Graphics

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Create the following graphs in `ggplot2`.

1. Check out the base R built-in dataset, `data("USArrests")`.

```
USArrests <- data.frame(USArrests)
```

2. Create a scatterplot that looks at the correlation between murder and assault arrests. Label the x and y axes and title the graph.

```
library("here")
```

```
## Warning: package 'here' was built under R version 4.1.1
```

```
## here() starts at C:/Rworkingdirectory/2021_Fall_R/811_R
```

```
library("tidyverse")
```

```
## Warning: package 'tidyverse' was built under R version 4.1.1
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --
```

```
## v ggplot2 3.3.5     v purrr   0.3.4
## v tibble  3.1.5     v dplyr   1.0.7
## v tidyr   1.1.4     v stringr 1.4.0
## v readr   2.0.2     v forcats 0.5.1
```

```
## Warning: package 'tibble' was built under R version 4.1.1
```

```
## Warning: package 'tidyr' was built under R version 4.1.1
```

```
## Warning: package 'readr' was built under R version 4.1.1
```

```
## Warning: package 'dplyr' was built under R version 4.1.1
```

```
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
library("tidylog")
```

```
## Warning: package 'tidylog' was built under R version 4.1.1
```

```
##
## Attaching package: 'tidylog'
```

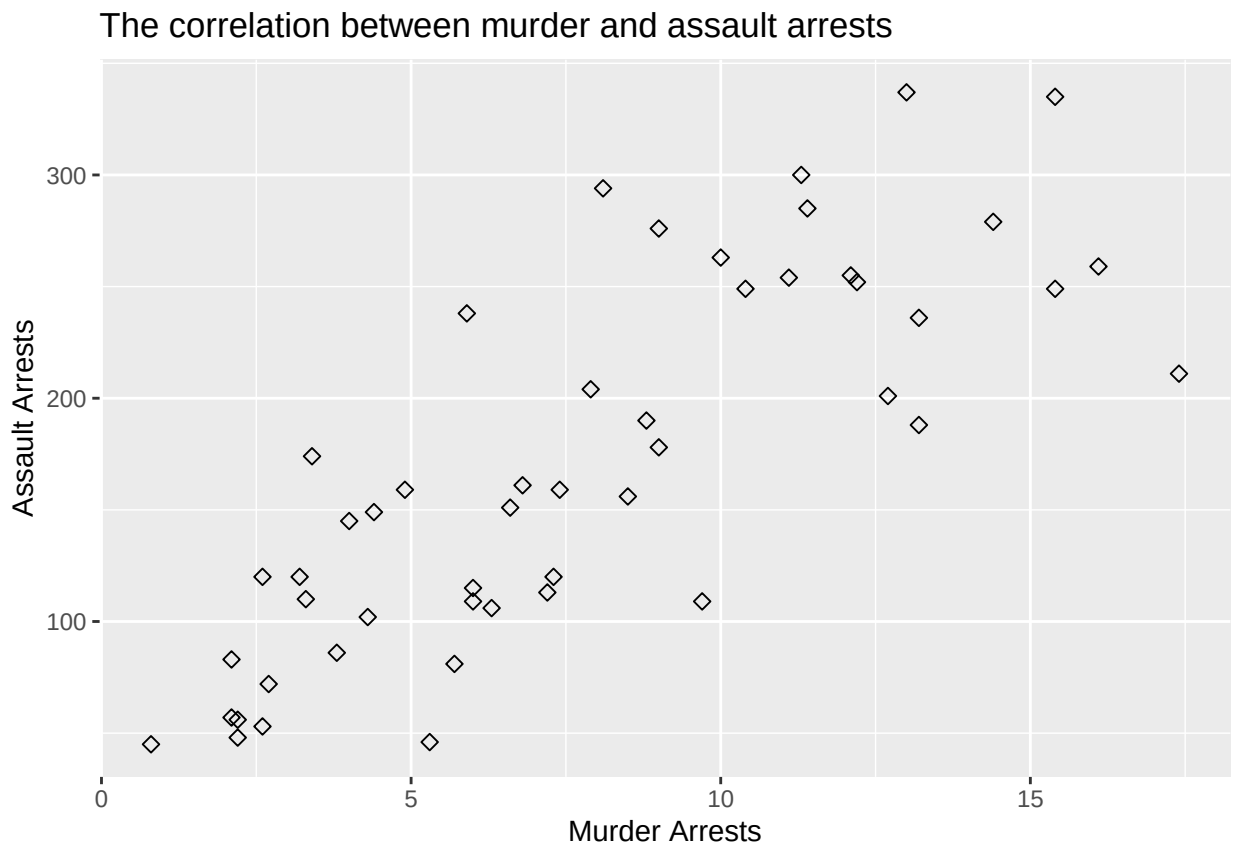
```
## The following objects are masked from 'package:dplyr':
##
##     add_count, add_tally, anti_join, count, distinct, distinct_all,
##     distinct_at, distinct_if, filter, filter_all, filter_at, filter_if,
##     full_join, group_by, group_by_all, group_by_at, group_by_if,
##     inner_join, left_join, mutate, mutate_all, mutate_at, mutate_if,
##     relocate, rename, rename_all, rename_at, rename_if, rename_with,
##     right_join, sample_frac, sample_n, select, select_all, select_at,
##     select_if, semi_join, slice, slice_head, slice_max, slice_min,
##     slice_sample, slice_tail, summarise, summarise_all, summarise_at,
##     summarise_if, summarize, summarize_all, summarize_at, summarize_if,
##     tally, top_frac, top_n, transmute, transmute_all, transmute_at,
##     transmute_if, ungroup
```

```
## The following objects are masked from 'package:tidyr':
##
##     drop_na, fill, gather, pivot_longer, pivot_wider, replace_na,
##     spread, uncount
```

```
## The following object is masked from 'package:stats':
##
##     filter
```

