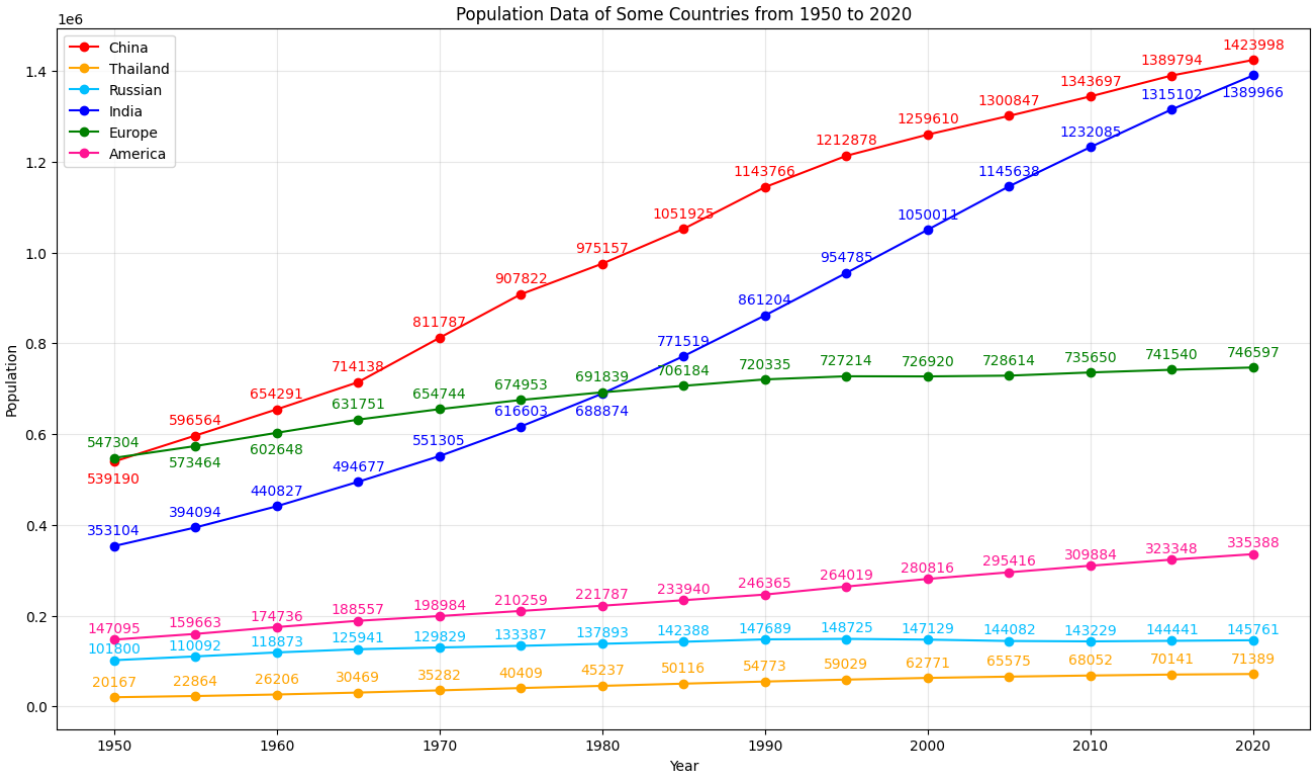
INFSCI 2415 Final Report

Visualization of Population Data of Some Countries from 1950 to 2020

Figure 1: Line Plot



Legend explained

- Red line represents China.
- Orange line represents Thailand.
- Sky-blue line represents Russian.
- Blue line represents India.
- Green line represents Europe.
- Pink line represents America.
- The colored value represents population values for corresponding country.

