Dataset:

For this lab, use the dataset: Life Expectancy.csv available to you on LMS.

This dataset contains the following variables:

Measure Names: This variable can have the following two values: Life Expectancy or Mortality

Race: This variable can have the following three values: All Races, White, Black

Sex: This variable can have the following three values: All Sexes, Female, Male

Year: Our data is from the year 1900-2013

Average Life Expectancy: If the Measure Name is Life Expectancy, this variable represents the average life expectancy for the given sex and race in the given year. In case the Measure Name is Mortality, this variable is left blank.

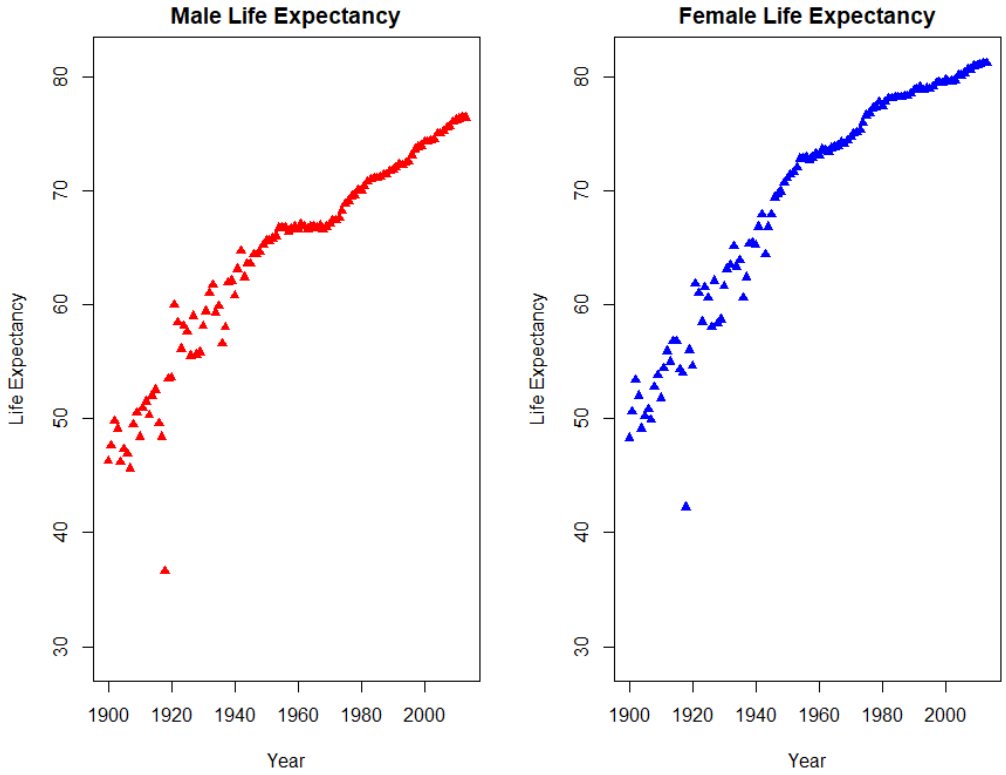
Mortality: If the Measure Name is Mortality, this variable represents the average life expectancy for the given sex and race in the given year. In case the Measure Name is Life Expectancy, this value is left blank.

For the questions below, when I ask you to replicate the graphs, I want you to replicate them exactly as I have made them.

If I say the graph is for your reference, you need not replicate it. I've just given a sample graph so that you are clear what your requirements are.

Base Plotting System:

