

## Part 1

### i. What is the purpose of your website?

I want to make an interactive information visualization website that allows people to compare the history of major countries in the world at the same time scale. This idea comes from an interesting phenomenon: for many famous historical events, people do not know that they happened during the same period. Mapping famous historical events happened in various countries at the same time scale allows people to directly compare one country to another.

### ii. What information do you convey with your website?

Because many important warfares happened in the 19th and 20th centuries, especially WWI and WWII, I chose “% of total GDP spent on military purpose” as the y-axis. I think this type of data accurately reflects what happened in a country. I also mapped various historical events onto the line graph as data points. The users would get a summary of each event.

### iii. How is it interesting and engaging?

I made the line graph visually pleasing by using a Giorgio Morandi color palette. I also added animations for the process of drawing each line, so that it shows the process of the growth and decline. The user can interact with the graph in various ways: turning on and off layers, viewing historical events, seeing historical data points, etc. Moreover, it would be a “wow” moment when the users find out that the American-Mexican war happened at the same time as China’s first Opium War.

### iv. Who is the target audience?

The target audience would be anyone interested in learning modern history. Because this is a casual and fun learning experience, people who need a moment to relax can also browse this website, and find out some fun facts about their country.

## Part 2

### i. the interaction type you implemented (e.g. speech, gesture, form-based wizard, standard web page, etc)

- Clicking on checkboxes
- Pointing tasks
- Zooming in and out
- Pop up window

ii. how we should reproduce an interesting use case (i.e. click on X on page Y, or scroll on page X, etc.)

- Turning on and off layers: use the annotation on the right side. Click on the colored circles
- Zooming in and out: scrolling up and down will zoom in and out
- Pointing: hovering over each line will highlight that line and grey out the rest of the graph
- Pop up: hovering on a circle on the graph will enlarge the circle to show selection. Clicking on the circle will display a pop-up window that shows a summary of the historical event.

### Part 3

i. Name of tool

D3.js

ii. Why did you choose to use it?

I googled “data visualization javascript library” and D3.js is the most popular data visualization library. I looked at examples done by d3.js and it really excited me.

iii. How you used it?

I found instruction on how to use it mainly on <https://github.com/d3/d3/blob/master/API.md> and Stackoverflow.com. It was hard to understand at the beginning, but after trying out I gradually understood how to use d3.js.

iv. What does it add to your website?

I used it for everything on this graph. I used it for drawing and mapping out numbers on the x-axis and y-axis, drawing each line, making the graph responsive, zooming in and out, singling out each line, etc.

### Part 4

Describe how you iterated on your HW7 mockups, if at all, including any changes you made to your original design while you were implementing your website.

Based on HW7 mockups, I chose “% of total GDP spent on military purpose” as the factor for measuring and visualizing historical changes happened in each country. After I draw the line chart, I realized that the lines overlap with each other and make it hard to read.

Therefore, instead of implementing the “brushing for zooming in and out” feature, I focus my time on improving visibility by turning on and off layers and singling out the lines.

## **Part 5**

What challenges did you experience in implementing your website?

When I use D3.js to read local csv files, I got error message because it is not allowed. After searching on google, I found the solution: to start a local server using python. Later I found out that pushing my files to Github also works.

I didn't know how D3 features work: `d3.line()`, `d3.area()`, `d3.circle()`, etc.