```
> df1 = data.frame(StudentId = c(101:106),
+                   Product = c("DWM", "MPMC",
+                                "CIS", "ADA",
+                                "MAP",
+                                "BDA"))
> df1
  StudentId Product
1       101     DWM
2       102    MPMC
3       103     CIS
4       104     ADA
5       105     MAP
6       106     BDA
>
```

```
> df2 = data.frame(StudentId = c(102, 104, 106,
+                                107, 108),
+                   State = c("Bangalore", "Mysore",
+                             "Pune", "Dehradun", "Delhi"))
> df2
  StudentId     State
1       102 Bangalore
2       104    Mysore
3       106      Pune
4       107  Dehradun
5       108     Delhi
>
```

```
> # Joining of dataframes
>
> df = merge(x = df1, y = df2, by = "StudentId")
> df
  StudentId Product     State
1       102    MPMC Bangalore
2       104     ADA    Mysore
3       106     BDA      Pune
>
> # left outetr Joining of dataframes
>
> df = merge(x = df1, y = df2, by = "StudentId",
+            all.x = TRUE)
> df
  StudentId Product     State
1       101     DWM      <NA>
2       102    MPMC Bangalore
3       103     CIS      <NA>
4       104     ADA    Mysore
5       105     MAP      <NA>
6       106     BDA      Pune
>
```

```
> 
> # right outer Joining of dataframes
> 
> df = merge(x = df1, y = df2, by = "StudentId",
+          all.y = TRUE)
> df
  StudentId Product     State
1       102    MPMC  Bangalore
2       104     ADA     Mysore
3       106     BDA       Pune
4       107    <NA>   Dehradun
5       108    <NA>      Delhi
> 
> 



> # Full outetr Joining of dataframes
> 
> df = merge(x = df1, y = df2, by = "StudentId",
+          all = TRUE)
> df
  StudentId Product     State
1       101     DWM      <NA>
2       102    MPMC  Bangalore
3       103     CIS      <NA>
4       104     ADA     Mysore
5       105     MAP      <NA>
6       106     BDA       Pune
7       107    <NA>   Dehradun
8       108    <NA>      Delhi
> 
> 
```

```
> 
> # Cross Joining of dataframes
> 
> df = merge(x = df1, y = df2, by = NULL)
> df
   StudentId.x Product StudentId.y      State
1          101     DWM         102 Bangalore
2          102    MPMC         102 Bangalore
3          103     CIS         102 Bangalore
4          104     ADA         102 Bangalore
5          105     MAP         102 Bangalore
6          106     BDA         102 Bangalore
7          101     DWM         104    Mysore
8          102    MPMC         104    Mysore
9          103     CIS         104    Mysore
10         104     ADA         104    Mysore
11         105     MAP         104    Mysore
12         106     BDA         104    Mysore
13         101     DWM         106      Pune
14         102    MPMC         106      Pune
15         103     CIS         106      Pune
16         104     ADA         106      Pune
17         105     MAP         106      Pune
18         106     BDA         106      Pune
19         101     DWM         107  Dehradun
20         102    MPMC         107  Dehradun
21         103     CIS         107  Dehradun
22         104     ADA         107  Dehradun
23         105     MAP         107  Dehradun
24         106     BDA         107  Dehradun
25         101     DWM         108     Delhi
26         102    MPMC         108     Delhi
27         103     CIS         108     Delhi
28         104     ADA         108     Delhi
29         105     MAP         108     Delhi
30         106     BDA         108     Delhi
> source("~/.active-rstudio-document")
> source("~/.active-rstudio-document")
> |
```