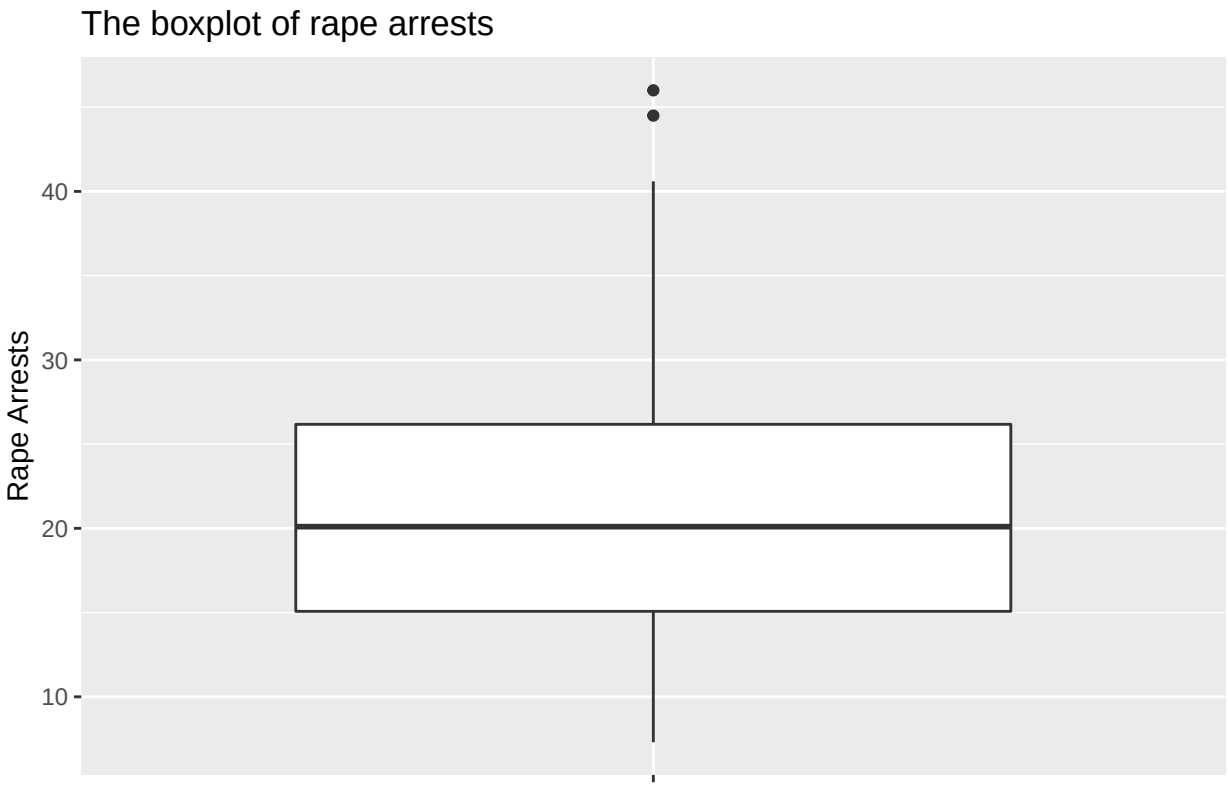
```
library("ggplot2")
```

```
ggplot(USArrests, aes(x=Murder, y=Assault)) +
  geom_point(size=2, shape=23)+
   labs(title="The correlation between murder and assault arrests",
       x="Murder Arrests", y = "Assault Arrests")
```



