PROJECT 1.1 (fe2010,Fe2011) Part 2

Simple Liner Regression analysis on Fuel Economy

MYSQL CODING

Project 1.1 My SQL question

Use MySQL

9. Upload the 2010 and 2011 dataset into a MySQL database named “fuel_economy”. The table name should be “fe2010” and “fe2011” respectively.
10. You have already calculated the beta coefficients for the full 2010 dataset. Insert two additional columns for the beta coefficients in the “fe2010” table and populate the columns with beta values. You can just take the previously calculate beta values to populate here. Remember the beta values will be constant for each column here.
11. Once point 10. is done, Calculate the Predicted value for “feb2011” table by using the input variable from “feb2011” and beta coefficients from “feb2010” table. Insert the predicted values in an additional column in table “feb2010”.

In this question as there is no primary key, we have joined the input variables namely EngDispl, Numcyl,FE of 2010 and 2011 joined in data fe2010m and performed the prediction for 2011 using Beta coefficients namely EngDisp and Numcyl of Fe 2010 . Further prediction is carried out in fe2011 table using fe2010 Beta coefficient values.

Enter password: **********

Welcome to the MySQL monitor. Commands end with ; or \g.

Your MySQL connection id is 31

Server version: 8.0.12 MySQL Community Server - GPL

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

```
mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| fuel_economy       |
| globalsuperstores  |
| hello              |
| information_schema |
| mysql              |
| newtrial           |
| performance_schema |
| sakila             |
| sys                |
| trial              |
| trial1             |
| world              |
+--------------------+
12 rows in set (0.04 sec)
```

9. Upload the 2010 and 2011 dataset into a MySQL database named “fuel_economy”. The table name should be “fe2010” and “fe2011” respectively.

```
mysql> use fuel_economy;
Database changed
mysql> show tables;
+------------------------+
| Tables_in_fuel_economy |
+------------------------+
| fe2010                 |
| fe2010m                |
| fe2011                 |
| rand1fe2011            |
```

| rand2fe2011 |

| rand3 testfe2011 |

+-----------------------+

6 rows in set (0.00 sec)