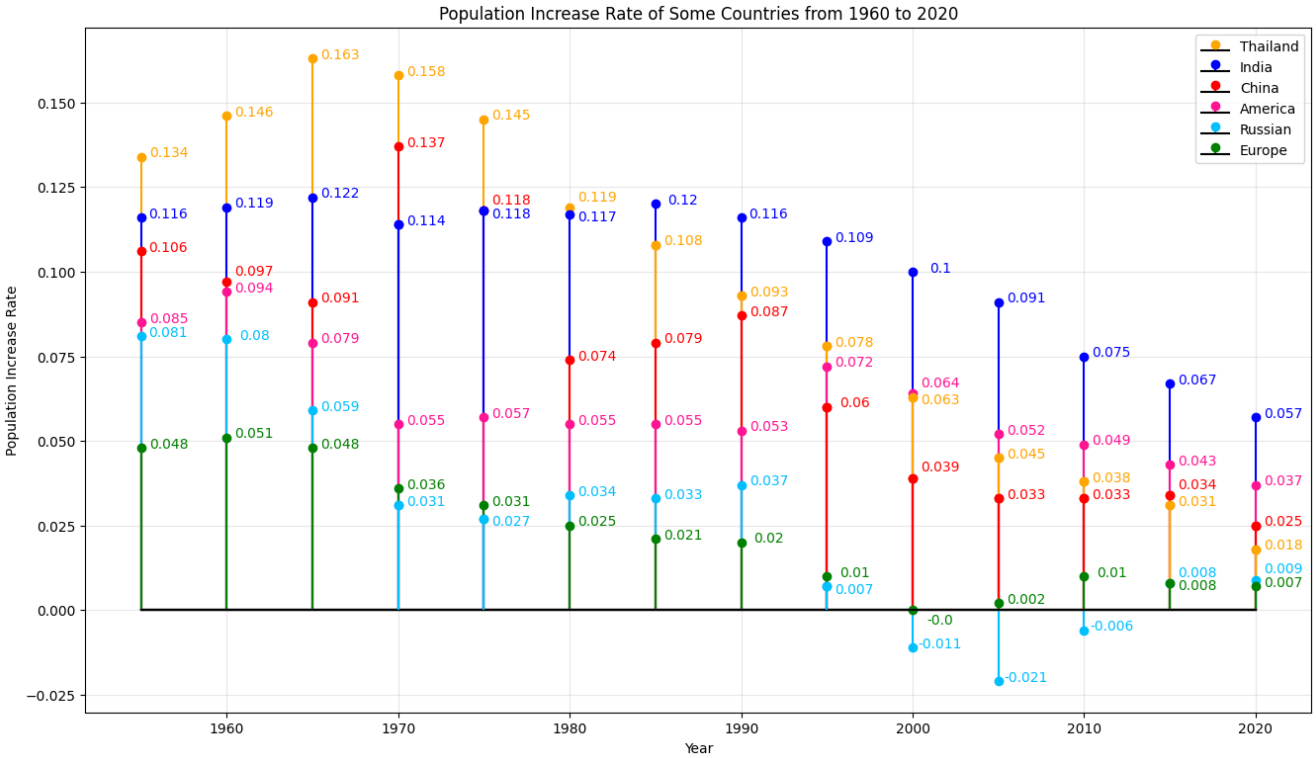
Findings text introducing highlights of the produced figure in bulletin points

- This is a line plot that represent Population Data of Some Countries from 1950 to 2020.
- The larger the number marked in the figure, the greater the population is.
- Overall, as the year increases, the country's population gradually increases.
- Populations in India and China continue to grow significantly, while growth in other countries has leveled off, which may have something to do with the state of the country's economy.
- Russia and Europe have experienced population declines during 1995 to 2000.

Data gathered from Kaggle: https://www.kaggle.com/datasets/shivd24coder/worldwide-population-data

Github link: https://github.com/shz173/2415-final-project

Figure 2: Stem Plot



Legend explained

- Orange points represent Thailand's population increase rate.
- Blue points represent India's population increase rate.
- Red points represent China's population increase rate.
- Pink points represent America's population increase rate.
- Sky-blue points represent Russian's population increase rate.
- Green points represent Europe's population increase rate.
- The colored values represent the population increase rate values for corresponding country.