3. Create a boxplot of rape arrests. Label the plot.

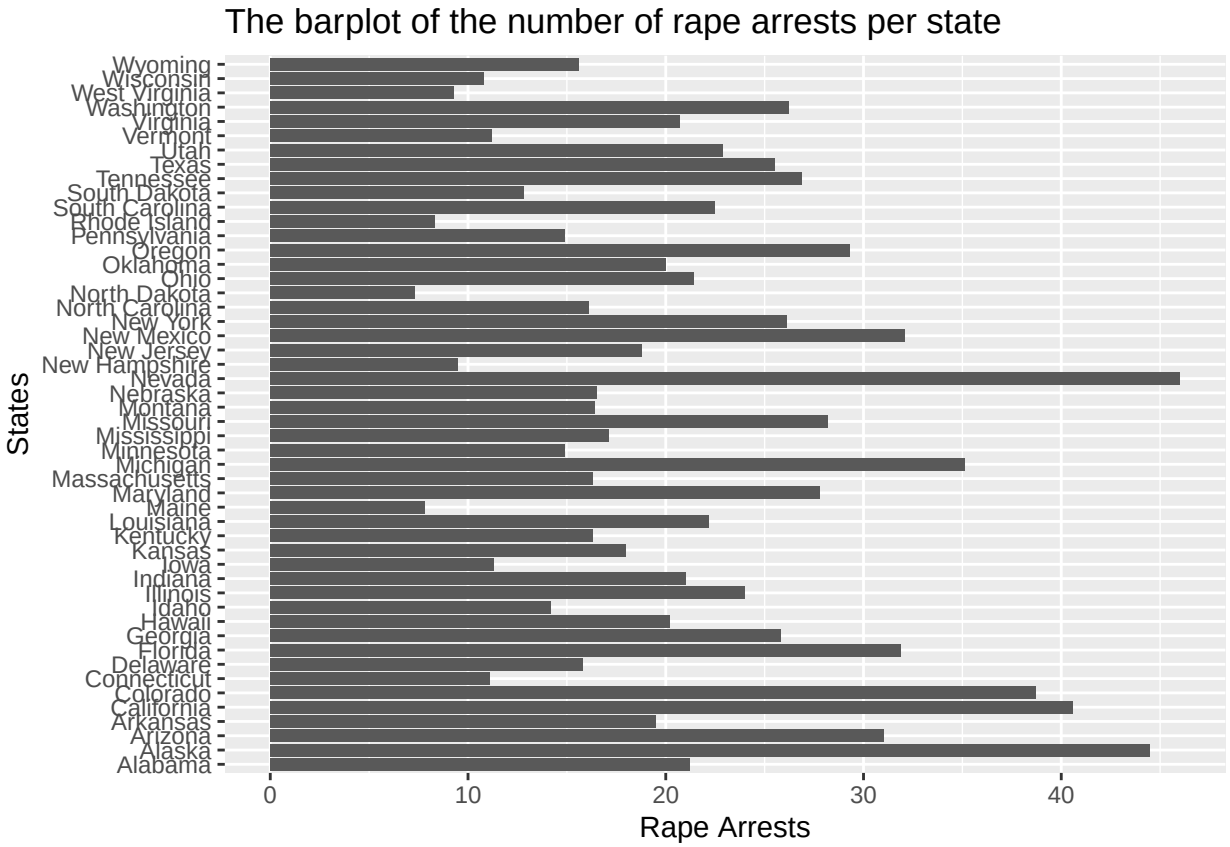
```
ggplot(USArrests, aes(x = " ", y = Rape))+
  geom_boxplot()+
  labs(title="The boxplot of rape arrests",
       x=" ", y = "Rape Arrests")
```