10. You have already calculated the beta coefficients for the full 2010 dataset. Insert two additional columns for the beta coefficients in the "fe2010" table and populate the columns with beta values. You can just take the previously calculate beta values to populate here. Remember the beta values will be constant for each column here.

```
mysql> Alter table fe2010m
    -> Add column Becoef_Engd2010 decimal(10,5) Not NULL;
Query OK, 0 rows affected (1.34 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> Alter table fe2010m
    -> Add column Becoef_Numcyl2010 decimal(10,5) Not NULL;
Query OK, 0 rows affected (0.65 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> Alter table fe2010m
    -> Add column predictedval12011 decimal(10,5) Not NULL;
Query OK, 0 rows affected (0.56 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> Alter table fe2010m
    -> Add column predictedval22011 decimal(10,5) Not NULL;
Query OK, 0 rows affected (0.62 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> update fe2010m
    -> set Becoef_Engd2010 = -4.517;
Query OK, 245 rows affected (0.18 sec)
```

```
Rows matched: 245  Changed: 245  Warnings: 0

mysql> update fe2010m
    -> set Becoef_Numcyl2010 =-2.9203;
Query OK, 245 rows affected (0.18 sec)
Rows matched: 245  Changed: 245  Warnings: 0

mysql> update fe2010m
    -> set predictedval12011 = 50.563 + Becoef_Engd2010*EngDispl;
Query OK, 245 rows affected, 29 warnings (0.14 sec)
Rows matched: 245  Changed: 245  Warnings: 29

mysql> update fe2010m
    -> set predictedval22011 = 52.144 + Becoef_Numcyl2010*Numcyl;
Query OK, 245 rows affected (0.15 sec)
Rows matched: 245  Changed: 245  Warnings: 0

mysql> select * from fe2010m limit 3;
+----------+--------+---------+----------+--------------+------------+-----------------+------------------+------------------+------------------+
| EngDispl | NumCyl | FE      | NumGears | EngDispl2011 | NumCyl2011 | Becoef_Engd2010 | Becoef_Numcyl2010 | predictedval12011 | predictedval22011 |
+----------+--------+---------+----------+--------------+------------+-----------------+------------------+------------------+------------------+
|      4.7 |      8 | 28.0198 |        6 |          5.9 |         12 |       -4.51700 |         -2.92030 |         29.33310 | 28.78160 |
|      4.7 |      8 | 25.6094 |        6 |          4.2 |          8 |       -4.51700 |         -2.92030 |         29.33310 | 28.78160 |
|      4.2 |      8 |    26.8 |        6 |          4.2 |          8 |       -4.51700 |         -2.92030 |         31.59160 | 28.78160 |
+----------+--------+---------+----------+--------------+------------+-----------------+------------------+------------------+------------------+
3 rows in set (0.00 sec)
```

```
mysql> Alter table fe2010
    -> Add column Becoef_Engd2010 decimal(10,5) Not NULL;
Query OK, 0 rows affected (0.64 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> Alter table fe2010
    -> Add column Becoef_Numcy12010 decimal(10,5) Not NULL;
Query OK, 0 rows affected (0.45 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> Alter table fe2010
    -> Add column predictedval1 decimal(10,5) Not NULL;
Query OK, 0 rows affected (0.50 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> Alter table fe2010
    -> Add column predictedval2 decimal(10,5) Not NULL;
Query OK, 0 rows affected (0.47 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> update fe2010
    -> set Becoef_Engd2010 = -4.517;
Query OK, 1107 rows affected (0.55 sec)
Rows matched: 1107  Changed: 1107  Warnings: 0

mysql> update fe2010
    -> set Becoef_Numcy12010 = -2.9203;
Query OK, 1107 rows affected (0.31 sec)
Rows matched: 1107  Changed: 1107  Warnings: 0
```

```
mysql> update fe2010
    -> set predictedval1 =  50.563 + Becoef_Engd2010*EngDispl;
Query OK, 1107 rows affected, 139 warnings (0.21 sec)
Rows matched: 1107  Changed: 1107  Warnings: 139

mysql> update fe2010
    -> set predictedval2 = 52.144+Becoef_Numcy12010*Numcyl;
Query OK, 1107 rows affected (0.27 sec)
Rows matched: 1107  Changed: 1107  Warnings: 0

mysql> select*from fe2010 limit 3;
+----------+--------+---------+----------+-------------+-----------------+------------------+--------------------+-----------
-----+-------------+----------------+-----------------+--------------+--------------+
| EngDispl | NumCyl | FE      | NumGears | TransLockup | TransCreeperGear | IntakeValvePerCyl |
ExhaustValvesPerCyl | VarValveTiming | VarValveLift | Becoef_Engd2010 | Becoef_Numcy12010 |
predictedval1 | predictedval2 |
+----------+--------+---------+----------+-------------+-----------------+------------------+--------------------+-----------
-----+-------------+----------------+-----------------+--------------+--------------+
|     4.7 |     8 | 28.0198 |      6 |         1 |            0 |             2 |              2 |          1 |         0 |
-4.51700 |        -2.92030 |     29.33310 |     28.78160 |
|     4.7 |     8 | 25.6094 |      6 |         1 |            0 |             2 |              2 |          1 |         0 |
-4.51700 |        -2.92030 |     29.33310 |     28.78160 |
|     4.2 |     8 |    26.8 |      6 |         1 |            0 |             2 |              2 |          1 |         0 |
-4.51700 |        -2.92030 |     31.59160 |     28.78160 |
+----------+--------+---------+----------+-------------+-----------------+------------------+--------------------+-----------
-----+-------------+----------------+-----------------+--------------+--------------+
3 rows in set (0.00 sec)

mysql> update fe2010m
    -> set predictedval12011 = 50.563 + Becoef_Engd2010*EngDispl2011;
Query OK, 240 rows affected, 25 warnings (0.18 sec)
Rows matched: 245  Changed: 240  Warnings: 25

mysql> update fe2010m
```

-> set predictedval22011 = 52.144 + Becoef_Numcyl2010*Numcyl;

Query OK, 0 rows affected (0.00 sec)

Rows matched: 245 Changed: 0 Warnings: 0

11. Once point 10. is done, Calculate the Predicted value for “feb2011” table by using the input variable from “feb2011” and beta coefficients from “feb2010” table. Insert the predicted values in an additional column in table “feb2010”.

mysql> select*from fe2010m limit 3;

+----------+--------+---------+----------+-------------+------------+----------------+------------------+------------------+------------------+

| EngDispl | NumCyl | FE | NumGears | EngDispl2011 | NumCyl2011 | Becoef_Engd2010 | Becoef_Numcyl2010 | predictedval12011 | predictedval22011 |

