WQD7004 Programming for Data Science
Lab 2 Basics in R

1. In each case, what is the value of x?
   - x<-2-1*2
   - x<-6/3-2+1*0+3/3-3
   - x<-19%%17%%13
   - x<-(19%%17)%%13
   - x<-19%%(17%%13)
   - x<-2^17%%17
   - x<-3-2%%5+3*2-4/2

2. Shorten the notation of following vectors
   - x<-c(157, 158, 159, 160, 161, 162, 163, 164)
   - x<-c(10, 9, 8, 7, 6, 5, 4, 3, 2, 1)
   - x<-c(-1071, -1072, -1073, -1074, -1075, -1074, -1073, -1072, -1071)
   - x<-c(1.5, 2.5, 3.5, 4.5, 5.5)

3. Create a vector **x** of with the following value (0.15, 1.30, 3.45, 5.75). Then display the vector in character and integer.

4. Create a vector **y** based on the requirements below:
   a. A sequence of 10 numbers from 20-11
   b. A sequence of odd numbers from 11-20
   c. A sequence of first twelve square number starting from 1.
   d. A sequence of first eleven exponential number of 2 starting from 1.

5. Create a vector **z** based on the requirements below:
   a. A sequence of 10 W
   b. A sequence of R R R S S S
   c. The first 5 alphabets in lower case
   d. A sequence of players from Player1 – Player10

6. Create vectors as below.

   ```
   > Mtut1
    Ali  Abu Ahmad  Bala Chong
    15   17   10   8   19
   > Mtut2
    Ali  Abu Ahmad  Bala Chong
    5    4    3    5    4
   ```

   a. Display the vector
   b. What is the total mark for Abu?
   c. Display the percentage for each student in two decimal places if the total mark is 30.

7. Create a vector **num** of size 10 with any random value from 51-100. Display the vector and then assign all the even numbers to a new vector named **even**.

8. Create an R file named **convert.r** that used to convert inch to centimeters. Given 1 inch equals to 2.54 centimeters. Display the value of centimeters in two decimal places. Run the r file using terminal. Example output:

```
Enter the length in inches : 21.8
[1] "21.80 inches =  55.37 centimeters"
```

9. Create an R file named **sales.r** that get the price of item from the user and then display the new discount price for the item based on discounts of 50%, 30% and 10%. Run the r file using terminal. Example output:

```
Enter the price of items : 350
The price of item after 50% discount is 175
The price of item after 30% discount is 245
The price of item after 10% discount is 315
```