Task6

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```
library(dplyr)
library(tidyr)
library(ggplot2)
library(gapminder)
```

6A

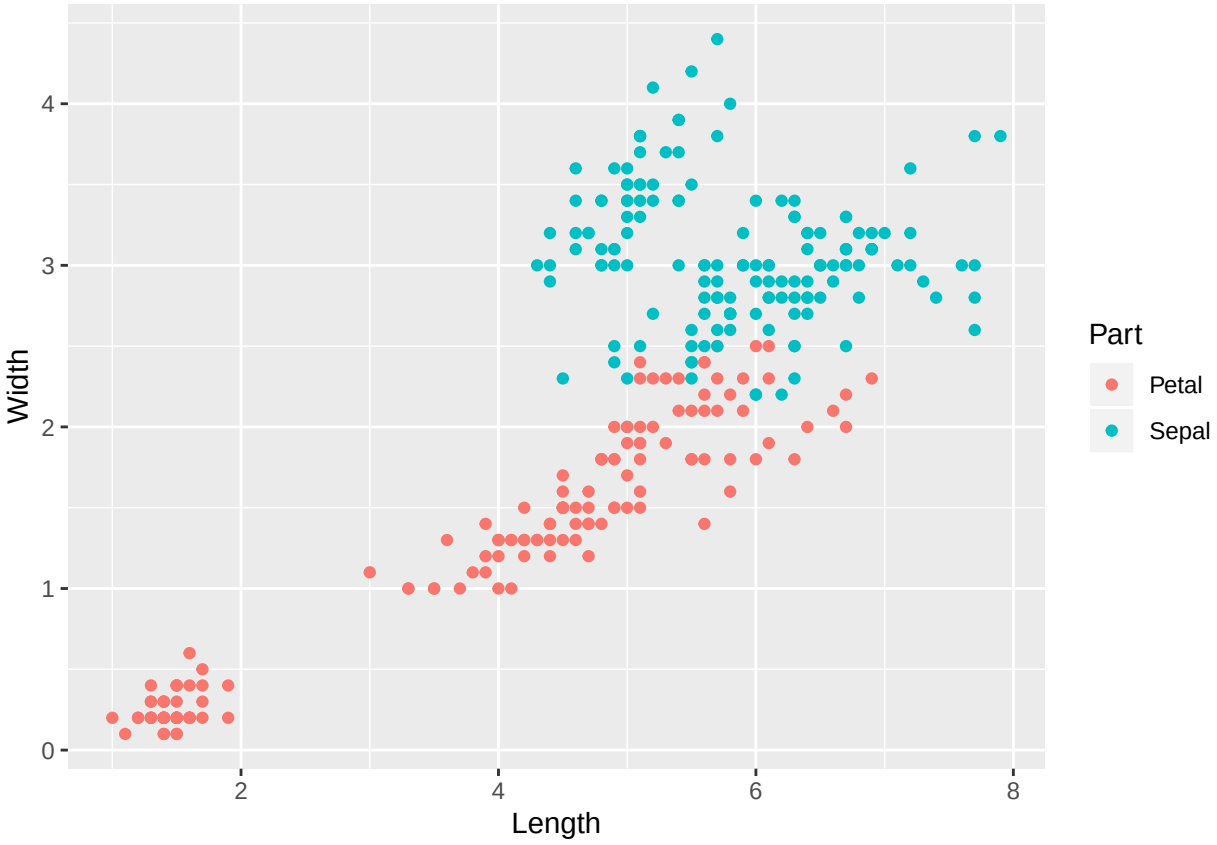
```
iris <- iris
iris <- iris %>%gather("key", "value", 1:4) %>%separate(key, c("Part", "dim"))
iris <- iris %>%group_by(Part, dim) %>%
  mutate(obs = row_number())
iris_long <- spread(iris, dim, value)
iris_long <- iris_long[,-3]
str(iris_long)
```