1. Using the base plotting system, try and recreate the following plots: [5 marks]

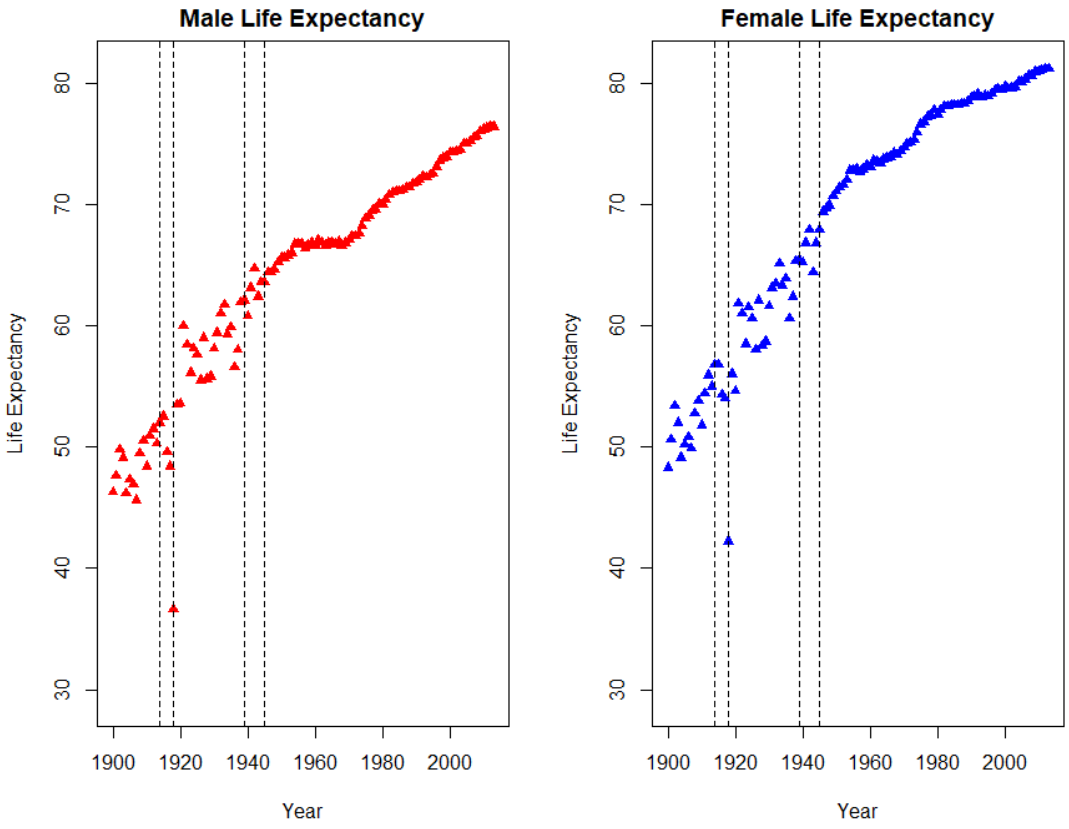


The first plot above shows the male life expectancy for all races, while the second plot shows the female life expectancy for all races.

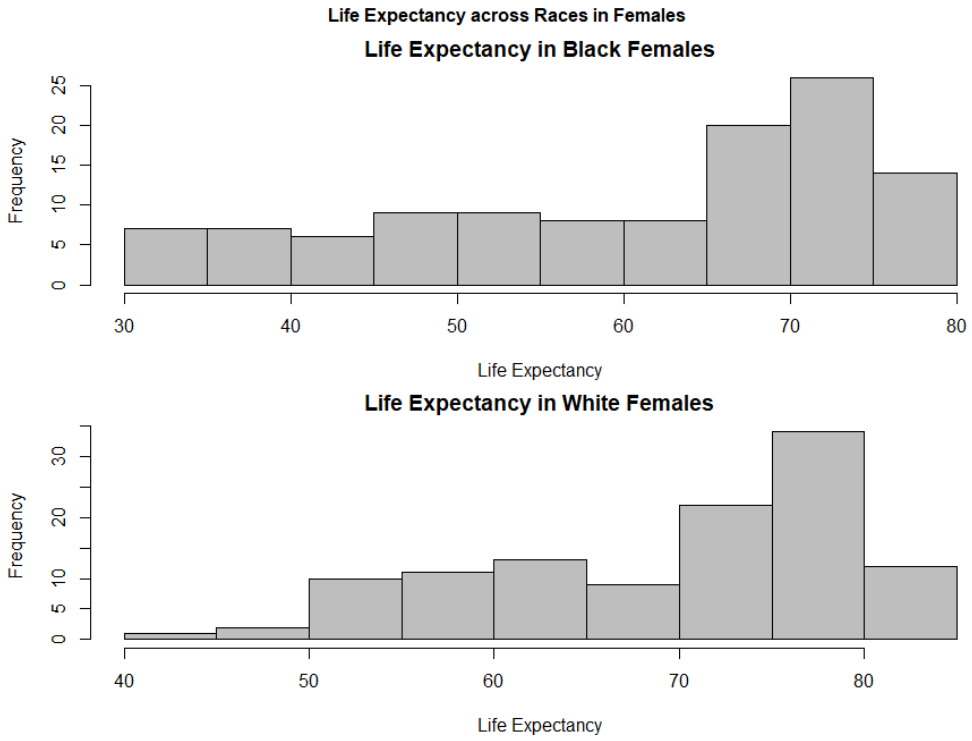
For this question, please recreate the plots exactly as above. Make sure the plots are arranged in one row. Pay attention to the shape and fill on the points, the labels of the axes and the main title of the graphs.