4. Create a barplot of the number of rape arrests per state.

```
library(dplyr)
USArrests1 <- tibble::rownames_to_column(USArrests, "States")

ggplot(USArrests1, aes(x = Rape, y = States))+
  geom_bar(stat="identity")+
  labs(title="The barplot of the number of rape arrests per state",
       x="Rape Arrests", y = "States")
```



5. Create a histogram for the percent of urban population.

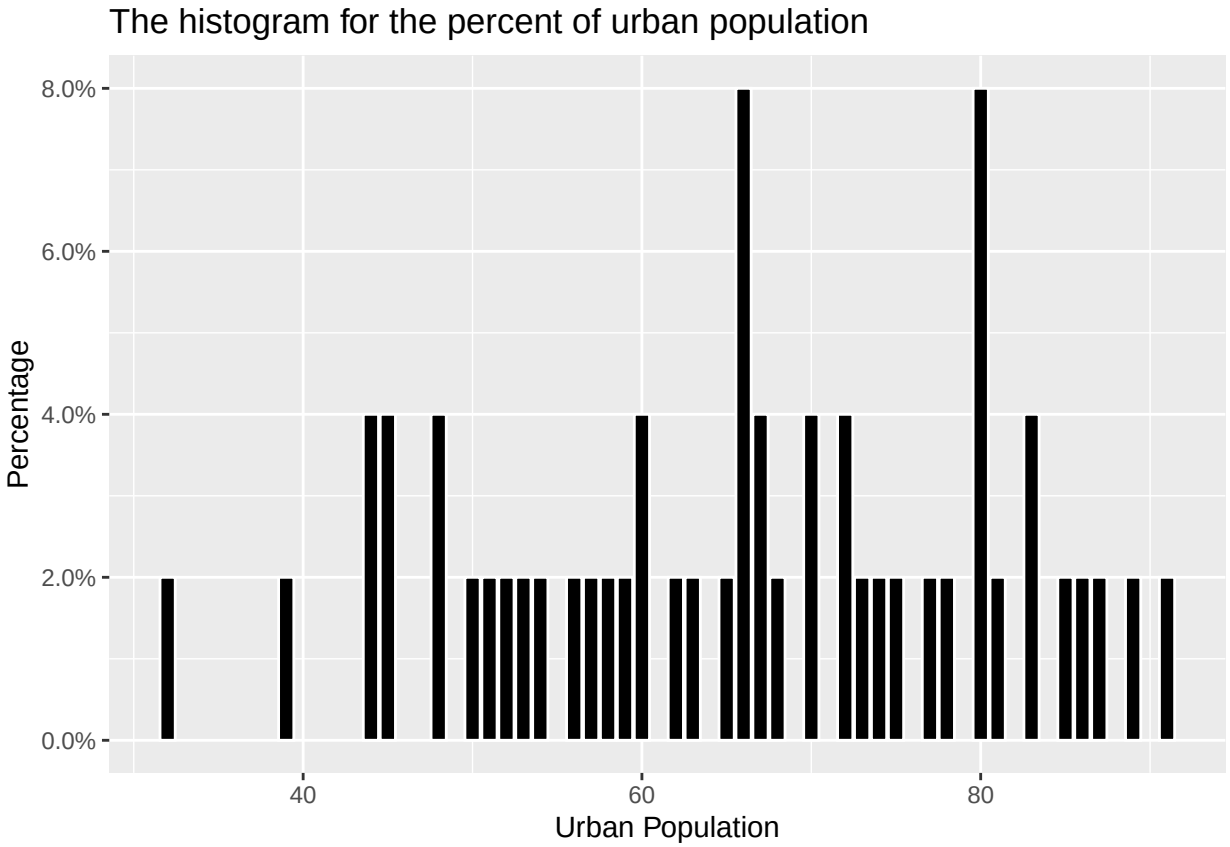
```
library(scales)
```

```
##
## Attaching package: 'scales'
```

```
## The following object is masked from 'package:purrr':
##
##     discard
```

```
## The following object is masked from 'package:readr':
##
##     col_factor
```

```
ggplot(USArrests, aes(x = UrbanPop)) +
  geom_bar(aes(y = (..count..)/sum(..count..)), colour="white", fill="black") +
  scale_y_continuous(labels=percent)+
    labs(title="The histogram for the percent of urban population",
       x="Urban Population", y = "Percentage")
```


The histogram for the percent of urban population
8.0%
6.0%
4.0%
2.0%
0.0%
Percentage
40
60
80
Urban Population