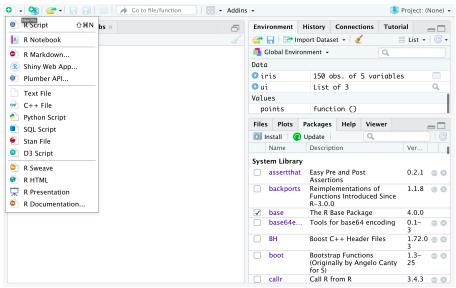
Creating Data Visualizations using ggplot

Objective for Exercise

We will create different data visualizations using the `ggplot` package using the inbuilt dataset in R called `mtcars`

1. Click on the `+` symbol on the top left and choose `R Script` from the menu to open a new R edit window in RStudio:



2. Read and view the first 5 rows of the Data using the following:

```
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
8. 8
9. 9
```

```
1. library(datasets)
2.
3. #Load Data
4.
5. data(mtcars)
6.
7. #View first 5 rows
8.
9. head(mtcars, 5)
```

Copied!

3. Type this `?mtcars` to get information about the variables. This will print the information at the bottom right panel, on the `Help` tab

4. Copy and paste the following code to load the `ggplot` package and create a scatterplot of `disp` and `mpg`.

```
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
```

```
1. #load ggplot package
2. library(ggplot2)
3.
4. #create a scatterplot of displacement (disp) and miles per gallon (mpg)
5.
6. ggplot(aes(x=disp,y=mpg,),data=mtcars)+geom_point()
```

Copied!

5. Use the following code to add a title.

```
1. 1
2. 2
3. 3
4. 4
```

```
1.
2. #Add a title
3.
4. ggplot(aes(x=disp,y=mpg,),data=mtcars)+geom_point()+ggtitle("displacement vs miles per gallon")
```

Copied!

6. Use the following code to change the name of the `x-axis` and `y-axis`

```
1. 1
2. 2
3. 3
4. 4
```

```
1.
2. #change axis name
3.
4. ggplot(aes(x=disp,y=mpg,),data=mtcars)+geom_point()+ggtitle("displacement vs miles per gallon") + labs(x = "Displacement", y = "Miles per Gallon")
```

Copied!

7. Use the following to create a boxplot of the the distribution of `mpg` for the individual Engine types `vs Engine (0 = V-shaped, 1 = straight)`
To do this you have to make `vs` a string or factor.

```
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
```

```
1. #make vs a factor
2. mtcars$vs <- as.factor(mtcars$vs)
```

```
3.
4. #create boxplot of the distribution for v-shaped and straight Engine
5.
6. ggplot(aes(x=vs, y=mpg), data = mtcars) + geom_boxplot()
```

Copied!

8. Add color to the boxplots to help differentiate:

```
1. 1
2. 2
3. 3
```

```
1. ggplot(aes(x=vs, y=mpg, fill = vs), data = mtcars) +
2.   geom_boxplot(alpha=0.3) +
3.   theme(legend.position="none")
```

Copied!

9. Finally, let us create the histogram of weight `wt`.

```
1. 1
```

```
1. ggplot(aes(x=wt),data=mtcars) + geom_histogram(binwidth=0.5)
```

Copied!

This concludes this lab, we hope that you had fun!

Author(s)

Aije Egwaikhide

Change log

Date	Version	Changed by	Change Description
2023-05-04	1.1	Benny	Added page numbers and republished
2020-12-14	1.0	Aije	Created initial version of the lab