

MTH208: Worksheet 14

More Shiny Apps

We will do more R Shiny Development today! Note, you may find it very useful for your projects to see the demos provided on this website (with code). <https://shiny.rstudio.com/gallery/#demos>

There are tutorials available on the shiny website. Go through this Tutorial page and the first 3-4 lessons. This page tells you about the different types of interactive options. <https://shiny.rstudio.com/tutorial/written-tutorial/lesson1/>

We will use the `gapminder` dataset in `library(gapminder)`. In case this library is not loaded in your machine, you can read the csv provided using `read.csv()` and convert to a tibble using function `as_tibble()` in library `tibble`. This dataset contains information on GDP per capita and population by country. We are going to create an interactive widget to analyze this dataset. Your goal will be to create a shiny app that looks eventually like this:

Gapminder Data

Choose which Continent

☐ Africa

☐ Americas

☒ Asia

☒ Europe

☐ Oceania

Select Years

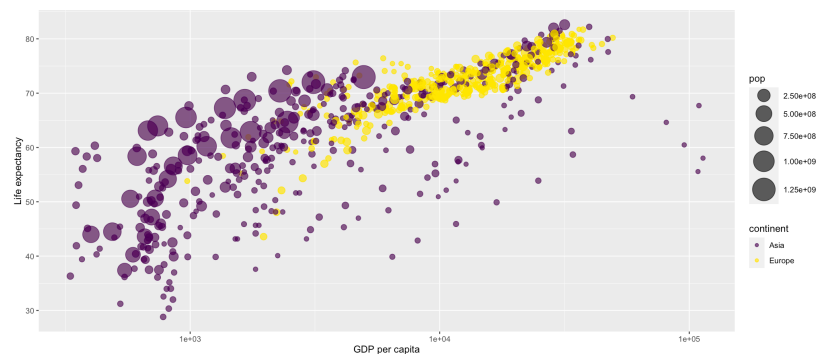
1,952 2,007

1,952 1,958 1,964 1,970 1,976 1,982 1,988 1,994 2,000 2,006 2,012

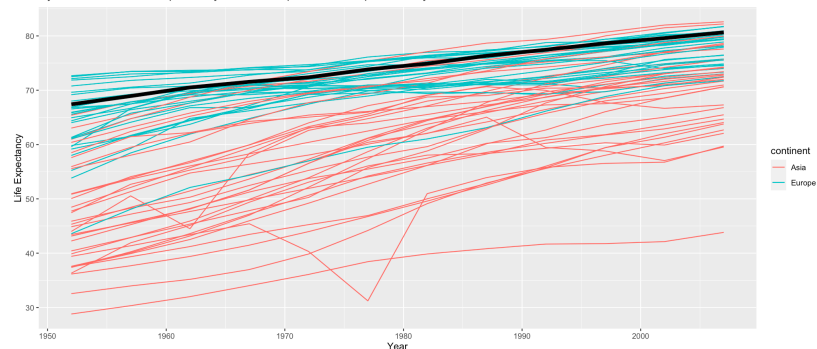
Select Country for Comparison

France

Life Expectancy and GDP Analysis



Country with the best Life Expectancy in this time period was Japan in the year 2007



This image has the following features:

- A title
- Choosing of continents on the side
- Choosing years for which to plot in the second plot
- Choosing the country to highlight in the second plot
- A header for the main panel
- Plot Number 1
- Some text that presents the country within the chosen continents with the highest Life Expectancy in the selected year range.
- Plot Number 2

We will need the following libraries:

```
library(ggplot2)
library(gapminder)
library(shiny)

# do ?gapminder to learn about the data
```

I give you code to make the two plots for the full dataset. For plot number 1 for the full dataset, the code is

```
# Plot Number 1

# Scatterplot with size = population
# and colour = country
# then changing opacity
# scale ang log scale
p <- ggplot(
  gapminder,
  aes(x = gdpPercap, y = lifeExp, size = pop, colour = continent)
) +
  geom_point(show.legend = TRUE, alpha = 0.7) +
  scale_color_viridis_d() +
  scale_size(range = c(2, 12)) +
  scale_x_log10() +
  labs(x = "GDP per capita", y = "Life expectancy")
p
```

For plot number 2 for the full dataset, the code is:

```
# Plot Number 2

# year by lifeExp, grouped by country
# and colored by continent
```

```
p <- ggplot(gapminder,  
            aes(year, lifeExp, group = country, color = continent)) +  
  geom_line() +  
  labs(x = "Year", y = "Life Expectancy")  
p
```