```
R 4.3.1 · ~/

> mysqlconn=dbConnect(MySQL(),user='root',password='root',dbname='db',host='localhost')
> result=dbSendQuery(mysqlconn,"select * from student")
> data.frame=fetch(result)
> data.frame
   StudentID FirstName LastName Age GradeLevel
1          1    akshata     kane  15          12
2          2     ganesh   zinjad  17          11
3          3     shruti  wadekar  16          10
4          4     rutika    Warge  18          12
5          5     manish    thale  17          11
6          6     ganesh   shinde  16          10
7          7     nikhil    bhopi  18          12
8          8     kalpak   gaikar  17          11
9          9       arti     agre  16          10
10        10     prasad   jadhav  18          12
11        11     sakshi    pawar  18          12
12        12       ruhi     mane  17          11
13        13     gitesh     rane  16          10
14        14      reena    patil  18          12
15        15      pooja    gadge  17          11
16        16     ankita    kadam  18          12
17        17       neha     kale  16          10
18        18      megha     more  18          12
19        19      adesh    kakad  18          12
20        22     paresh     gage  17          11
> #count of students
> total_stu<-nrow(data.frame)
> total_stu
[1] 20
>
> #data manipulation
> data.frame%>%select(FirstName,Age)
   FirstName Age
1    akshata  15
2     ganesh  17
3     shruti  16
4     rutika  18
5     manish  17
6     ganesh  16
7     nikhil  18
```

```
Console | Terminal | Background Jobs

R 4.3.1 · ~/

> data.frame%>%select(starts_with("a"))
   Age
1   15
2   17
3   16
4   18
5   17
6   16
7   18
8   17
9   16
10  18
11  18
12  17
13  16
14  18
15  17
16  18
17  16
18  18
19  18
20  17
> data.frame%>%select(ends_with("e"))
   FirstName LastName Age
1    akshata     kane  15
2     ganesh   zinjad  17
3     shruti  wadekar  16
4     rutika    Warge  18
5     manish    thale  17
6     ganesh   shinde  16
7     nikhil    bhopi  18
8     kalpak   gaikar  17
9       arti     agre  16
10    prasad   jadhav  18
11    sakshi    pawar  18
12      ruhi     mane  17
13    gitesh     rane  16
14     reena    patil  18
15     pooja    gadge  17
16    ankita    kadam  18
```

Console | Terminal | Background Jobs

R 4.3.1 · ~/

```
> data.frame%>%relocate(Age,FirstName)
   Age FirstName StudentID LastName GradeLevel
1   15   akshata         1     kane          12
2   17    ganesh         2   zinjad          11
3   16    shruti         3  wadekar          10
4   18    rutika         4    Warge          12
5   17    manish         5    thale          11
6   16    ganesh         6   shinde          10
7   18    nikhil         7    bhopi          12
8   17    kalpak         8   gaikar          11
9   16      arti         9     agre          10
10  18    prasad        10   jadhav          12
11  18    sakshi        11    pawar          12
12  17      ruhi        12     mane          11
13  16    gitesh        13     rane          10
14  18     reena        14    patil          12
15  17     pooja        15    gadge          11
16  18    ankita        16    kadam          12
17  16      neha        17     kale          10
18  18     megha        18     more          12
19  18     adesh        19    kakad          12
20  17    paresh        22     gage          11
> data.frame%>%rename(Grade=GradeLevel)
   StudentID FirstName LastName Age Grade
1          1   akshata     kane  15    12
2          2    ganesh   zinjad  17    11
3          3    shruti  wadekar  16    10
4          4    rutika    Warge  18    12
5          5    manish    thale  17    11
6          6    ganesh   shinde  16    10
7          7    nikhil    bhopi  18    12
8          8    kalpak   gaikar  17    11
9          9      arti     agre  16    10
10        10    prasad   jadhav  18    12
11        11    sakshi    pawar  18    12
12        12      ruhi     mane  17    11
13        13    gitesh     rane  16    10
14        14     reena    patil  18    12
15        15     pooja    gadge  17    11
16        16    ankita    kadam  18    12
17        17      neha     kale  16    10
```