Findings text introducing highlights of the produced figure in bulletin points

- This is a bar plot that represent Population Growth Rate of Some Countries from 1960 to 2020.
- The larger the value in the graph, the faster the population is growing.
- The positive value indicates that the population has increased during this decade, and the negative value indicates that the population has decreased during this decade.
- Overall, as the year increases, the population growth rate gradually decreases.
- Peak population growth rates tend to occur between 1965 and 1970.
- China's population growth rate fluctuated significantly between 1965 and 1980. It rose sharply in 1970 and dropped sharply in 1980.
- Russia reached its peak of negative population growth in 2005 and gradually returned to positive growth thereafter.

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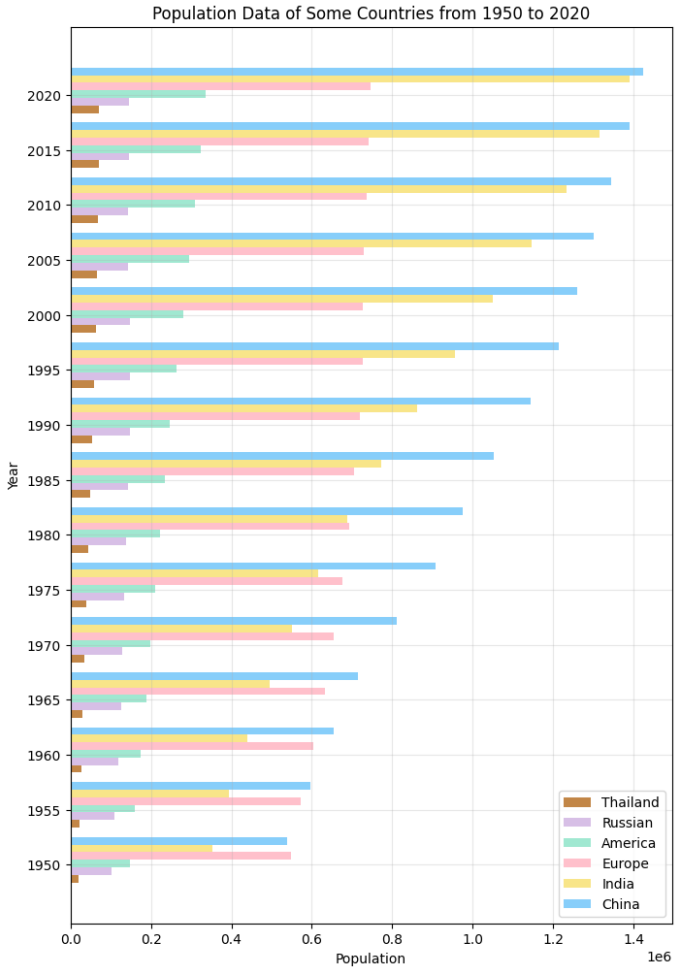
Figure 3: Bar Plot



Legend explained

- Brown bar represents Thailand's population.
- Purple bar represents Russian's population.
- Green bar represents America's population.
- Pink bar represents Europe's population.
- Yellow bar represents India's population.
- Blue bar represents China's population.

Findings text introducing highlights

- This is a bar plot that represent Population Data of Some Countries from 1950 to 2020.
- The longer the bar in the figure is, the greater the population is.
- Overall, as the year increases, the country's population gradually increases.
- For each year, the population rankings between countries remain essentially unchanged. Except India's population surpassed Europe's in 1985.
- Compared with the first figure, this figure more clearly shows the comparison of the population of different countries in the same year.

Data and method text describing the data and method used in this process

- Python libraries such as numpy, pandas and matplotlib are used to create the figures.
- Use vscode as the compiler, the code is in the form of notebook.
- Functions in matplotlib library: plot(), stem(), and bar() are used to draw the three figures: line plot, stem plot, and bar plot.
- The title of each figure, the x-axis and y-axis labels, the data points on the figure, and the different colors in the figure are all modified as needed to show a more aesthetic figure.
- The dataset contains comprehensive data on global population statistics from 1950 to the present.

Significance statement on why the presented figure is important

- Figure 1 shows how the population of each country changes over time. Figure 2 shows the trend of population growth rate in various countries over the years. Figure 3 shows the differences in population between different countries in the same year.
- Through these three figures, people can more intuitively and clearly understand the changing trends of the population of different countries over years.
- This figures provides valuable insights into population dynamics, growth rates, demographics.

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