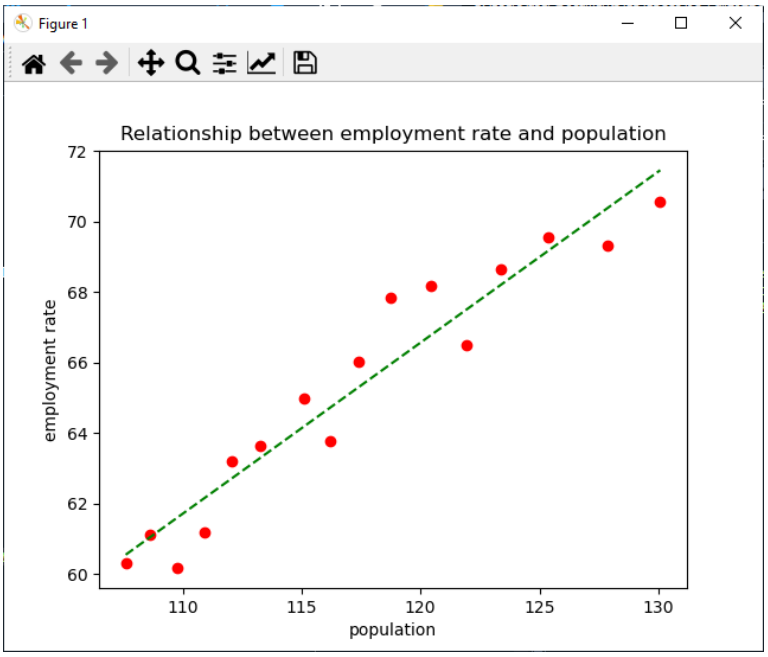
CS 115 - Introduction to Programming in Python
Lab Guide 10

Lab Objectives: Data visualization, experimental data

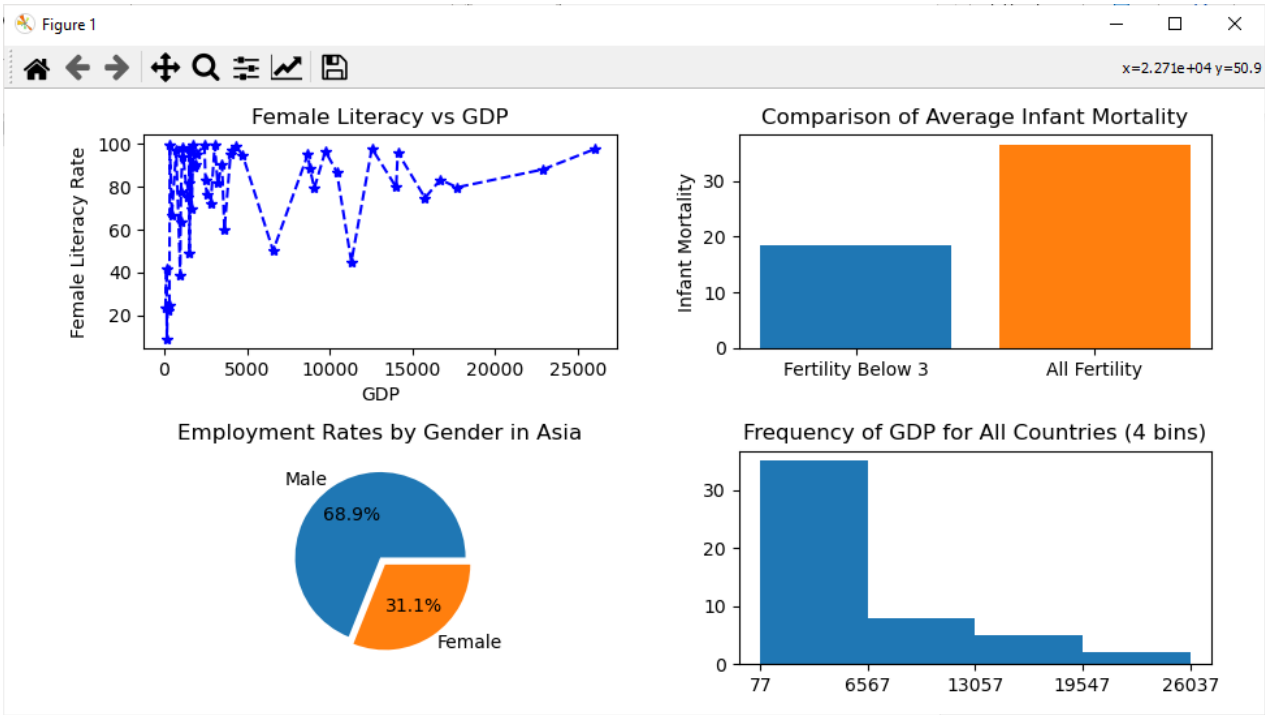
IMPORTANT: For the questions below do not use any loops. All data extraction can be done using Boolean/relational indexing.

1. Download the file, `employment_data.txt` that contains data for 7 indicators.
   a. Import the file data into a numpy array.
   b. Create a plot that compares the employment rate (5th column in the file) with the population (last column in the file).
   c. Find the first-degree polynomials for the curve fitting these values and produce a plot of the curve in the format shown below.



2. Download the files: `c_names.txt` and `c_data.txt`. The first file contains the names and regions of a set of countries. The second file contains quality of life indicator data for the same set of countries in the first file, in the same order.

3. Create a Python script that does the following:
    a. Using loadtxt, load the country names and regions into a numpy array, `c_names`, and the quality of life indicator data into a numpy array, `data`.
    b. Select all rows from data where the female fertility rate (fertility_per_woman) is below 3 and store as `fertility_under_3`.
    c. Store the country/region data (`asia_countries`) and indicator data (`asia_data`) for all countries in Asia.
    d. Using the data from the appropriate numpy arrays, create the plots shown below.



Hint: `plt.xticks( rotation = 45 )` rotates the ticks on the x-axis.