Console | Terminal | Background Jobs

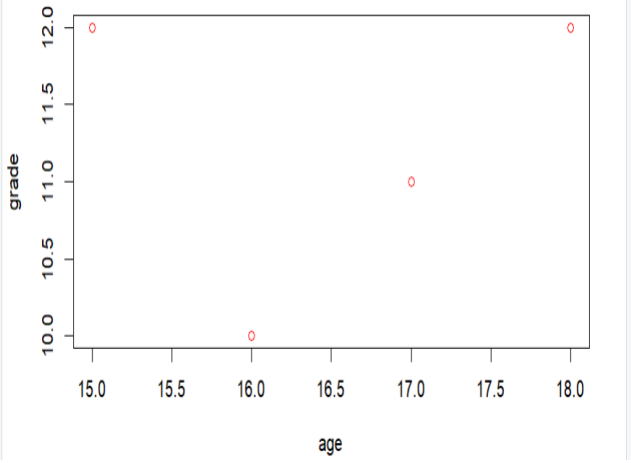
R 4.3.1 · ~/

```
> data.frame%>%select(matches("(.e.)|(e.)"))
   StudentID GradeLevel
1          1          12
2          2          11
3          3          10
4          4          12
5          5          11
6          6          10
7          7          12
8          8          11
9          9          10
10        10          12
11        11          12
12        12          11
13        13          10
14        14          12
15        15          11
16        16          12
17        17          10
18        18          12
19        19          12
20        22          11
> data.frame%>%transmute(full_name = paste(FirstName,LastName))
        full_name
1    akshata kane
2   ganesh zinjad
3  shruti wadekar
4    rutika Warge
5    manish thale
6   ganesh shinde
7    nikhil bhopi
8   kalpak gaikar
9      arti agre
10 prasad jadhav
11  sakshi pawar
12     ruhi mane
13    gitesh rane
14    reena patil
15    pooja gadge
16   ankita kadam
17     neha kale
```

```
> data.frame%>%filter(Age>16)
   StudentID FirstName LastName Age GradeLevel
1          2     ganesh    zinjad  17         11
2          4     rutika     Warge  18         12
3          5     manish     thale  17         11
4          7     nikhil     bhopi  18         12
5          8     kalpak    gaikar  17         11
6         10     prasad    jadhav  18         12
7         11     sakshi     pawar  18         12
8         12       ruhi      mane  17         11
9         14      reena     patil  18         12
10        15      pooja     gadge  17         11
11        16     ankita     kadam  18         12
12        18      megha      more  18         12
13        19      adesh     kakad  18         12
14        22     paresh      gage  17         11
> data.frame%>%slice(1:7)
   StudentID FirstName LastName Age GradeLevel
1          1   akshata      kane  15         12
2          2    ganesh    zinjad  17         11
3          3    shruti   wadekar  16         10
4          4     rutika     Warge  18         12
5          5     manish     thale  17         11
6          6    ganesh    shinde  16         10
7          7     nikhil     bhopi  18         12
> data.frame%>%arrange(desc(FirstName))
   StudentID FirstName LastName Age GradeLevel
1          3    shruti   wadekar  16         10
2         11    sakshi     pawar  18         12
3          4     rutika     Warge  18         12
4         12       ruhi      mane  17         11
5         14      reena     patil  18         12
6         10     prasad    jadhav  18         12
7         15      pooja     gadge  17         11
8         22     paresh      gage  17         11
9          7     nikhil     bhopi  18         12
10        17       neha      kale  16         10
11        18      megha      more  18         12
12         5     manish     thale  17         11
13         8     kalpak    gaikar  17         11
14        13     gitesh      rane  16         10
```

```
> data.frame%>%top_n(3,GradeLevel)
  StudentID FirstName LastName Age GradeLevel
1         1   akshata      kane  15         12
2         4     rutika     Warge  18         12
3         7     nikhil     bhopi  18         12
4        10     prasad    jadhav  18         12
5        11     sakshi     pawar  18         12
6        14      reena     patil  18         12
7        16     ankita     kadam  18         12
8        18      megha      more  18         12
9        19      adesh     kakad  18         12
> data.frame%>%count(Age,sort=TRUE)
  Age n
1  18 8
2  17 6
3  16 5
4  15 1
> data.frame%>%summarise(GradeLevel=sum(GradeLevel))
  GradeLevel
1        224
> data.frame%>%summarise(GradeLevel=mean(GradeLevel))
  GradeLevel
1       11.2
> data.frame%>%summarise(GradeLevel=median(GradeLevel))
  GradeLevel
1         11
> data.frame%>%summarise(GradeLevel=mode(GradeLevel))
  GradeLevel
1    numeric
> data.frame%>%group_by(Age)%>%summarise(n=n())
# A tibble: 4 x 2
    Age     n
  <int> <int>
1    15     1
2    16     5
3    17     6
4    18     8
> #Scatter plot
> plot(data.frame$Age,data.frame$GradeLevel,xlab = "age",ylab = "grade",col='red')
```

