Task6

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```
library("ggplot2")
library("dplyr")
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library("datasets")
df <- iris
head(df)
```

```
##   Sepal.Length Sepal.Width Petal.Length Petal.Width Species
## 1          5.1         3.5          1.4         0.2  setosa
## 2          4.9         3.0          1.4         0.2  setosa
## 3          4.7         3.2          1.3         0.2  setosa
## 4          4.6         3.1          1.5         0.2  setosa
## 5          5.0         3.6          1.4         0.2  setosa
## 6          5.4         3.9          1.7         0.4  setosa
```

```
iris_long <- df %>%
  transmute(Species, Part = 'Petal', Length = Petal.Length, Width = Petal.Width)
iris_long_2 <- df %>%
  transmute(Species, Part = 'Sepal', Length = Sepal.Length, Width = Sepal.Width)

iris_long <- rbind(iris_long, iris_long_2)


head(iris_long)
```

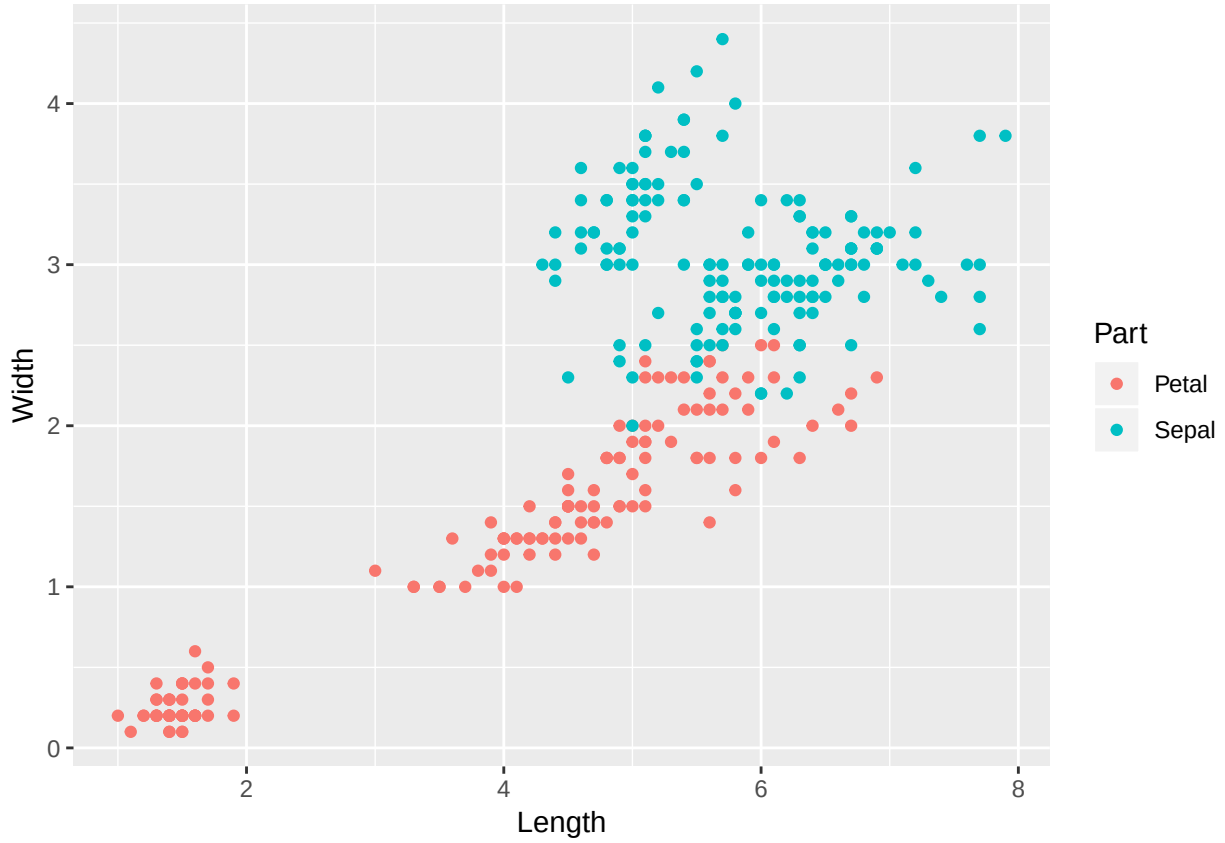
```
##   Species  Part Length Width
## 1  setosa Petal    1.4   0.2
## 2  setosa Petal    1.4   0.2
## 3  setosa Petal    1.3   0.2
## 4  setosa Petal    1.5   0.2
## 5  setosa Petal    1.4   0.2
## 6  setosa Petal    1.7   0.4
```

