MAT5007 – Applied Statistical Methods

Embedded Lab – R Statistical Software

FALL SEMESTER – 20222023
L25+L26 SLOT

E-RECORD
Experiment No.: 2

Submitted By

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MCA– I Year
SITE

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Example 1: The following table gives the weight (x) (in 1000 lbs.) and highway fuel efficiency (y) (in miles/gallon) for a sample of 13 cars.

Vehicle	X	Y
Chevrolet Camaro	3.545	30
Dodge Neon	2.6	32
Honda Accord	3.245	30
Lincoln Continental	3.93	24
Oldsmobile Aurora	3.995	26
Pontiac Grand Am	3.115	30
Mitsubishi Eclipse	3.235	33
BMW 3-Series	3.225	27
Honda Civic	2.44	37
Toyota Camry	3.24	32

Hyundai Accent	2.29	37
Mazda Protégé	2.5	34
Cadillac DeVille	4.02	26

Correlation :

```
> x=c(3.545,2.6,3.245,3.93,3.995,3.115,3.235,3.225,2.44,3.24,2.29,2.5,4.02)
> y=c(30,32,30,24,26,30,33,27,37,32,37,34,26)
> plot(x,y, main="Weight vs Highway fuel efficiency", xlab="Weight",
+      ylab="Highway fuel efficiency",col="red")
> cor(x,y)
[1] -0.8977642
>
```

Plot Graph :

Weight vs Highway fuel efficiency
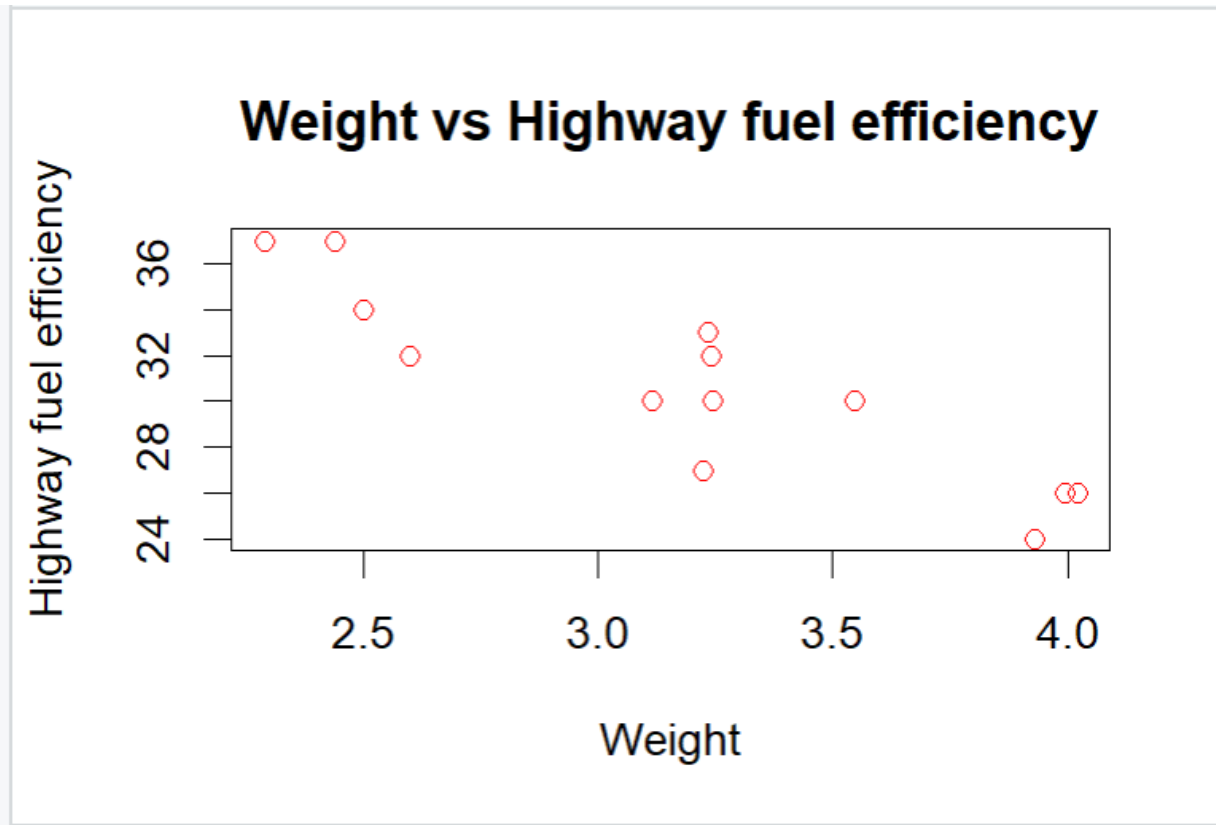
2. Find the Correlation between below data

ENJOY	BUY	READ
4	16	6
15	19	13
1	0	1
11	19	13
13	25	12
19	24	11
6	22	7
10	21	8
15	13	12
3	7	4
11	28	15
20	31	14
7	4	7
11	26	14
10	11	9
6	12	5
7	14	7
18	16	12
8	20	10
2	13	6
7	12	9
12	23	13
13	22	9
15	19	13
4	12	9
3	10	5
9	7	7
7	22	8
10	7	8
2	0	2
15	16	7
1	17	6

3	11	9
6	5	9
13	29	15
15	29	11
16	20	9
14	16	7
1	3	2
8	8	10

Correlation :

```
> z=c(6,13,1,13,12,11,7,8,12,4,15,14,7,14,9,5,7,12,10,6,9,13,9,13,9,5,7,8,8,2,7,6,9,9,15,1
1,9,7,2,10)
> y=c(16,19,0,19,25,24,22,21,13,7,28,31,4,26,11,12,14,16,20,13,12,23,22,19,12,10,7,22,7,0,
16,17,11,5,29,29,20,16,3,8)
> x=c(4,15,1,11,13,19,6,10,15,3,11,20,7,11,10,6,7,18,8,2,7,12,13,15,4,3,9,7,10,2,15,1,3,6,
13,15,16,14,1,8)
```

```
> data=data.frame(x,y,z)
> data
     x  y  z
1    4 16  6
2   15 19 13
3    1  0  1
4   11 19 13
5   13 25 12
6   19 24 11
7    6 22  7
8   10 21  8
9   15 13 12
10   3  7  4
11  11 28 15
12  20 31 14
13   7  4  7
14  11 26 14
15  10 11  9
16   6 12  5
17   7 14  7
18  18 16 12
19   8 20 10
20   2 13  6
21   7 12  9
22  12 23 13
23  13 22  9
24  15 19 13
25   4 12  9
26   3 10  5
27   9  7  7
28   7 22  8
29  10  7  8
30   2  0  2
31  15 16  7
32   1 17  6
33   3 11  9
34   6  5  9
35  13 29 15
36  15 29 11
37  16 20  9
38  14 16  7
39   1  3  2
40   8  8 10
```

```
> cor(data)
          x         y         z
x 1.0000000 0.6440382 0.7320740
y 0.6440382 1.0000000 0.7468472
z 0.7320740 0.7468472 1.0000000
> 
```