price	character (empty)
probability_of_winni...	NaN
rate	character (empty)
region	chr [1:4] "east" "west" "south" "north"
size	"64 GB"
sum	0
title	chr [1:263] "IMDb Charts" "1. The Shawshank Redemption" "...
total_players	20L
total_runs	9142
total_stu	20L



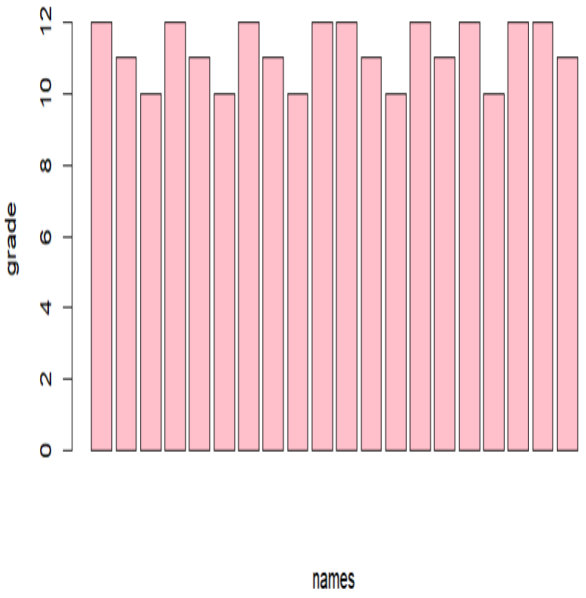
```r
data.frame%>%summarise(GradeLevel=mean(GradeLevel))
data.frame%>%summarise(GradeLevel=median(GradeLevel))
data.frame%>%summarise(GradeLevel=mode(GradeLevel))
data.frame%>%group_by(Age)%>%summarise(n=n())

#Scatter plot
plot(data.frame$Age,data.frame$GradeLevel,xlab = "age",ylab = "grade",col='red')

#Bar plot
barplot(data.frame$GradeLevel,xlab = "names",ylab = "grade",col='pink')

#Histogram
hist(data.frame$Age,xlab = "histplot",col = 'green',border = 'black')

#Pie Chart
pie(data.frame$Age,labels = data.frame$FirstName,col=rainbow(length(data.frame$Age)))
```