2. Add vertical lines to indicate the periods in which the two world wars took place.
WW1 was from 1914-1918 and WW2 was from 1939 to 1945 [3 marks]

The resulting plot should look like:

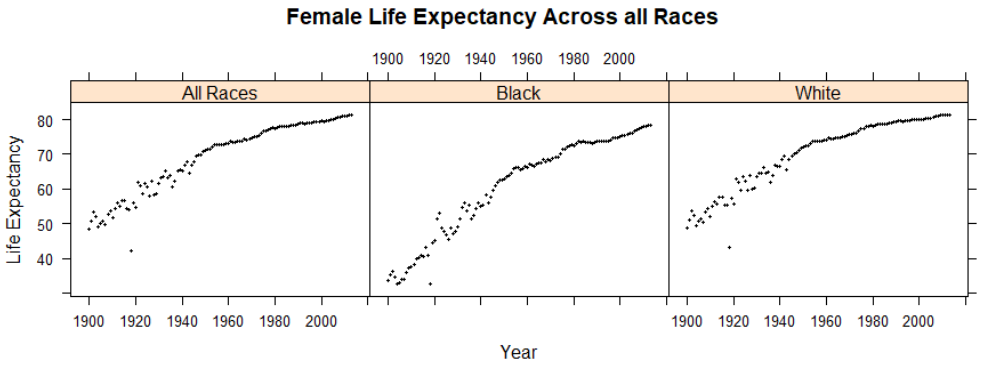


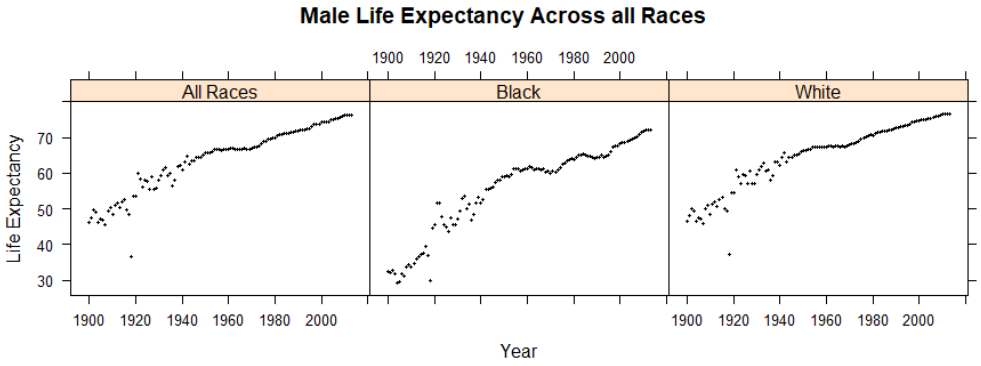
3. Use histograms to compare the life expectancy of white females to that of black females. Try to replicate the plots displayed below: [5 marks]



Lattice Plotting System:

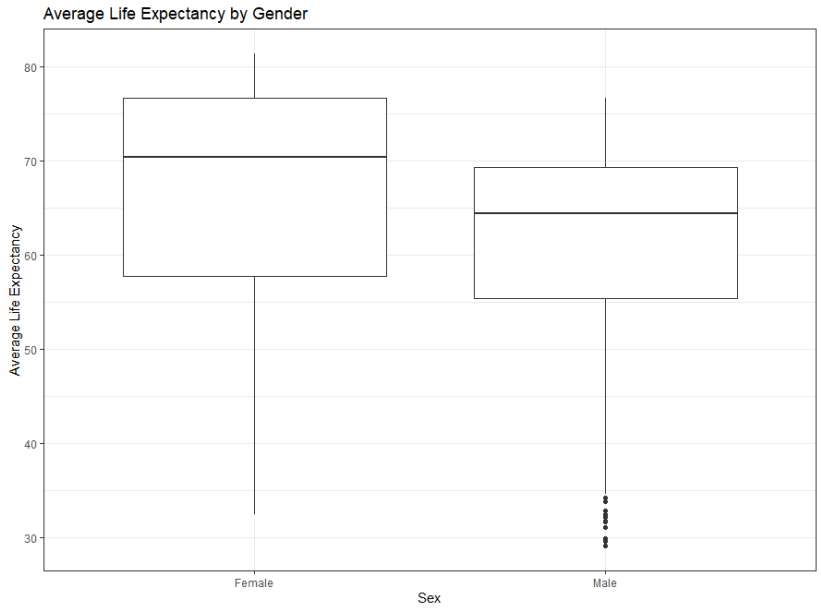
4. Show the Life expectancy of females and males across all races using the Lattice Plotting system. The two graphs below are given as reference. [7 marks]
   Just a little note, the par, mfrow or mfcol does not work with Lattice. If you want to display two sets of graph in one window, you have to use another package called gridExtra. You do not have to do this for this question and it is alright if you write code that displays graphs for females and then another code that displays the graphs for males.





ggplot

5. Using box plots, display average life expectancy by gender. The graph below is given for your reference. [5 marks]



6. Using a density plot, show how life expectancy varies across race and sex. The graph below shows one way of doing this. You can use different colors or themes if you want. [5 marks]