```
## Classes 'grouped_df', 'tbl_df', 'tbl' and 'data.frame':  300 obs. of  4 variables:
##  $ Species: Factor w/ 3 levels "setosa","versicolor",..: 1 1 1 1 1 1 1 1 1 1 ...
##  $ Part   : chr  "Petal" "Petal" "Petal" "Petal" ...
##  $ Length : num  1.4 1.4 1.3 1.5 1.4 1.7 1.4 1.5 1.4 1.5 ...
##  $ Width  : num  0.2 0.2 0.2 0.2 0.2 0.4 0.3 0.2 0.2 0.1 ...
##  - attr(*, "groups")=Classes 'tbl_df', 'tbl' and 'data.frame':   2 obs. of  2 variables:
##   ..$ Part : chr  "Petal" "Sepal"
##   ..$ .rows:List of 2
##   .. ..$ : int  1 2 3 4 5 6 7 8 9 10 ...
##   .. ..$ : int  51 52 53 54 55 56 57 58 59 60 ...
##   ..- attr(*, ".drop")= logi FALSE
```

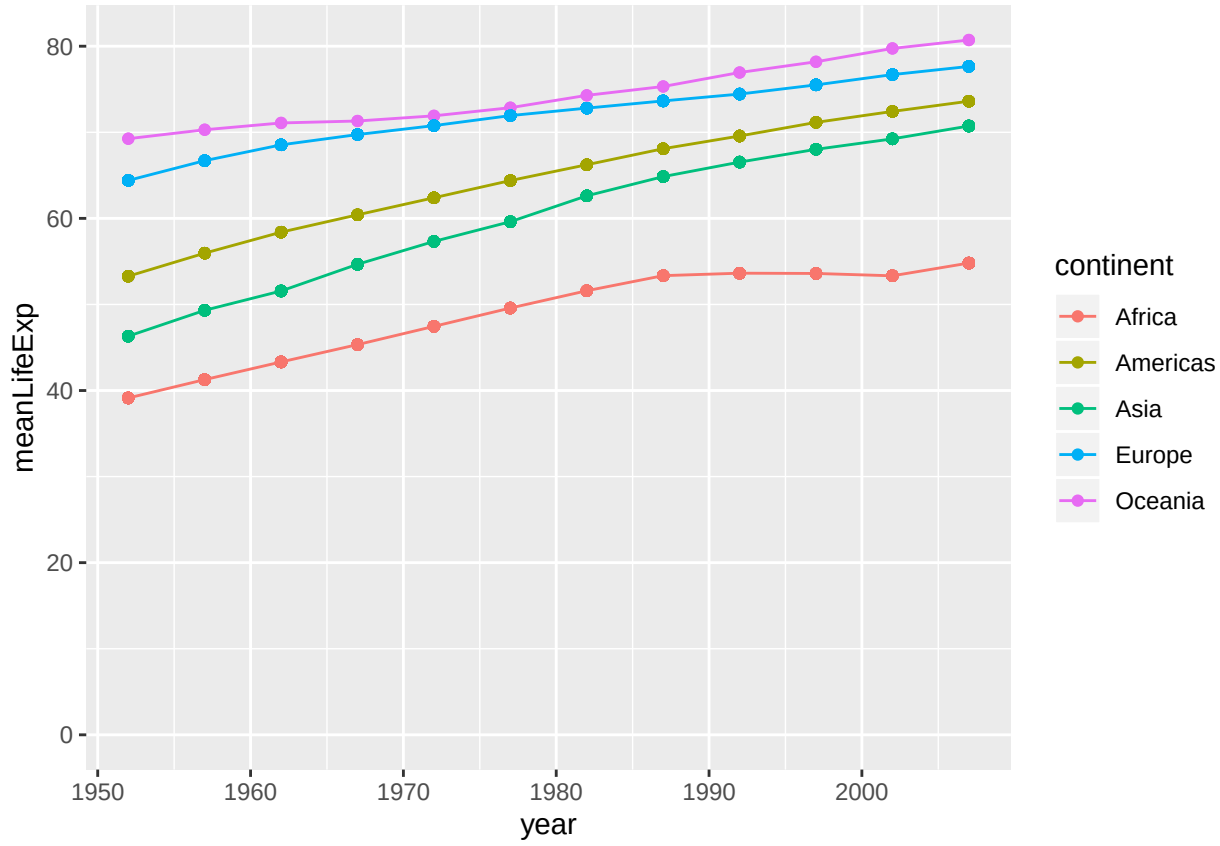
```
head(iris_long)
```

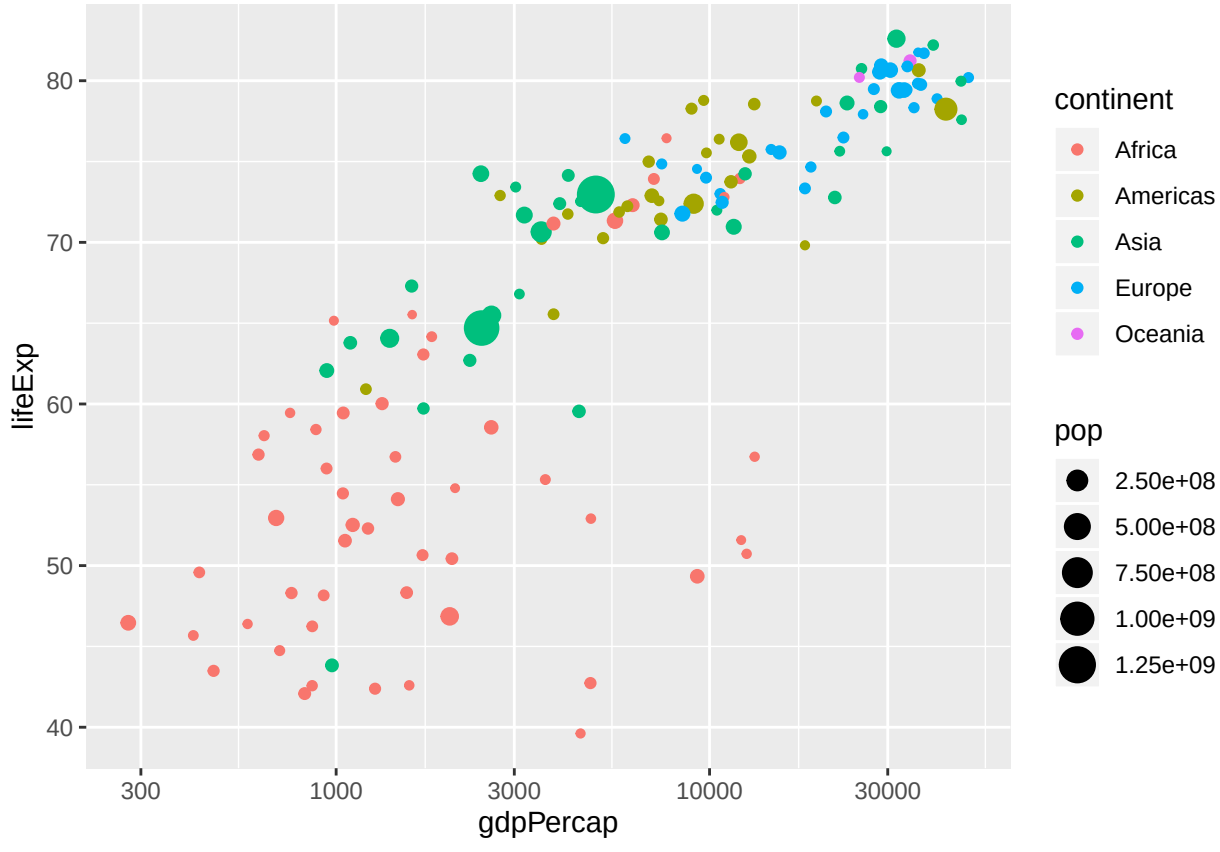
```
## # A tibble: 6 x 4
## # Groups:   Part [1]
##   Species Part  Length Width
##   <fct>   <chr>  <dbl> <dbl>
## 1 setosa  Petal    1.4   0.2
## 2 setosa  Petal    1.4   0.2
## 3 setosa  Petal    1.3   0.2
## 4 setosa  Petal    1.5   