LAB ASSIGNMENT-1 FEB 8
ITA0443-STATISTICS WITH R PROGRAMMING FOR REAL TIME PROBLEMS

1. Write a R program to take input from the user (name and age) and display the values. Also print the version of R installation.

PROGRAM:-
```
x<-readline(prompt = "Enter your sweet name \n")
y<-readline(prompt = "Enter your age \n")
paste("Student name is",x,"and age is",y)
R.   Version()
```

OUTPUT:-
```
> x<-readline(prompt = "Enter your sweet name \n")
Enter your sweet name
Vamsi
> y<-readline(prompt = "Enter your age \n")
Enter your age
21
> paste("Student name is",x,"and age is",y)
[1] "Student name is Vamsi and age is 21"
> R.Version()
$platform
[1] "x86_64-w64-mingw32"

$arch
[1] "x86_64"

$os
[1] "mingw32"

$crt
[1] "ucrt"

$system
[1] "x86_64, mingw32"
```

2. Write a R program to get the details of the objects in memory.

PROGRAM:-

```
name<-"R programming"
num<-6
numbers<-c(12,31,42,91)
ls()
print(ls.str())
```

OUTPUT:-

```
> name<-"R programming"
> num<-6
> numbers<-c(12,31,42,91)
> ls()
[1] "name"     "num"      "numbers"
> print(ls.str())
name :  chr "R programming"
num :  num 6
numbers :  num [1:4] 12 31 42 91
>
```

3.Write a R program to create a sequence of numbers from 20 to 50 and find the the mean of numbers from 20 to 60 and sum of numbers from 51 to 91.
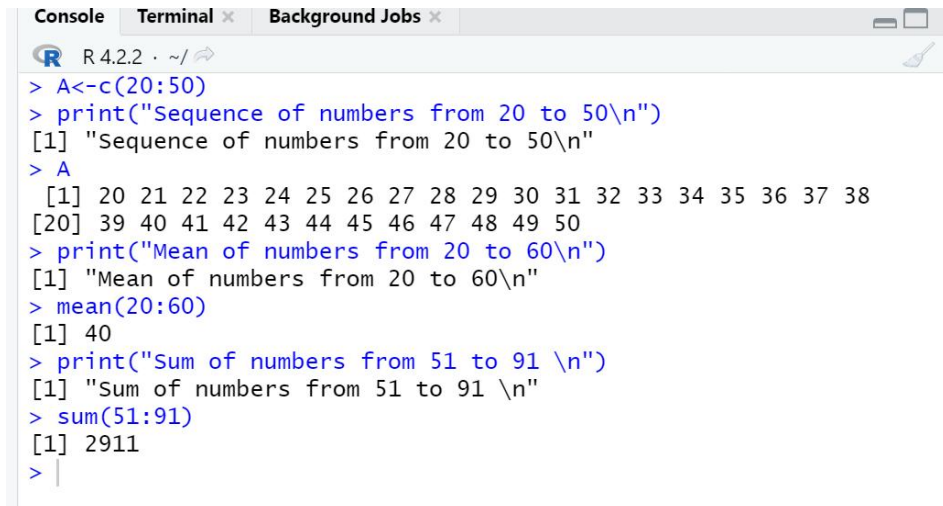
PROGRAM:-

```
A<-c(20:50)
print("Sequence of numbers from 20 to 50\n")
A
print("Mean of numbers from 20 to 60\n")
mean(20:60)
print("Sum of numbers from 51 to 91 \n")
sum(51:91)
```

OUTPUT:-

```
Console   Terminal ×   Background Jobs ×
R  R 4.2.2 · ~/
> A<-c(20:50)
> print("Sequence of numbers from 20 to 50\n")
[1] "Sequence of numbers from 20 to 50\n"
> A
 [1] 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38
[20] 39 40 41 42 43 44 45 46 47 48 49 50
> print("Mean of numbers from 20 to 60\n")
[1] "Mean of numbers from 20 to 60\n"
> mean(20:60)
[1] 40
> print("Sum of numbers from 51 to 91 \n")
[1] "Sum of numbers from 51 to 91 \n"
> sum(51:91)
[1] 2911
>
```

4. Write a program to create a vector which contains 10 random integer values between -50 and +50

PROGRAM:-

```
v=sample(-50:50,10,replace=TRUE)
v
```

OUTPUT:-

```
R  R 4.2.2 · ~/ ⇗
> v=sample(-50:50,10,replace=TRUE)
> v
 [1]   5   5  -8  23 -27 -26 -32 -44 -49  21
>
```

5. Write a R program to get the first 10 Fibonaccci numbers

PROGRAM:-
a=0
b=1
a
b
for(i in 1:8)
{
 c=a+b
 print(c)
 a=b
 b=c
}

OUTPUT:-
```
> a=0
> b=1
> a
[1] 0
> b
[1] 1
> for(i in 1:8)
+ {
+    c=a+b
+    print(c)
+    a=b
+    b=c
+ }
[1] 1
[1] 2
[1] 3
[1] 5
[1] 8
[1] 13
[1] 21
[1] 34
>
```