```
str(iris_long)
```

```
## '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 ...
```

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

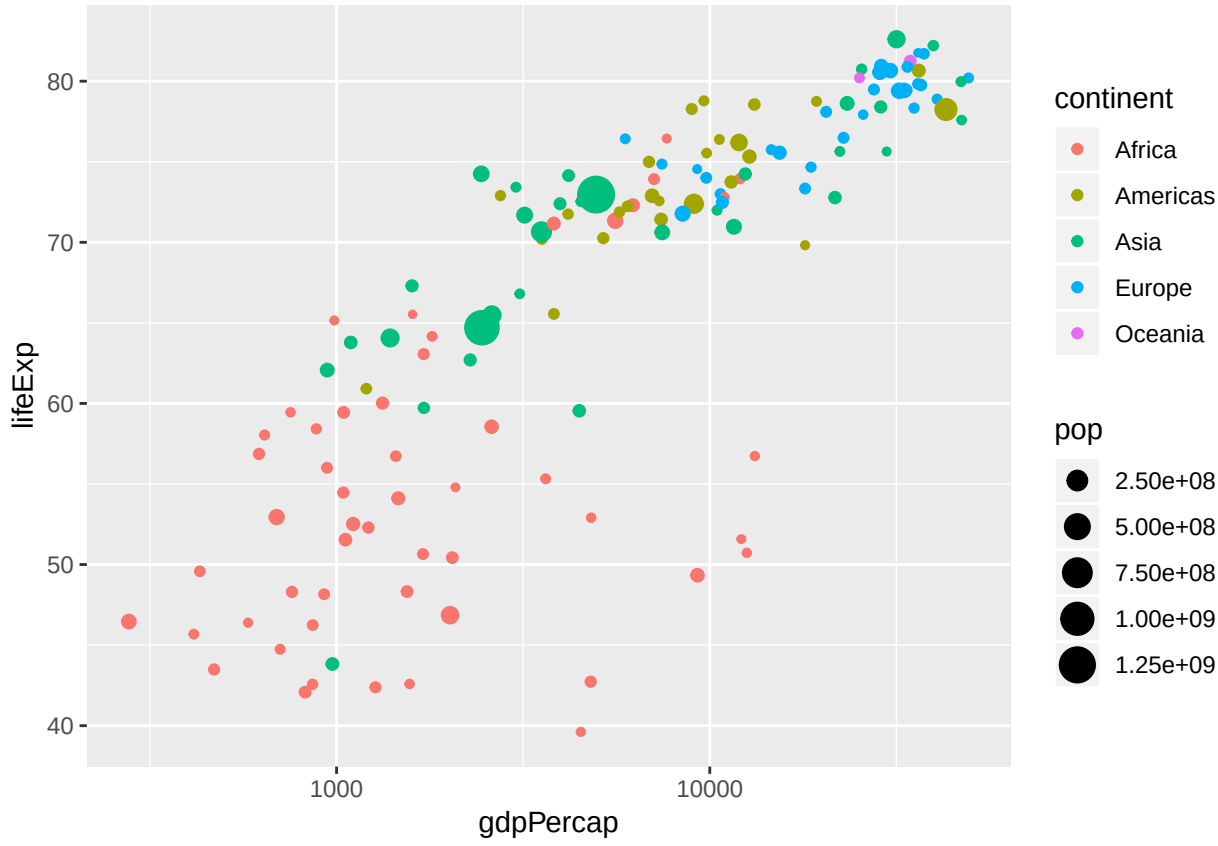



```
library('gapminder')
head(gapminder)
```

```
## # A tibble: 6 x 6
##   country     continent  year lifeExp      pop gdpPercap
##   <fct>       <fct>     <int>   <dbl>    <int>     <dbl>
## 1 Afghanistan Asia       1952    28.8  8425333      779.
## 2 Afghanistan Asia       1957    30.3  9240934      821.
## 3 Afghanistan Asia       1962    32.0 10267083      853.
## 4 Afghanistan Asia       1967    34.0 11537966      836.
## 5 Afghanistan Asia       1972    36.1 13079460      740.
## 6 Afghanistan Asia       1977    38.4 14880372      786.
```

