE. YOU WILL GET ZERO POINTS FOR DOING THAT.

### 2. Individual plots/charts generation (40 points)

Generate a plot for each data sequence using the principles learnt from the class. In this stage, you should try to avoid introducing any bias or mis-leading information in your visualization

Your plots will be graded based on whether they satisfy the principles introduced in the class or not. Again, try to make the data standout and marks/labels readable, and avoid any unnecessary visual primitives. Add title to each plot. Add caption for each plot to explain what is shown.

**3. Plots/charts for storytelling (50 points)**

Based on the background of the data and the individual plots generated in Task 2, **summarize your discovery** and answer "What is the important information/pattern you found from each data sequence?"

Based on your discovery, modify your plots to communicate or emphasize your discovery to the audience using the principles you learn from the class. Compared to the previous plots you made in Task 2, why do you think the new plot is more effective?

What is the difference you see between the two data sequences you select? How do you know?

**4.** (**Optional)** Compile the provided skeleton code and report your success **in the form of screen shots** (**5 points**)

If you use the provided C++ skeleton code, you should modify the name of the program. Currently it shows either

"`OpenGL / GLUT / GLUI Sample -- YOUR NAME`"

Or "`OpenGL / GLUT / AntTweakBar Sample -- YOUR NAME`"

*Please replace it as*

*"Assignment 1 – Your Name"*

The template for the WebGL platform will be made available shortly. Be sure to go to the course webpage to check the update.

## Grading rubric:

| *Tasks* | *Total points* |
|---|---|
| 1 | 10 |
| 2 | 40 |
| 3 | 50 |
| *4(optional)* | *5* |