(Top Level) R Script

nsole Terminal Background Jobs

R 4.3.1 · ~/

```r
#Bar plot
barplot(data.frame$GradeLevel,xlab = "names",ylab = "grade",col='pink')
```




```r
data.frame%>%arrange(desc(FirstName))
data.frame%>%top_n(3,GradeLevel)
data.frame%>%count(Age,sort=TRUE)
data.frame%>%summarise(GradeLevel=sum(GradeLevel))
data.frame%>%summarise(GradeLevel=mean(GradeLevel))
data.frame%>%summarise(GradeLevel=median(GradeLevel))
data.frame%>%summarise(GradeLevel=mode(GradeLevel))
data.frame%>%group_by(Age)%>%summarise(n=n())

#Scatter plot
plot(data.frame$Age,data.frame$GradeLevel,xlab = "age",ylab = "grade",col='red')

#Bar plot
barplot(data.frame$GradeLevel,xlab = "names",ylab = "grade",col='pink')

#Histogram
hist(data.frame$Age,xlab = "histplot",col = 'green',border = 'black')

#Pie Chart
pie(data.frame$Age,labels = data.frame$FirstName,col=rainbow(length(data.frame$Age)))
```

(Top Level) R Script

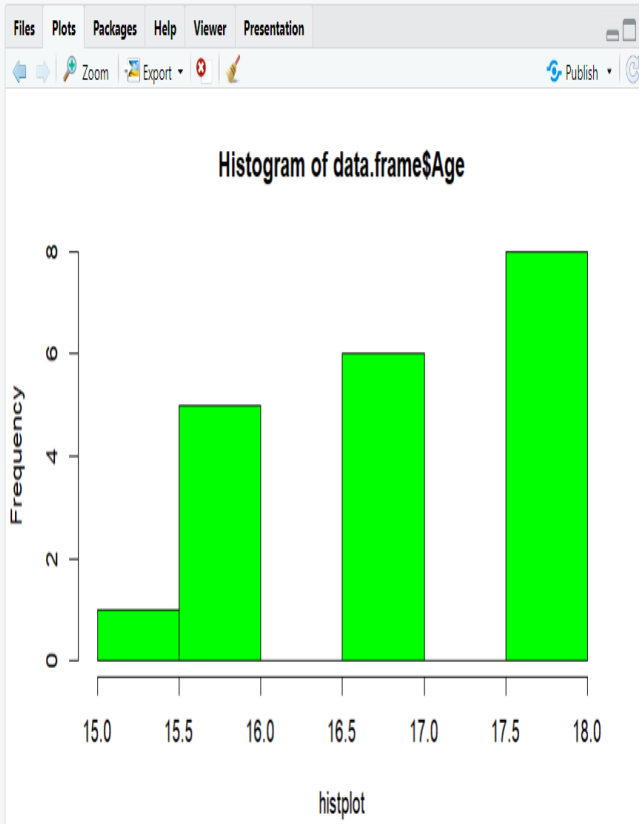
nsole Terminal Background Jobs

R 4.3.1 · ~/

```r
#Histogram
hist(data.frame$Age,xlab = "histplot",col = 'green',border = 'black')
```

Files Plots Packages Help Viewer Presentation

Zoom Export Publish



```r
data.frame%>%count(Age,sort=TRUE)
data.frame%>%summarise(GradeLevel=sum(GradeLevel))
data.frame%>%summarise(GradeLevel=mean(GradeLevel))
data.frame%>%summarise(GradeLevel=median(GradeLevel))
data.frame%>%summarise(GradeLevel=mode(GradeLevel))
data.frame%>%group_by(Age)%>%summarise(n=n())

#Scatter plot
plot(data.frame$Age,data.frame$GradeLevel,xlab = "age",ylab = "grade",col='red')

#Bar plot
barplot(data.frame$GradeLevel,xlab = "names",ylab = "grade",col='pink')

#Histogram
hist(data.frame$Age,xlab = "histplot",col = 'green',border = 'black')

#Pie Chart
pie(data.frame$Age,labels = data.frame$FirstName,col=rainbow(length(data.frame$Age)))

#Line chart
plot(data.frame$Age,type = "o",col='blue')

#Box plot
boxplot(data.frame$GradeLevel,col = 'yellow',main='boxplot')
```