```
gapminder_2007 <- gapminder %>%
  filter(year == 2007)
```

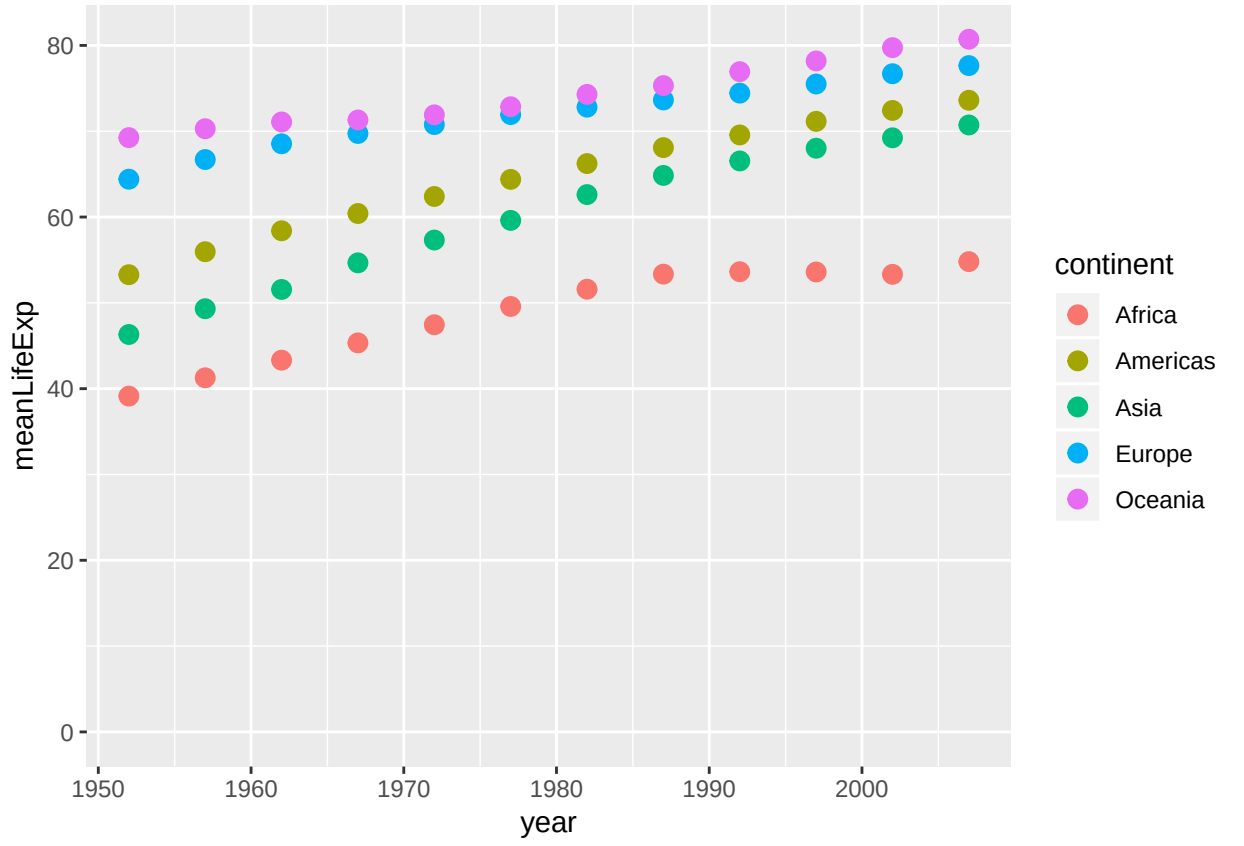
```
ggplot(gapminder_2007, aes(x = gdpPercap,
                           y = lifeExp,
