Assignment-1

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Q1) Create a vector c = [5,10,15,20,25,30] and write a program which returns the maximum and minimum of this vector.

Code:

```
x <- c(5,10,15,20,25,30)
max_min <- range(x)
print("Minimum and Maximum of given list is:")
print(max_min)
```

Ans:

```
> source("C:/Users/parth/OneDrive/Desktop/Sem 5/Probability Statistics (UCS410)/Lab_01/Q1.R")
[1] "Minimum and Maximum of given list is:"
[1]  5 30
>
```

Q2) 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.

Code:

```
var = as.integer(readline(prompt = "Enter a number:"));
if(var < 0){
  print("Sorry Factorial doesn't exist for negative numbers")
} else if(var == 0){
  print("The factorial of 0 is 1")
} else{
  factorial = 1
  for (i in 1:var) {
    factorial = factorial*i
  }
  print(paste("The Factorial of number",var,"is:",factorial))
}
```

Ans:

```
> source("C:/Users/parth/OneDrive/Desktop/Sem 5/Probability Statistics (UCS410)/Lab_01/Q2.R")
Enter a number:10
[1] "The Factorial of number 10 is: 3628800"
>
```

Q3) Write a program to write first n terms of a Fibonacci sequence. You may take n as an input from the user.

Code:

```
n = as.integer(readline(prompt = "Enter a number:"));

n1 = 0

n2 = 1

count = 2

if(n <= 0) {

 print("Plese enter a positive integer")

} else {

 if(n == 1) {

  print("Fibonacci sequence:")

  print(n1)

 } else {

  print("Fibonacci sequence:")

  print(n1)

  print(n2)

  while(count < n) {

   nth = n1 + n2

   print(nth)

   # update values

   n1 = n2

   n2 = nth

   count = count + 1

  }

 }
```

}

Ans:

```
> source("C:/Users/parth/OneDrive/Desktop/Sem 5/Probability Statistics (UCS410)/Lab_01/Q3.R")
Enter a number:10
[1] "Fibonacci sequence:"
[1] 0
[1] 1
[1] 1
[1] 2
[1] 3
[1] 5
[1] 8
[1] 13
[1] 21
[1] 34
>
```

Q4) Write an R program to make a simple calculator which can add, subtract, multiply and divide.

Code:

```
d = as.integer(readline(prompt = "Enter 1st number:"));

e = as.integer(readline(prompt = "Enter 2nd number:"));

sum = d+e

sub = d-e

mul = d*e

div = d/e

print(paste("Addition of two elements:",sum));

print(paste("Subtraction of two elements:",sub));

print(paste("Multiplication of two elements:",mul));

print(paste("Divison of two elements:",div))
```

Ans:

```
> source("C:/Users/parth/OneDrive/Desktop/Sem 5/Probability Statistics (UCS410)/Lab_01/Q4.R")
Enter 1st number:10
Enter 2nd number:5
[1] "Addition of two elements: 15"
[1] "Subtraction of two elements: 5"
[1] "Multiplication of two elements: 50"
[1] "Divison of two elements: 2"
>
```

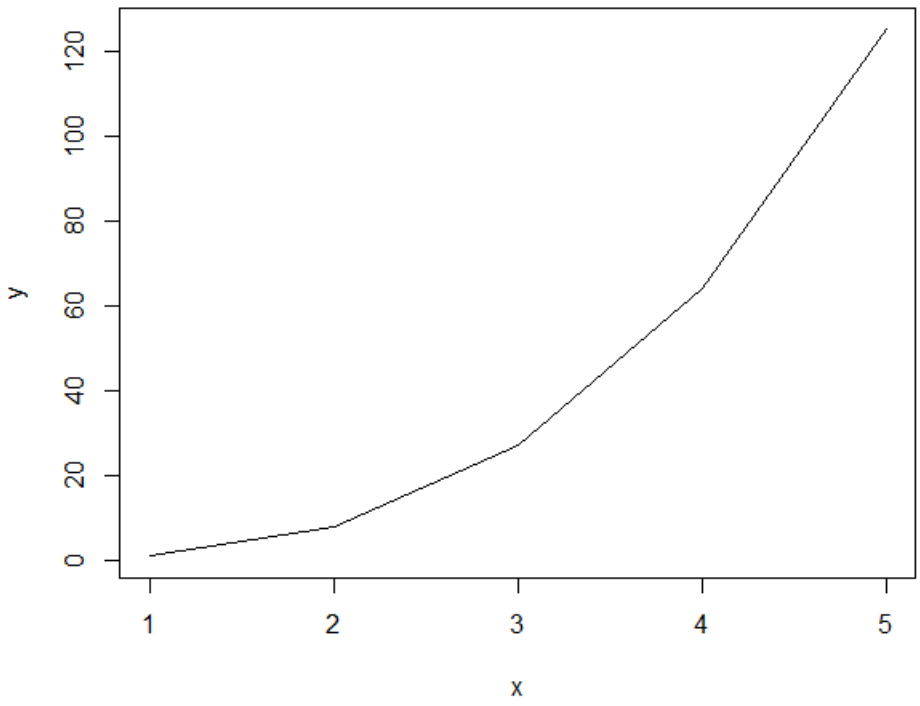
Q5) Explore plot, pie, barplot etc. (the plotting options) which are built-in functions in R.