45:1 (Top Level) R Script

Console Terminal Background Jobs

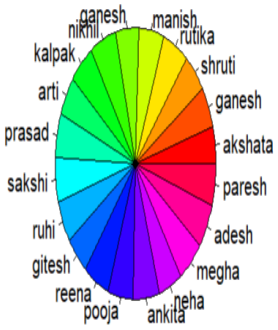
R 4.3.1 · ~/

```
> #Pie Chart
> pie(data.frame$Age,labels = data.frame$FirstName,col=rainbow(length(data.frame$Age)))
>
```

total_runs	9142
total_stu	20L

Files Plots Packages Help Viewer Presentation

Zoom Export Publish



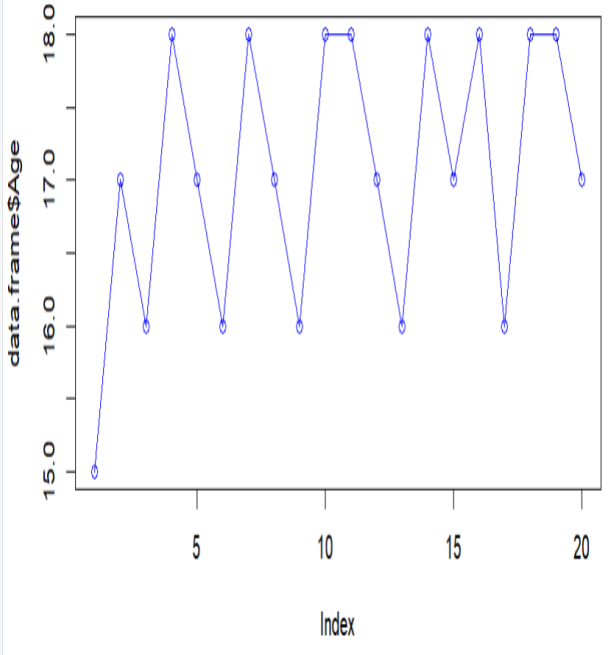

```r
#Scatter plot
plot(data.frame$Age,data.frame$GradeLevel,xlab = "age",ylab = "grade",col='red')

#Bar plot
barplot(data.frame$GradeLevel,xlab = "names",ylab = "grade",col='pink')

#Histogram
hist(data.frame$Age,xlab = "histplot",col = 'green',border = 'black')

#Pie Chart
pie(data.frame$Age,labels = data.frame$FirstName,col=rainbow(length(data.frame$Age)))

#Line chart
plot(data.frame$Age,type = "o",col='blue')

#Box plot
boxplot(data.frame$GradeLevel,col = 'yellow',main='boxplot')
```

47:43 (Top Level) R Script

Console Terminal Background Jobs

R 4.3.1 · ~/

```
> #Line chart
> plot(data.frame$Age,type = "o",col='blue')
>
```



```r
#Scatter plot
plot(data.frame$Age,data.frame$GradeLevel,xlab = "age",ylab = "grade",col='red')

#Bar plot
barplot(data.frame$GradeLevel,xlab = "names",ylab = "grade",col='pink')

#Histogram
hist(data.frame$Age,xlab = "histplot",col = 'green',border = 'black')

#Pie Chart
pie(data.frame$Age,labels = data.frame$FirstName,col=rainbow(length(data.frame$Age)))

#Line chart
plot(data.frame$Age,type = "o",col='blue')

#Box plot
boxplot(data.frame$GradeLevel,col = 'yellow',main='boxplot')
```

(Top Level) R Script

Terminal Background Jobs

R 4.3.1 · ~/

```r
#Box plot
boxplot(data.frame$GradeLevel,col = 'yellow',main='boxplot')
```