                           color = continent)) +
  geom_point(aes(size = pop)) +
  scale_x_log10(breaks = c(1000, 10000))
```



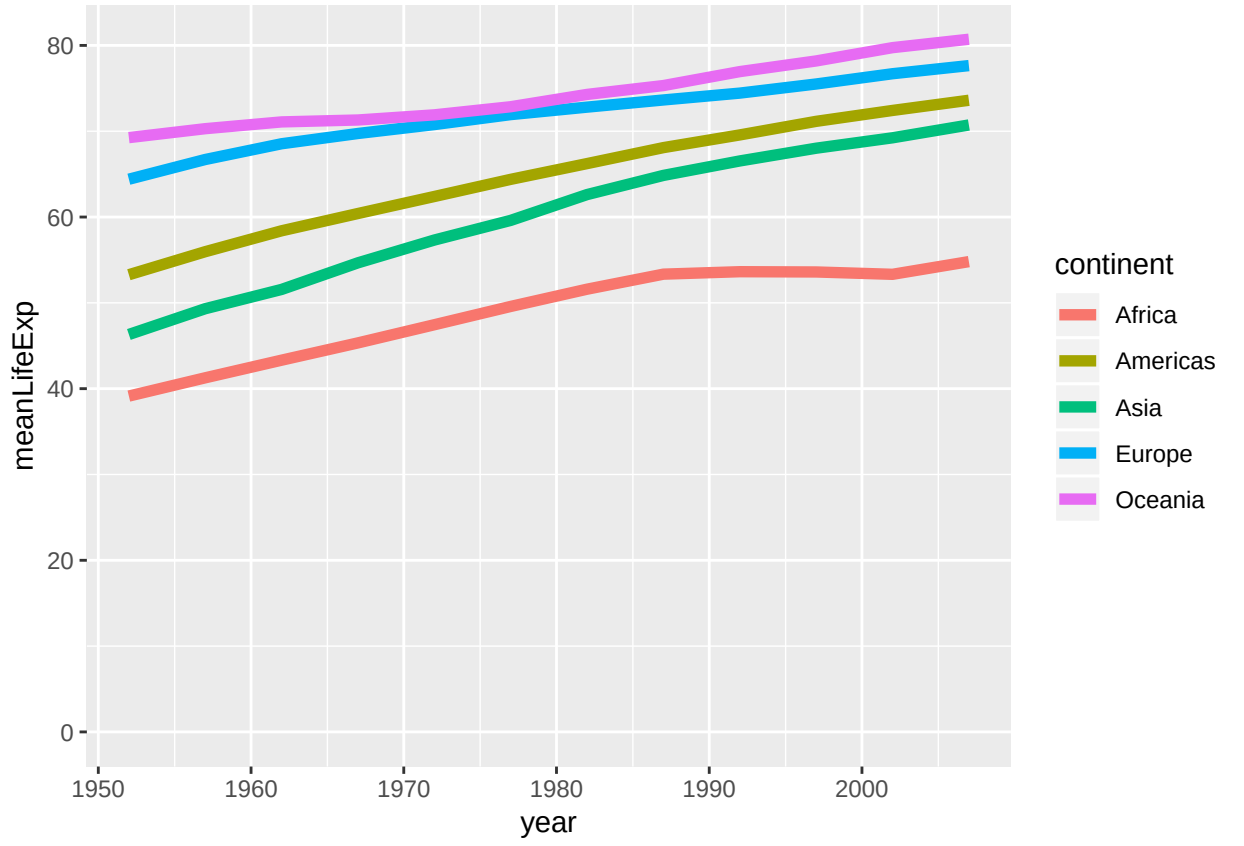

