Week 3 Wealth Over Time

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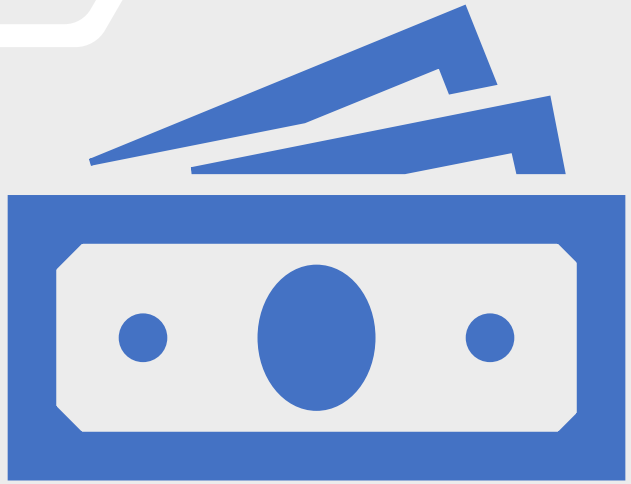
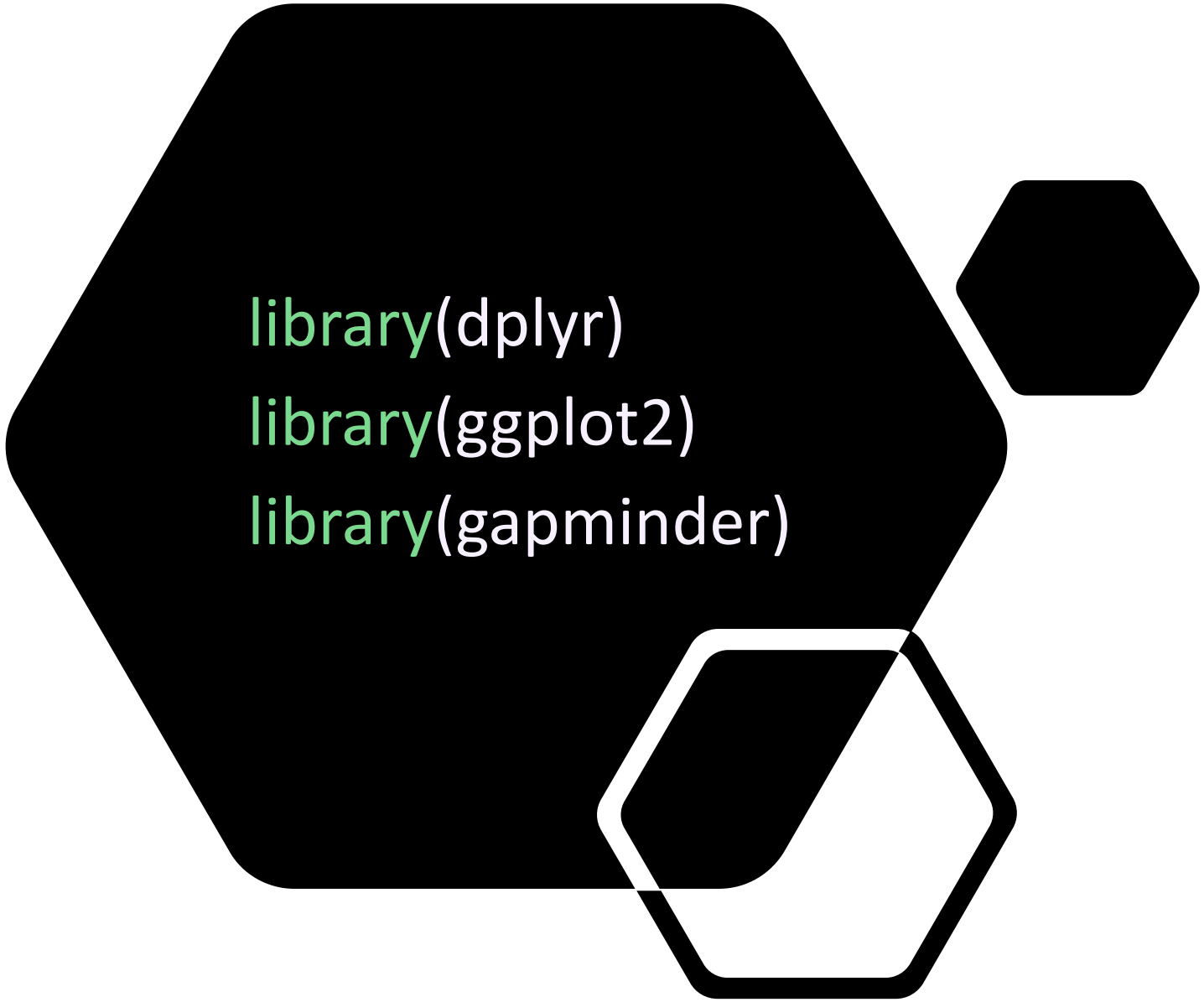
SUNY-BUFFALO-GEO-511

Week 3



- Use library(ggplot2); library(gapminder); library(dplyr) to load the necessary packages.



