Day3 Questions

(Factor, List and Matrix)

Prepare a solution file Day3.R containing the solutions to the questions

1) Create a List named student with the following data. Give the names Name, RollNo, Gender & Marks for the items
   a) Name
   b) Roll No
   c) Gender
   d) Marks for 5 subjects.

From the above list

   a) Compute the average of marks
   b) Store the Roll No and Marks to another list.
   c) Modify the mark for the 5^{th} subject as 100
   d) Prepare a new vector with the names of the 5 subjects
   e) Attach it as the last item in the list

2) Create a 2X2 matrix A with some sample data.
   a) Calculate B= 2A

3) Create the matrix

$$\begin{bmatrix} 1 & 1 & 3 \\ 5 & 2 & 6 \\ -2 & -1 & -3 \end{bmatrix}$$

   a) Check that $A^3 = 0$ where 0 is a 3×3 matrix with every entry equal to 0.

4) Create the following matrix B with 15 rows:

$$\begin{bmatrix} 10 & -10 & 10 \\ 10 & -10 & 10 \\ \dots & \dots & \dots \\ 10 & -10 & 10 \end{bmatrix}$$

   Calculate the 3×3 matrix B^TB.

5) a) Create the following matrix

1	4	7	10	13
2	5	8	11	14
3	6	9	12	15

b) Change the column names to "p1", "p2", "p3", "p4" and "p5" and the row names to "Alice", "Bill" and "Sara"

c) Calculate the mean for all columns

6) Prepare a factor variable named category, which stores the products categories.