```
gapminder_new <- gapminder %>%
  group_by(year, continent) %>%
  summarise(popTotal = sum(pop / 1000000), meanLifeExp = mean(lifeExp))

head(gapminder_new)
```

```
## # A tibble: 6 x 4
## # Groups:   year [2]
##    year continent popTotal meanLifeExp
##   <int> <fct>        <dbl>       <dbl>
## 1  1952 Africa       238.         39.1
## 2  1952 Americas     345.         53.3
## 3  1952 Asia        1395.         46.3
## 4  1952 Europe       418.         64.4
## 5  1952 Oceania       10.7        69.3
## 6  1957 Africa       265.         41.3
```

```
ggplot(gapminder_new, aes(x = year,
                          y = meanLifeExp,
                          color = continent)) +
  geom_point(size = 3) +
  ylim(0, max(gapminder_new$meanLifeExp))
```



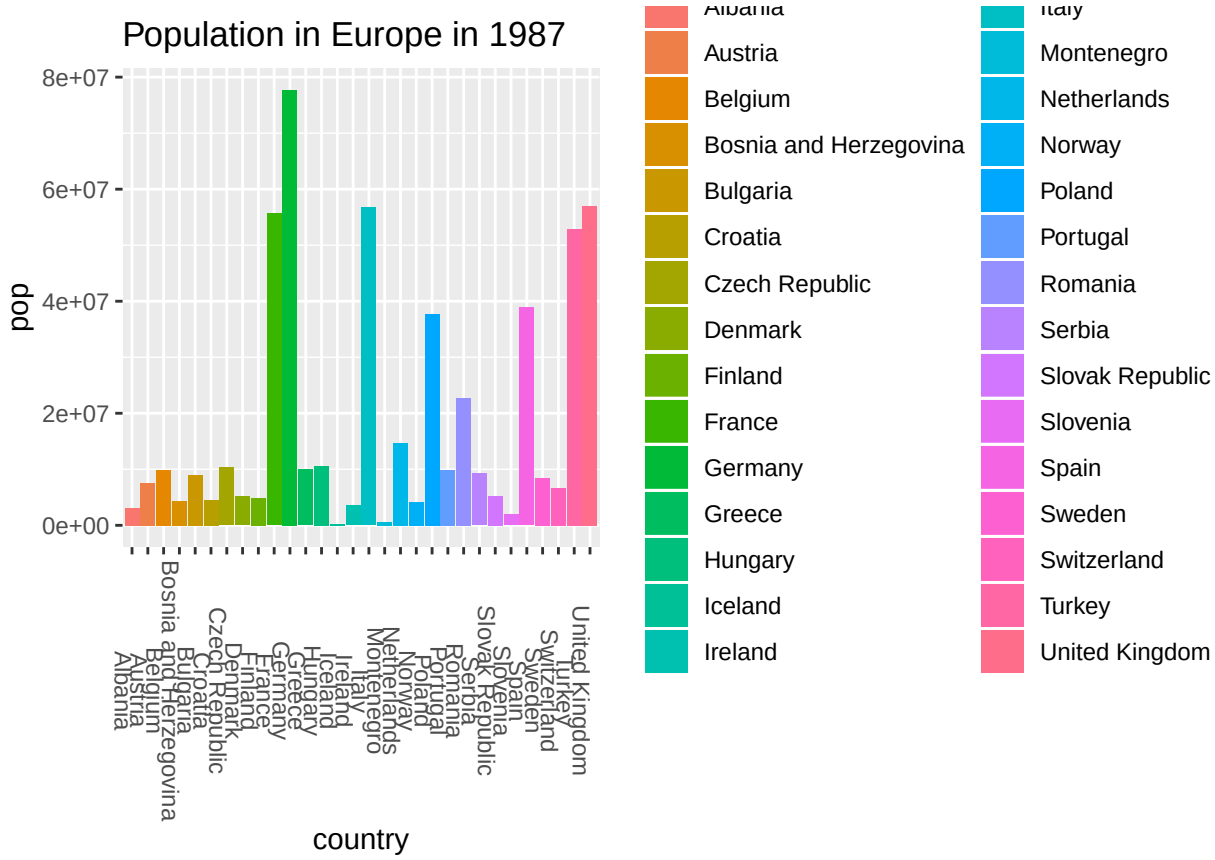

```
ggplot(gapminder_new, aes(x = year,
                          y = meanLifeExp,
                          color = continent)) +
  geom_line(size = 2) +
  ylim(0, max(gapminder_new$meanLifeExp))
```




```
gapminder_Europe <- gapminder %>%
  filter(continent == 'Europe', year == 1987)

head(gapminder_Europe)
```

```
## # A tibble: 6 x 6
##   country                continent  year lifeExp     pop gdpPercap
##   <fct>                  <fct>     <int>   <dbl>   <int>     <dbl>
## 1 Albania                Europe     1987    72   3075321     3739.
## 2 Austria                Europe     1987    74.9 7578903    23688.
## 3 Belgium                Europe     1987    75.4 9870200    22526.
## 4 Bosnia and Herzegovina Europe     1987    71.1 4338977     4314.
## 5 Bulgaria               Europe     1987    71.3 8971958     8240.
## 6 Croatia                Europe     1987    71.5 4484310    13823.
```

```
ggplot(gapminder_Europe, aes(x = country,
                             y = pop,
                             fill = country)) +
  geom_bar(stat = 'Identity') +
  theme(axis.text.x = element_text(angle = -90)) +
  ggtitle('Population in Europe in 1987')
```


Population in Europe in 1987
pop
8e+07
6e+07
4e+07
2e+07
0e+00
country
Albania
Austria
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Czech Republic
Denmark
Finland
France
Germany
Greece
Hungary
Iceland
Ireland
Italy
Montenegro
Netherlands
Norway
Poland
Portugal
Romania
Serbia
Slovak Republic
Slovenia
Spain
Sweden
Switzerland
Turkey
United Kingdom
Albania
Austria
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Czech Republic
Denmark
Finland
France
Germany
Greece
Hungary
Iceland
Ireland
Italy
Montenegro
Netherlands
Norway
Poland
Portugal
Romania
Serbia
Slovak Republic
Slovenia
Spain
Sweden
Switzerland
Turkey
United Kingdom