+----------+--------+---------+----------+-------------+------------+----------------+------------------+------------------+------------------+

| 4.7 | 8 | 28.0198 | 6 | 5.9 | 12 | -4.51700 | -2.92030 | 23.91270 | 28.78160 |

| 4.7 | 8 | 25.6094 | 6 | 4.2 | 8 | -4.51700 | -2.92030 | 31.59160 | 28.78160 |

| 4.2 | 8 | 26.8 | 6 | 4.2 | 8 | -4.51700 | -2.92030 | 31.59160 | 28.78160 |

+----------+--------+---------+----------+-------------+------------+----------------+------------------+------------------+------------------+

3 rows in set (0.00 sec)

11. Once point 10. is done, Calculate the Predicted value for “feb2011” table by using the input variable from “feb2011” and beta coefficients from “feb2010” table. Insert the predicted values in an additional column in table “feb2010”.

mysql> select*from fe2010m

-> ;

+----------+--------+---------+----------+-------------+------------+----------------+------------------+------------------+------------------+

| EngDispl | NumCyl | FE | NumGears | EngDispl2011 | NumCyl2011 | Becoef_Engd2010 | Becoef_Numcyl2010 | predictedval12011 | predictedval22011 |

+----------+--------+---------+----------+-------------+------------+----------------+------------------+------------------+------------------+

| 4.7 | 8 | 28.0198 | 6 | 5.9 | 12 | -4.51700 | -2.92030 | 23.91270 | 28.78160 |

| 4.7 | 8 | 25.6094 | 6 | 4.2 | 8 | -4.51700 | -2.92030 | 31.59160 | 28.78160 |

| 4.2 | 8 | 26.8 | 6 | 4.2 | 8 | -4.51700 | -2.92030 | 31.59160 | 28.78160 |

| 4.2 | 8 | 25.0451 | 6 | 5.2 | 10 | -4.51700 | -2.92030 | 27.07460 | 28.78160 |

| 5.2 | 10 | 24.8 | 6 | 5.2 | 10 | -4.51700 | -2.92030 | 27.07460 | 22.94100 |

| 5.2 | 10 | 23.9 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 22.94100 |

| 2 | 4 | 39.7256 | 6 | 1.5 | 4 | -4.51700 | -2.92030 | 43.78750 | 40.46280 |

| 6 | 12 | 24.4 | 6 | 1.5 | 4 | -4.51700 | -2.92030 | 43.78750 | 17.10040 |

| 3 | 6 | 39.7103 | 6 | 6.3 | 8 | -4.51700 | -2.92030 | 22.10590 | 34.62220 |

| 3 | 6 | 38.7896 | 6 | 6 | 12 | -4.51700 | -2.92030 | 23.46100 | 34.62220 |

| 3 | 6 | 33.6296 | 7 | 6.2 | 8 | -4.51700 | -2.92030 | 22.55760 | 34.62220 |

| 3 | 6 | 35.2678 | 6 | 3.6 | 6 | -4.51700 | -2.92030 | 34.30180 | 34.62220 |

| 8 | 16 | 17.8 | 7 | 3.8 | 6 | -4.51700 | -2.92030 | 33.39840 | 5.41920 |

| 6.2 | 8 | 27.1 | 6 | 3.4 | 6 | -4.51700 | -2.92030 | 35.20520 | 28.78160 |

| 6.2 | 8 | 34.3493 | 6 | 3.4 | 6 | -4.51700 | -2.92030 | 35.20520 | 28.78160 |

| 6.2 | 8 | 35.8 | 6 | 5 | 8 | -4.51700 | -2.92030 | 27.97800 | 28.78160 |

| 7 | 8 | 33.7 | 6 | 3.8 | 6 | -4.51700 | -2.92030 | 33.39840 | 28.78160 |

| 8.4 | 10 | 30 | 6 | 3.8 | 6 | -4.51700 | -2.92030 | 33.39840 | 22.94100 |

| 8.4 | 10 | 30 | 6 | 3.8 | 6 | -4.51700 | -2.92030 | 33.39840 | 22.94100 |

| 4.5 | 8 | 24.3499 | 7 | 3.8 | 6 | -4.51700 | -2.92030 | 33.39840 | 28.78160 |

| 5.7 | 12 | 20.99 | 6 | 6 | 12 | -4.51700 | -2.92030 | 23.46100 | 17.10040 |

| 5.7 | 12 | 21.1 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 17.10040 |

