

Assignment

```
# load library
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
```

```
# import data
data <- read.csv2("http://stulp.gmw.rug.nl/dataviz/ESS.csv", header = TRUE)
head(data)
```

```
##   cntry ageadlt agemage ageoage iaglpnt iagmr iagpnt iagrtr tygledu tyglvp
## 1 Austria    20    30    90    20    25    25    65    13    17
## 2 Austria    18    27    55    20    22    25    65    19    17
## 3 Austria    20    45    75    19    25    25    60    14    16
## 4 Austria    20    30    70    22    27    25    57    15    18
## 5 Austria    24    50    70    20    30    33    65    14    17
## 6 Austria    21    37    60    20    27    28    60    17    18
##   tygmr tygpnt tygrtr tolvpnt tochlde towkht
## 1    18    18    45    25    45    66
## 2    17    17    60    25    30    60
## 3    18    20    50    25    45    65
## 4    20    23    50    25    40    62
## 5    18    18    55    27    55    65
## 6    21    25    50    25    50    65
```

```
# create a plot that compares distributions across different countries
```

```
# create own theme
mytheme <- function() {
  theme(
    # add border
    panel.border = element_rect(colour = "black", fill = NA, linetype = 1),
    # color background
    panel.background = element_rect(fill = "aliceblue"),
    # modify grid
```

```

panel.grid.major.x = element_line(colour = "gray", linetype = 3, size = 0.5),
panel.grid.minor.x = element_blank(),
panel.grid.major.y = element_line(colour = "gray", linetype = 3, size = 0.5),
panel.grid.minor.y = element_blank(),
# modify text, axis and colour
axis.text = element_text(colour = "black", face = "bold"),
axis.title = element_text(colour = "black", face = "bold"),
axis.ticks = element_line(colour = "black"),
# modify title
plot.title = element_text(hjust = 0.5, size = 12, face = "bold"),
# modify facet text
strip.text.x = element_text(size = 10, colour = "darkblue", face = "bold"),
# remove legend
legend.position = "right"
)
}

# chosse ageadlt
data %>%
  ggplot() +
  aes(ageadlt, col = cntry, fill = cntry) +
  geom_histogram(bins = 40) +
  facet_wrap(~ cntry) +
  ggtitle("The distributions of adult ages across different countries") +
  xlab("Adult Age") +
  ylab("Count") +
  mytheme()

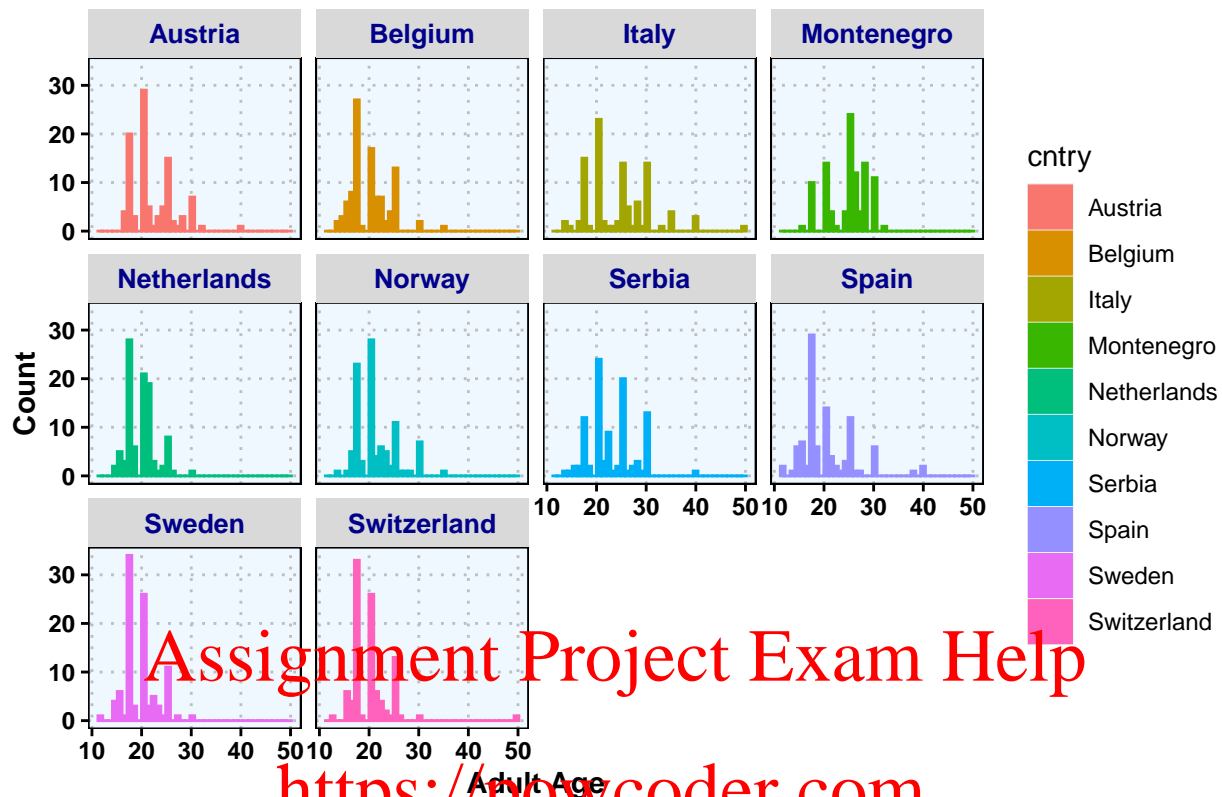
```

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The distributions of adult ages across different countries



```
# calculate median
```

```
med <- data %>%
```

```
  group_by(cntry) %>%
```

```
  summarise(median=median(agedadlt))
```

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```
## `summarise()` ungrouping output (override with `.groups` argument)
```

```
med
```

```
## # A tibble: 10 x 2
##   cntry      median
##   <chr>      <dbl>
## 1 Austria      20
## 2 Belgium      20
## 3 Italy        24.5
## 4 Montenegro   25
## 5 Netherlands  20
## 6 Norway       20
## 7 Serbia       22
## 8 Spain        19
## 9 Sweden       20
## 10 Switzerland 20
```

```
# The median is 20 for Austria, Belgium, Netherlands, Norway, Sweden and Switzerland
```

```
med$median[which.max(med$median)]
```

```
## [1] 25
```

```
med$centry[which.max(med$median)]
```

```
## [1] "Montenegro"
```

```
p1 <- data %>%
  ggplot() +
  aes(ageadlt, col = centry, fill = centry) +
  geom_density(alpha = 0.5) +
  geom_vline(data = med, aes(xintercept = median, color = centry), linetype="dashed", size=0.5)+
  ggtitle("The distributions of adult ages across different countries") +
  xlab("Adult Age") +
  ylab("Density") +
  theme()
```

```
p1 + annotate(geom="text", x=36, y=0.18, label="The largest median is 25 (Montenegro).", color="red") +
  annotate(geom="text", x=28, y=0.2, label="The median of Netherlands is 20.", color="orange")
```