0.2
## 5 setosa  Petal    1.4   0.2
## 6 setosa  Petal    1.7   0.4
```

```
ggplot(iris_long, aes(x = Length, y = Width, color = Part))+geom_point()
```



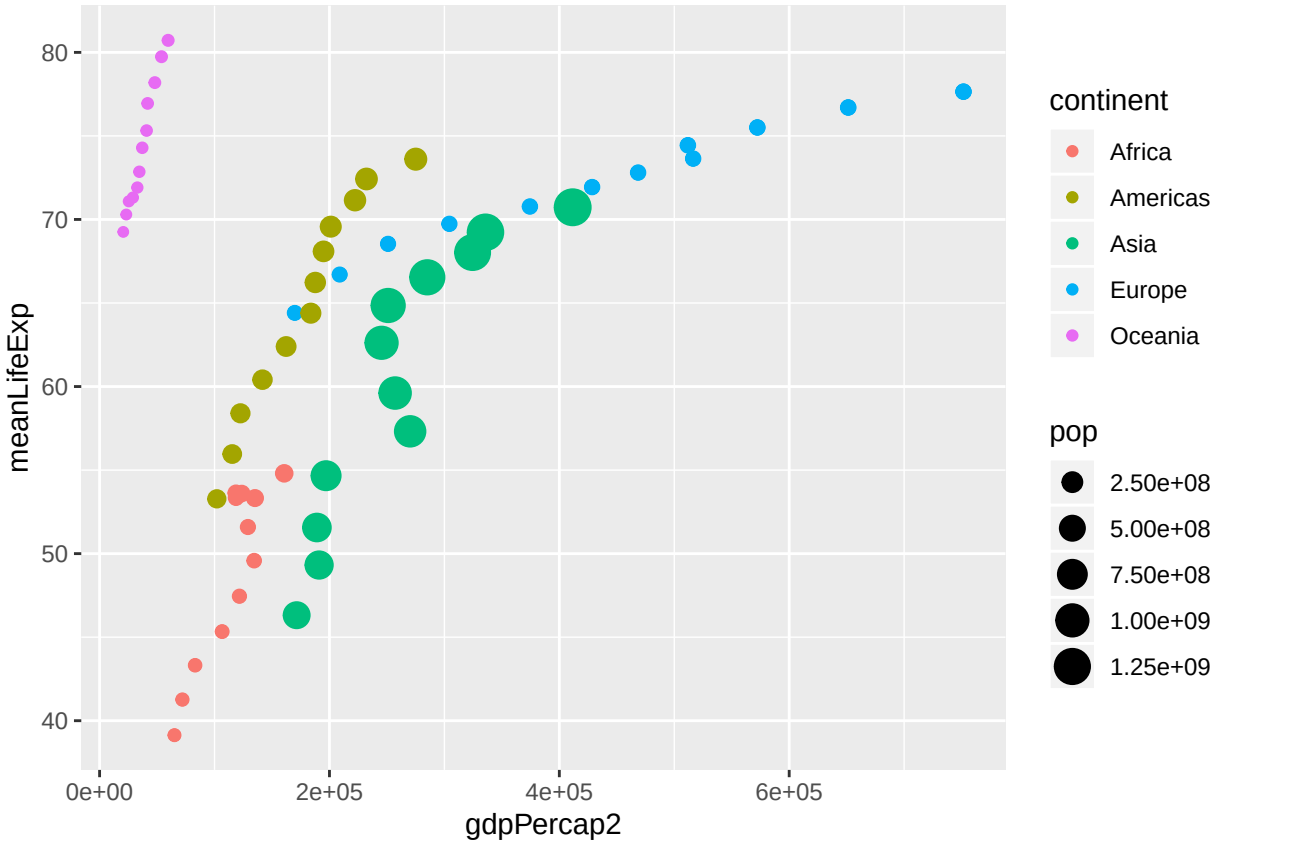
6B


meanLifeExp
80
60
40
20
0
1950
1960
1970
1980
1990
2000
year
continent
Africa
Americas
Asia
Europe
Oceania

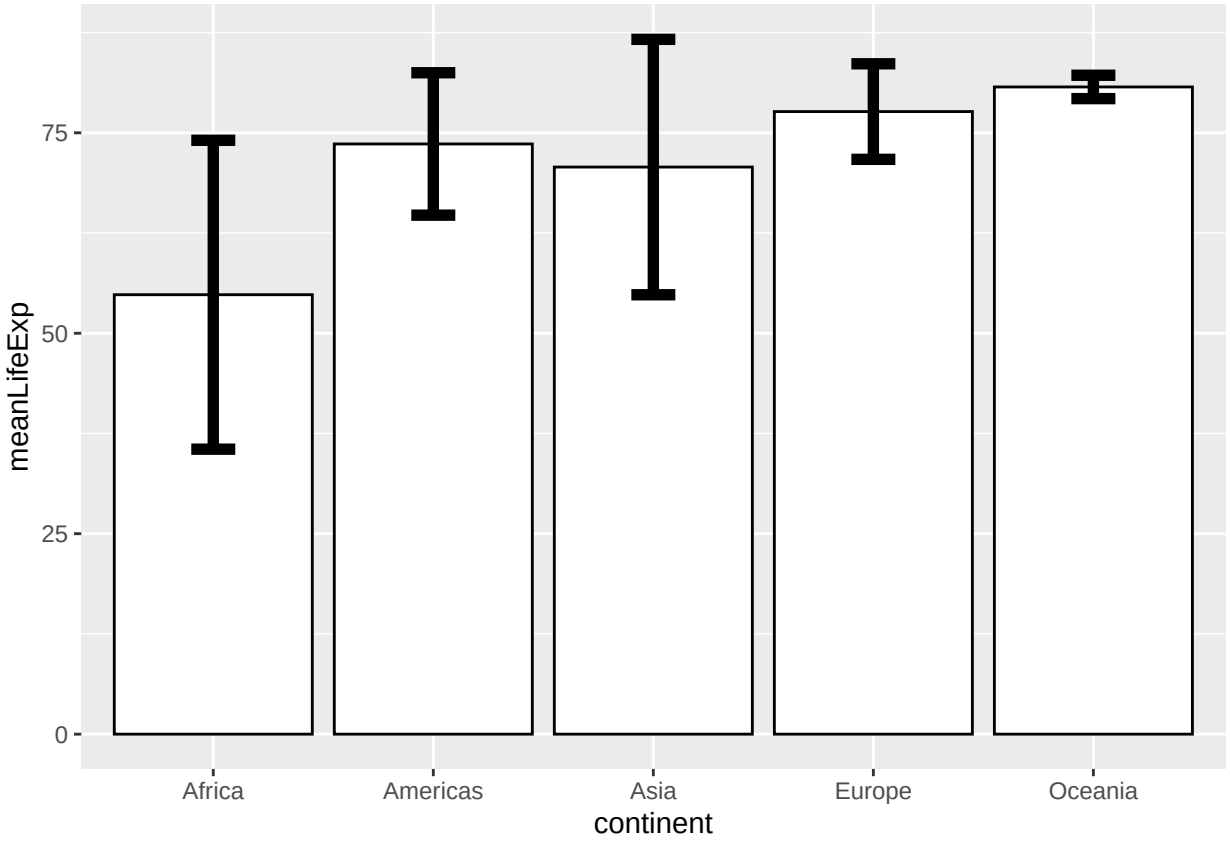

lifeExp
80
70
60
50
40
300
1000
3000
10000
30000
gdpPercap
continent
Africa
Americas
Asia
Europe
Oceania
pop
2.50e+08
5.00e+08
7.50e+08
1.00e+09
1.25e+09

6B My graphs

```
ggplot(gap, aes(x = gdpPercap2, y = meanLifeExp, color = continent, size = pop))+geom_point()
```




```
gap2 <- ungroup(gap2)
gap2 <- gap2%>%select(continent, meanLifeExp, lower, upper)
gap2 <- unique(gap2)
ggplot(gap2, aes(x = continent, y = meanLifeExp, ymin = lower, ymax = upper))+
  geom_bar(stat = "identity", fill = "white", color = "black")+
  geom_errorbar(width = 0.2, size = 2)
```


meanLifeExp
75
50
25
0
Africa
Americas
Asia
Europe
Oceania
continent