6. Write a program to get all prime numbers up to a given numbers(based on the sieve of Eratosthense).

PROGRAM:-
n<-readline(prompt = "Enter a number \n")
for(i in 2:n)
{
 a=0
 for(j in 2:(i-1))
```

```
    {
      if(i%%j==0)
      {
        a=a+1
      }
    }
    if(a==0)
    {
      print(i)
    }
}
print(1)
```

OUTPUT:-
```
+ {
+     a=0
+     for(j in 2:(i-1))
+     {
+        if(i%%j==0)
+        {
+           a=a+1
+        }
+     }
+     if(a==0)
+     {
+        print(i)
+     }
+ }
[1] 3
[1] 5
[1] 7
[1] 11
[1] 13
[1] 17
[1] 19
[1] 23
> print(1)
[1] 1
```

7. Write a R program to print the numbers from 1 to 100 and print "Fizz" for multiples of 3 , print "Buzz" for mutliples of 5, and print "FizzBuzz" for mutliples of both.

PROGRAM:-
```
for(i in 1:100)
{
  a=0
  if(i%%3==0)
  {
    print("Fizz")
    a=1
  }
  if(i%%5==0)
  {
    print("Buzz")
    a=1
  }
  if(i%%3==0 & i%%5==0)
  {
    print("FizzBuzz")
    a=1
  }
```

```
 if(a==0)
 {
   print(i)
 }
}
```

OUTPUT:-

```
[1] 1
[1] 2
[1] "Fizz"
[1] 4
[1] "Buzz"
[1] "Fizz"
[1] 7
[1] 8
[1] "Fizz"
[1] "Buzz"
[1] 11
[1] "Fizz"
[1] 13
[1] 14
[1] "Fizz"
[1] "Buzz"
[1] "FizzBuzz"
[1] 16
[1] 17
[1] "Fizz"
[1] 19
[1] "Buzz"
[1] "Fizz"
[1] 22
[1] 23
[1] "Fizz"
[1] "Buzz"
[1] 26
[1] "Fizz"
[1] 28
[1] 29
[1] "Fizz"
[1] "Buzz"
[1] "FizzBuzz"
[1] 31
[1] 32
[1] "Fizz"
[1] 34
[1] "Buzz"
[1] "Fizz"
[1] 37
[1] 38
[1] "Fizz"
[1] "Buzz"
[1] 41
[1] "Fizz"
[1] 43
[1] 44
```

```
[1] "Fizz"
[1] "Buzz"
[1] "FizzBuzz"
[1] 46
[1] 47
[1] "Fizz"
[1] 49
[1] "Buzz"
[1] "Fizz"
[1] 52
[1] 53
[1] "Fizz"
[1] "Buzz"
[1] 56
[1] "Fizz"
[1] 58
[1] 59
[1] "Fizz"
[1] "Buzz"
[1] "FizzBuzz"
[1] 61
[1] 62
[1] "Fizz"
[1] 64
```

```
[1] "Buzz"
[1] "Fizz"
[1] 67
[1] 68
[1] "Fizz"
[1] "Buzz"
[1] 71
[1] "Fizz"
[1] 73
[1] 74
[1] "Fizz"
[1] "Buzz"
[1] "FizzBuzz"
[1] 76
[1] 77
[1] "Fizz"
[1] 79
[1] "Buzz"
[1] "Fizz"
[1] 82
[1] 83
[1] "Fizz"
[1] "Buzz"
[1] 86
```

```
[1] "Fizz"
[1] 88
[1] 89
[1] "Fizz"
[1] "Buzz"
[1] "FizzBuzz"
[1] 91
[1] 92
[1] "Fizz"
[1] 94
[1] "Buzz"
[1] "Fizz"
[1] 97
[1] 98
[1] "Fizz"
[1] "Buzz"
```

8.Write a R program to extract first 10 English letter in lower case and last 10 letters in upper case and extract letters between 22nd to 24th letters in upper case.

PROGRAM:-

```
print("First 10 letters in lower case:")
t = head(letters, 10)
print(t)
print("Last 10 letters in upper case:")
t = tail(LETTERS, 10)
print(t)
print("Letters between 22nd to 24th letters in upper case:")
e = tail(LETTERS[22:24])
print(e)
```

OUTPUT:-

```
> print("First 10 letters in lower case:")
[1] "First 10 letters in lower case:"
> t = head(letters, 10)
> print(t)
 [1] "a" "b" "c" "d" "e" "f" "g" "h" "i" "j"
> print("Last 10 letters in upper case:")
[1] "Last 10 letters in upper case:"
> t = tail(LETTERS, 10)
> print(t)
 [1] "Q" "R" "S" "T" "U" "V" "W" "X" "Y" "Z"
> print("Letters between 22nd to 24th letters in upper case:")
[1] "Letters between 22nd to 24th letters in upper case:"
> e = tail(LETTERS[22:24])
> print(e)
[1] "V" "W" "X"
>
```