- Use filter() to remove “Kuwait” from the gapminder dataset for reasons noted in the background

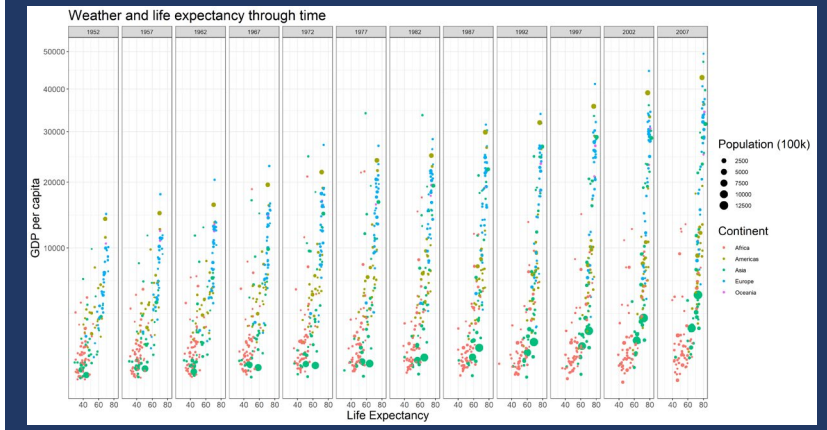
```
data(gapminder)
gapminder2 =
      filter(gapminder,country != "Kuwait")
head(gapminder2)
glimpse(gapminder2)
```

A tibble: 6 × 6

country	continent	year	lifeExp	pop	gdpPercap
<fct>	<fct>	<int>	<dbl>	<int>	<dbl>
Afghanistan	Asia	1952	28.801	8425333	779.4453
Afghanistan	Asia	1957	30.332	9240934	820.8530
Afghanistan	Asia	1962	31.997	10267083	853.1007
Afghanistan	Asia	1967	34.020	11537966	836.1971
Afghanistan	Asia	1972	36.088	13079460	739.9811
Afghanistan	Asia	1977	38.438	14880372	786.1134

```
Rows: 1,692
Columns: 6
$ country   <fct> "Afghanistan", "Afghanistan", "Afghanistan", "Afghanistan",
$ continent <fct> Asia, Asia, Asia, Asia, Asia, Asia, Asia, Asia, Asia, Asia, …
$ year      <int> 1952, 1957, 1962, 1967, 1972, 1977, 1982, 1987, 1992, 1997, …
$ lifeExp   <dbl> 28.801, 30.332, 31.997, 34.020, 36.088, 38.438, 39.854, 40.8…
$ pop       <int> 8425333, 9240934, 10267083, 11537966, 13079460, 14880372, 12…
$ gdpPercap <dbl> 779.4453, 820.8530, 853.1007, 836.1971, 739.9811, 786.1134, …
```

Plot #1 (the first row of plots)

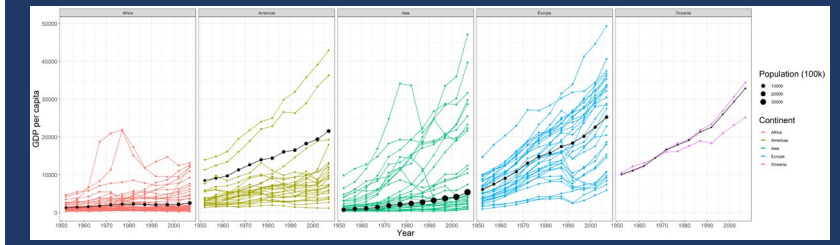



```
ggplot(gapminder2)
+ geom_point(aes(x = lifeExp, y = gdpPercap, size=pop/100000, color = continent))
+ facet_wrap(~year, nrow = 1)
+ scale_y_sqrt()
+ theme_bw()
+ labs(x = "Life Expectancy", y = "GDP per capita", size = "Population (100k)", color = "Continent", title = "Weather and life expectancy through time")
+ theme(axis.text.x = element_text(size = 12),axis.text.y = element_text(size = 12),title = element_text(size = 18))
```

- **Prepare the data for the second plot**
  - Use group_by() to group by continent and year
  - Use summarize() with the below commands to calculate the data for the black continent average line on the second plot:
    - gdpPercapweighted = weighted.mean(x = gdpPercap, w = pop)
    - pop = sum(as.numeric(pop))

```
gapminder3 = gapminder2 %>%
  group_by(continent, year) %>%
  summarise(gdpPercapweighted =
weighted.mean(x = gdpPercap, w = pop),
                  pop = sum(as.numeric(pop)))
```

Plot #2 (the second row of plots)




```
ggsave(
filename = "Plot2 .png",
width = 24,
height = 7,
units = "in",
 dpi = 300
)
```

```
ggplot(gapminder2)
+ geom_line(aes(x = year, y = gdpPercap, color = continent, group
= country))
+ geom_point(aes(x = year, y = gdpPercap, color = continent,
group = country))
+ geom_point(data = gapminder3, aes(x = year, y =
gdpPercapweighted, size = pop/100000))
+ geom_line(data = gapminder3, aes(x = year, y =
gdpPercapweighted))
+ facet_wrap(~continent, nrow = 1)
+ theme_bw()
+ labs(x = "Year", y = "GDP per capita", size = "Population (100k)",
color = "Continent")
+ theme(axis.text.x = element_text(size = 12),axis.text.y =
element_text(size = 12),title = element_text(size = 18))
```