| 5.2 | 10 | 25.4 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 22.94100 |

| 5.2 | 10 | 24 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 22.94100 |

| 5.2 | 10 | 25.4 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 22.94100 |

| 5.2 | 10 | 22.6 | 6 | 1.6 | 4 | -4.51700 | -2.92030 | 43.33580 | 22.94100 |

| 6.5 | 12 | 17.5 | 7 | 1.6 | 4 | -4.51700 | -2.92030 | 43.33580 | 17.10040 |

| 6.5 | 12 | 19.9 | 7 | 1.6 | 4 | -4.51700 | -2.92030 | 43.33580 | 17.10040 |

| 6.5 | 12 | 19.9 | 7 | 3.7 | 6 | -4.51700 | -2.92030 | 33.85010 | 17.10040 |

| 6.5 | 12 | 17.5 | 7 | 3.7 | 6 | -4.51700 | -2.92030 | 33.85010 | 17.10040 |

| 6.5 | 12 | 19.9 | 7 | 3.5 | 6 | -4.51700 | -2.92030 | 34.75350 | 17.10040 |

| 1.8 | 4 | 37.62 | 6 | 3.5 | 6 | -4.51700 | -2.92030 | 34.75350 | 40.46280 |

| 1.8 | 4 | 37.0028 | 6 | 5.5 | 8 | -4.51700 | -2.92030 | 25.71950 | 40.46280 |

| 2 | 4 | 38.9959 | 5 | 5.5 | 8 | -4.51700 | -2.92030 | 25.71950 | 40.46280 |

| 2 | 4 | 39 | 6 | 1.6 | 4 | -4.51700 | -2.92030 | 43.33580 | 40.46280 |

| 2 | 4 | 38.512 | 6 | 1.6 | 4 | -4.51700 | -2.92030 | 43.33580 | 40.46280 |

| 5.5 | 8 | 29.3 | 7 | 1.8 | 4 | -4.51700 | -2.92030 | 42.43240 | 28.78160 |

| 3 | 6 | 35.9 | 6 | 1.8 | 4 | -4.51700 | -2.92030 | 42.43240 | 34.62220 |

| 3.5 | 6 | 36.2 | 7 | 4 | 8 | -4.51700 | -2.92030 | 32.49500 | 34.62220 |

| 3.5 | 6 | 34.5 | 7 | 4 | 8 | -4.51700 | -2.92030 | 32.49500 | 34.62220 |

| 3.5 | 6 | 34.7927 | 6 | 1.4 | 4 | -4.51700 | -2.92030 | 44.23920 | 34.62220 |

| 5.5 | 8 | 30.8 | 7 | 1.4 | 4 | -4.51700 | -2.92030 | 44.23920 | 28.78160 |

| 1 | 3 | 57.8 | 5 | 1.4 | 4 | -4.51700 | -2.92030 | 44.23920 | 43.38310 |

| 1 | 3 | 57.8 | 5 | 1.4 | 4 | -4.51700 | -2.92030 | 44.23920 | 43.38310 |

| 3.7 | 6 | 35.9802 | 6 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 34.62220 |

| 3.7 | 6 | 36.9 | 7 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 34.62220 |

