Homework 4 (Part 1)

In this part of homework, you are required to use the data from previous homework to do some visualization with d3.js.

Tutorials

D3.js

D3.js is a JavaScript library for manipulating documents based on data. **D3** helps you bring data to life using HTML, SVG, and CSS. D3's emphasis on web standards gives you the full capabilities of modern browsers without tying yourself to a proprietary framework, combining powerful visualization components and a data-driven approach to DOM manipulation.

You can go to https://d3js.org for more details and view the examples. (This is very useful)

Download the latest version (5.12.0) here:

https://github.com/d3/d3/releases/download/v5.12.0/d3.zip
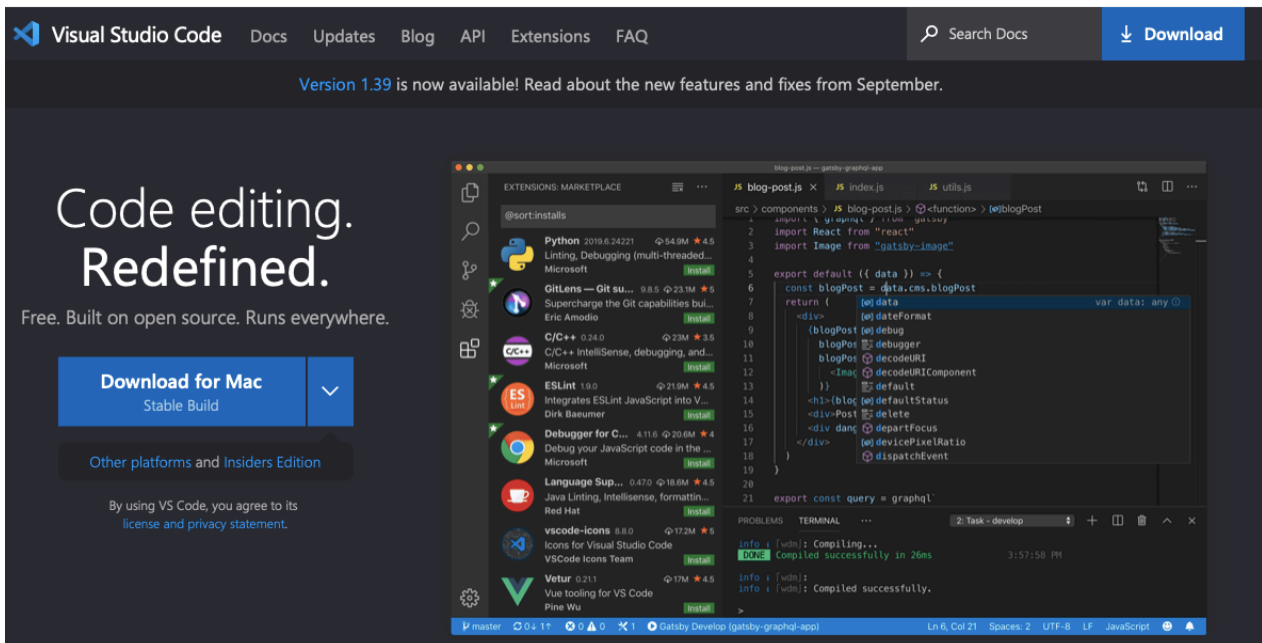
To link directly to the latest release, copy this snippet:

```
<script src="https://d3js.org/d3.v5.min.js"></script>
```

IDEs

You write html, js with every editor (even in TextEdit/notebook). Here are 2 editors I recommend you to use

Visual Studio Code (Free):

WebStorm (Free 30-day trial/ Apply for student plan)

Homework Part 1

Problem 1

1. Answer these questions in simple words. (These ideas will help you to finish the following problems). (4*5pt)

   1.1 What's the difference between SVG Coordinate Space and Mathematical / Graph Coordinate Space?

   1.2. What is `enter()` and `exit()` in d3.js?

   1.3 What is `transform` and `translate` in SVG?

1.4 Try to understand the idea of anonymous function and its use in d3.js. If there is a list `a = [a,c,b,d,e]`, what is the return value of this anonymous function: `a.map(function(d,i) {return i+5})` (It should be a list)

2. Modify the sample code to get the same figure as below: (15pt)

   o You **must** have the same width and paddings of 5px as this given bar-chart.
   o The label **must** locate 2px above the middle of each bar.
   o You **must** use `transform` to do this.
   o You should write the javascript in a single file (`.js`), separated with the structure file (`.html`).
   o Hint: add another elements "text" to display the labels.
   o (you can use any color you like :D)

   Your answer should include screenshots of your codes and result.