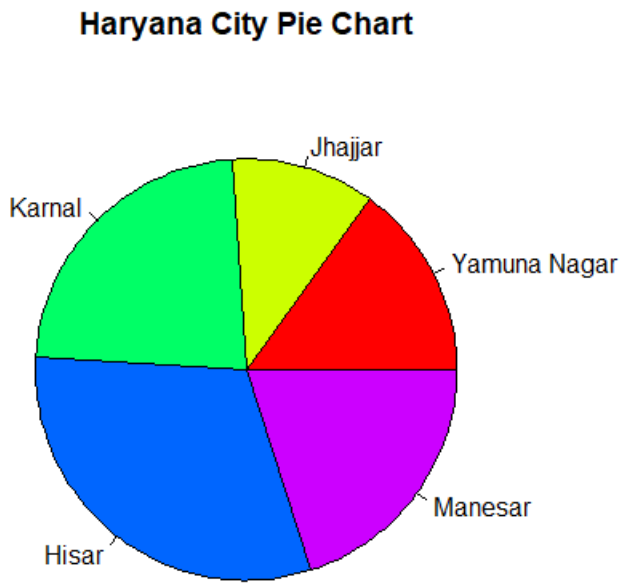
Code:

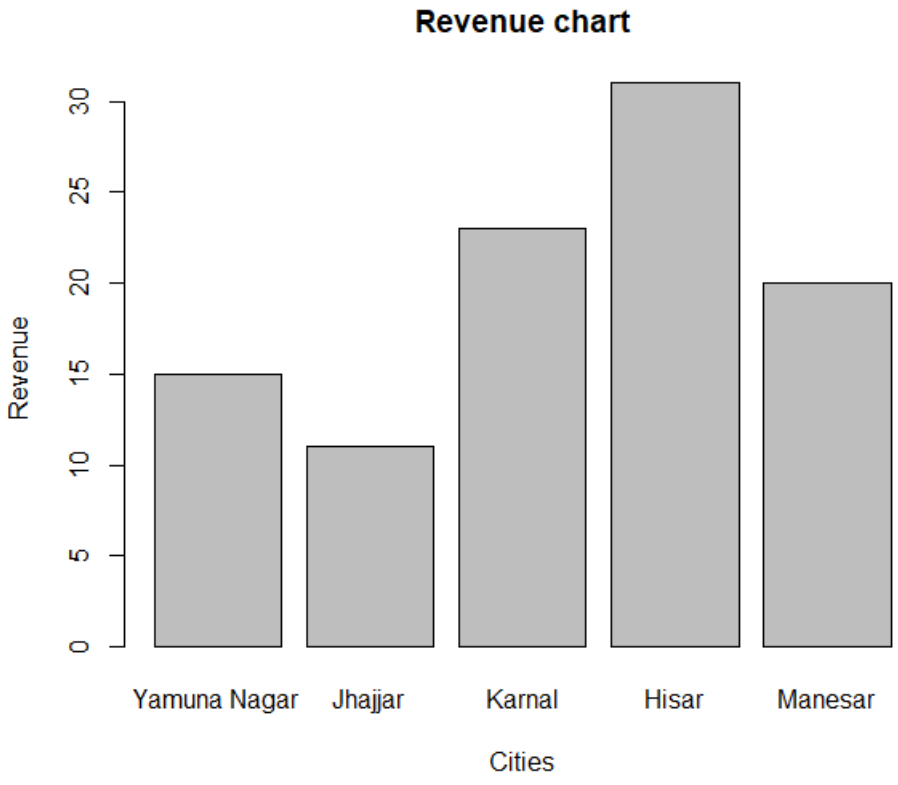
```
a <- c(1, 2, 3, 4, 5)

b <- c(1, 8, 27, 64, 125)
```

```
plot(a, b, type = "l")
x <- c(15, 11, 23, 31,20)
labels <- c("Yamuna Nagar", "Jhajjar", "Karnal", "Hisar","Manesar")
pie(x, labels, main = "Haryana City Pie Chart", col = rainbow(length(x)))
barplot(y,names.arg=labels,xlab="Cities",ylab="Revenue",main="Revenue chart")
```

Ans:




Haryana City Pie Chart
Jhajjar
Karnal
Yamuna Nagar
Manesar
Hisar


Revenue chart
Revenue
0
5
10
15
20
25
30
Yamuna Nagar
Jhajjar
Karnal
Hisar
Manesar
Cities