| 3.7 | 6 | 34.5832 | 7 | 3.6 | 6 | -4.51700 | -2.92030 | 34.30180 | 34.62220 |

| 3.7 | 6 | 34.9 | 6 | 6.4 | 8 | -4.51700 | -2.92030 | 21.65420 | 34.62220 |

| 2 | 4 | 37.5 | 5 | 6.4 | 8 | -4.51700 | -2.92030 | 21.65420 | 40.46280 |

| 2 | 4 | 40 | 5 | 1.8 | 4 | -4.51700 | -2.92030 | 42.43240 | 40.46280 |

| 2.4 | 4 | 33.6 | 5 | 1.5 | 4 | -4.51700 | -2.92030 | 43.78750 | 40.46280 |

| 2.4 | 4 | 36.4 | 5 | 1.5 | 4 | -4.51700 | -2.92030 | 43.78750 | 40.46280 |

| 3.8 | 6 | 28.5532 | 6 | 1.6 | 4 | -4.51700 | -2.92030 | 43.33580 | 34.62220 |

| 3.8 | 6 | 27.372 | 6 | 1.6 | 4 | -4.51700 | -2.92030 | 43.33580 | 34.62220 |

| 2.9 | 6 | 37.3296 | 6 | 1.6 | 4 | -4.51700 | -2.92030 | 43.33580 | 34.62220 |

| 2.9 | 6 | 41.3608 | 7 | 1.6 | 4 | -4.51700 | -2.92030 | 43.33580 | 34.62220 |

| 3.4 | 6 | 36.7299 | 6 | 1.6 | 4 | -4.51700 | -2.92030 | 43.33580 | 34.62220 |

| 3.4 | 6 | 40.9978 | 7 | 1.6 | 4 | -4.51700 | -2.92030 | 43.33580 | 34.62220 |

| 2.9 | 6 | 37.3296 | 6 | 2.5 | 4 | -4.51700 | -2.92030 | 39.27050 | 34.62220 |

| 2.9 | 6 | 41.3608 | 7 | 2.5 | 4 | -4.51700 | -2.92030 | 39.27050 | 34.62220 |

| 3.4 | 6 | 36.7299 | 6 | 2.5 | 4 | -4.51700 | -2.92030 | 39.27050 | 34.62220 |

| 3.4 | 6 | 40.9978 | 7 | 2.5 | 4 | -4.51700 | -2.92030 | 39.27050 | 34.62220 |

| 2 | 4 | 37.5 | 5 | 2.5 | 4 | -4.51700 | -2.92030 | 39.27050 | 40.46280 |

| 2 | 4 | 40 | 5 | 2.5 | 4 | -4.51700 | -2.92030 | 39.27050 | 40.46280 |

| 2.4 | 4 | 36.4 | 5 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 40.46280 |

| 2.4 | 4 | 33.6 | 5 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 40.46280 |

| 4.2 | 8 | 27.471 | 6 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 28.78160 |

| 5.9 | 12 | 23.6523 | 6 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 17.10040 |

| 5.9 | 12 | 27.2408 | 6 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 17.10040 |

| 5.9 | 12 | 22.9258 | 6 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 17.10040 |

| 5.9 | 12 | 24.6983 | 6 | 2.5 | 5 | -4.51700 | -2.92030 | 39.27050 | 17.10040 |

| 4.3 | 8 | 26.1157 | 7 | 2.5 | 5 | -4.51700 | -2.92030 | 39.27050 | 28.78160 |

| 5 | 8 | 32.8808 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 28.78160 |

| 5 | 8 | 30.3378 | 6 | 6.8 | 8 | -4.51700 | -2.92030 | 19.84740 | 28.78160 |

| 5 | 8 | 30.8027 | 6 | 4.4 | 8 | -4.51700 | -2.92030 | 30.68820 | 28.78160 |

| 4.3 | 8 | 31.6 | 6 | 4.4 | 8 | -4.51700 | -2.92030 | 30.68820 | 28.78160 |

| 3.5 | 6 | 35.5 | 6 | 2.4 | 4 | -4.51700 | -2.92030 | 39.72220 | 34.62220 |

| 1.6 | 4 | 51.6555 | 6 | 3.6 | 6 | -4.51700 | -2.92030 | 34.30180 | 40.46280 |

| 1.6 | 4 | 47.2025 | 6 | 3.6 | 6 | -4.51700 | -2.92030 | 34.30180 | 40.46280 |

| 1.6 | 4 | 52 | 6 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 40.46280 |

| 1.6 | 4 | 47.2025 | 6 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 40.46280 |

| 1.6 | 4 | 44.5714 | 6 | 2.4 | 4 | -4.51700 | -2.92030 | 39.72220 | 40.46280 |

| 1.6 | 4 | 47.7592 | 6 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 40.46280 |

| 1.6 | 4 | 44.5714 | 6 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 40.46280 |

| 1.6 | 4 | 47.7592 | 6 | 3.6 | 6 | -4.51700 | -2.92030 | 34.30180 | 40.46280 |

| 1.6 | 4 | 46.5047 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 40.46280 |

