ASSIGNMENT 1
Probability and Statistics

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Question 1:

Create a vector c = [5,10,15,20,25,30] and write a program which returns the maximum and minimum of this vector.

Output:

```
> c <-  c(5,10,15,20,25,30)
> min(c)
[1] 5
> max(c)
[1] 30
```

Question 2:

Write a program in R to find factorial of a number by taking input from user. Please print error message if the input number is negative.

Output:

```
> myFact <- function(x){
+    if(x<0){
+      print("Error... Cant compute for negative values")
+      return(NULL)
+    }
+
+    if(x==0 | x==1){
+      return(1)
+    } else{
+      return(x * myFact(x-1))
+    }
+ }
>
> myFact(6)
[1] 720
```

Question 3:
Write a program to write first n terms of a Fibonacci sequence. You may take n as an input from the user.

Output:
```
> myFib <- function(x){
+    if(x==1){
+       return(0)
+    }else if(x==2){
+       return(1)
+    }
+
+    return(myFib(x-1) + myFib(x-2))
+ }
>
> myFib(5)
[1] 3
```

Question 4:
Write an R program to make a simple calculator which can add, subtract, multiply and divide.

Output:
```
> myAdd <- function(a, b){
+    return(a+b)
+ }
> mySub <- function(a, b){
+    return(a-b)
+ }
> myMul <- function(a, b){
+    return(a*b)
+ }
> myDiv <- function(a, b){
+    return(a/b)
+ }
> myAdd(2, 5)
[1] 7
> mySub(10, 8)
[1] 2
> myMul(2, 6)
[1] 12
> myDiv(10, 2)
[1] 5
```
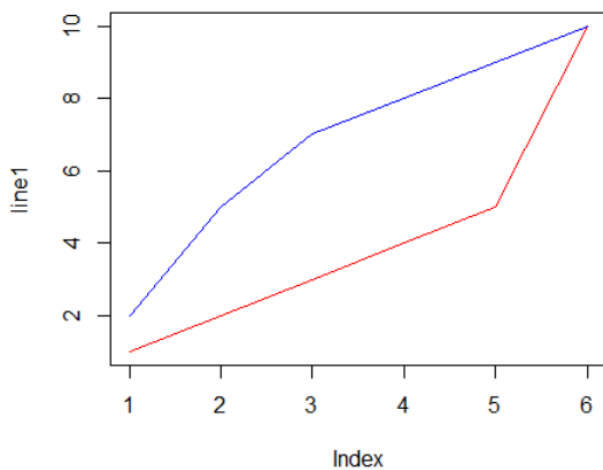
Question 5:

Explore plot, pie, barplot etc. (the plotting options) which are built-in functions in R.
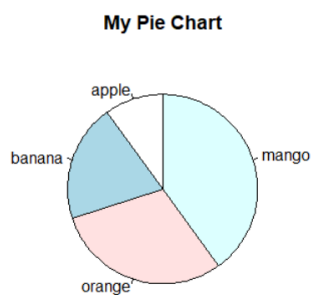
Output:


```
x <- c(1, 2.5, 3)
y <- c(10, 20, 22)
plot(x, y)
plot(x, y, type = 'l', main = "My first graph", xlab = "age", ylab = "height", col="red")
plot(x, y, cex=1.5, pch=2)

plot(x, y, type = "l", lwd=3, lty=2, col="blue")

line1 <- c(1,2,3,4,5,10)
line2 <- c(2,5,7,8,9,10)

plot(line1, type="l", col="red")
lines(line2, type="l", col="blue")
```
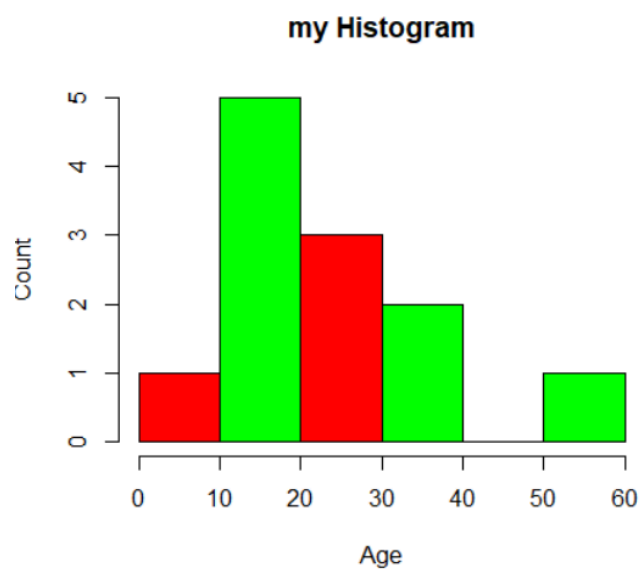

PIE :

```
x <- c(10, 20, 30, 40)
label <- c("apple", "banana", "orange", "mango")
pie(x, main = "My Pie Chart", labels = label)
pie(x, main = "My Pie Chart", labels = label, init.angle = 90)
```

Histo :

my Histogram

```
v <- c(19, 23, 11, 5, 16, 21, 32, 14, 19, 27, 39, 55)
sort(v)
1]   5 11 14 16 19 19 21 23 27 32 39 55
hist(v, main = "my Histogram", xlab = "Age", ylab = "Count", col = c("red", "green"))
```