| 1.6 | 4 | 46.5047 | 6 | 2.5 | 6 | -4.51700 | -2.92030 | 39.27050 | 40.46280 |

| 2.4 | 4 | 36.2628 | 4 | 2.5 | 6 | -4.51700 | -2.92030 | 39.27050 | 40.46280 |

| 3.8 | 6 | 33.2 | 5 | 3.7 | 6 | -4.51700 | -2.92030 | 33.85010 | 34.62220 |

| 3.6 | 6 | 35.2427 | 6 | 3.7 | 6 | -4.51700 | -2.92030 | 33.85010 | 34.62220 |

| 3.6 | 6 | 37.6908 | 7 | 5.6 | 8 | -4.51700 | -2.92030 | 25.26780 | 34.62220 |

| 3.6 | 6 | 34.8754 | 6 | 5.6 | 8 | -4.51700 | -2.92030 | 25.26780 | 34.62220 |

| 3.6 | 6 | 36.7563 | 7 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 34.62220 |

| 3.6 | 6 | 34.8754 | 6 | 2.5 | 4 | -4.51700 | -2.92030 | 39.27050 | 34.62220 |

| 3.6 | 6 | 36.4395 | 7 | 2.3 | 4 | -4.51700 | -2.92030 | 40.17390 | 34.62220 |

| 3.6 | 6 | 34.8754 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 34.62220 |

| 3.6 | 6 | 36.4395 | 7 | 4.2 | 8 | -4.51700 | -2.92030 | 31.59160 | 34.62220 |

| 3.8 | 6 | 34.5148 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 34.62220 |

| 3.8 | 6 | 36.013 | 7 | 4.4 | 8 | -4.51700 | -2.92030 | 30.68820 | 34.62220 |

| 3.8 | 6 | 34.5148 | 6 | 4.4 | 8 | -4.51700 | -2.92030 | 30.68820 | 34.62220 |

| 3.8 | 6 | 37.0769 | 7 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 34.62220 |

| 3.8 | 6 | 34.5148 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 34.62220 |

| 3.8 | 6 | 37.0769 | 7 | 4.4 | 8 | -4.51700 | -2.92030 | 30.68820 | 34.62220 |

| 3.6 | 6 | 35.2427 | 6 | 4.4 | 8 | -4.51700 | -2.92030 | 30.68820 | 34.62220 |

| 3.6 | 6 | 37.6908 | 7 | 4.4 | 8 | -4.51700 | -2.92030 | 30.68820 | 34.62220 |

| 3.8 | 6 | 35.3594 | 6 | 4.4 | 8 | -4.51700 | -2.92030 | 30.68820 | 34.62220 |

| 3.8 | 6 | 36.9347 | 7 | 4.4 | 8 | -4.51700 | -2.92030 | 30.68820 | 34.62220 |

| 3.8 | 6 | 36.9347 | 7 | 3.6 | 6 | -4.51700 | -2.92030 | 34.30180 | 34.62220 |

| 3.8 | 6 | 35.3594 | 6 | 5.7 | 8 | -4.51700 | -2.92030 | 24.81610 | 34.62220 |

| 3.8 | 6 | 33.8482 | 7 | 4.6 | 8 | -4.51700 | -2.92030 | 29.78480 | 34.62220 |

| 3.8 | 6 | 33.1649 | 6 | 3.6 | 6 | -4.51700 | -2.92030 | 34.30180 | 34.62220 |

| 3.8 | 6 | 34.255 | 7 | 3.6 | 6 | -4.51700 | -2.92030 | 34.30180 | 34.62220 |

| 3.8 | 6 | 33.2357 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 34.62220 |

| 3.8 | 6 | 33.8482 | 7 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 34.62220 |

| 3.8 | 6 | 34.255 | 7 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 34.62220 |

| 2.5 | 5 | 39.7267 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 37.54250 |

| 5.9 | 12 | 26.6208 | 6 | 1.6 | 4 | -4.51700 | -2.92030 | 43.33580 | 17.10040 |

| 2 | 4 | 42.7743 | 1 | 1.6 | 4 | -4.51700 | -2.92030 | 43.33580 | 40.46280 |

| 2 | 4 | 37 | 6 | 1.6 | 4 | -4.51700 | -2.92030 | 43.33580 | 40.46280 |

| 2 | 4 | 37.7989 | 6 | 2.4 | 4 | -4.51700 | -2.92030 | 39.72220 | 40.46280 |

| 2 | 4 | 42.575 | 6 | 2.4 | 4 | -4.51700 | -2.92030 | 39.72220 | 40.46280 |

| 3.2 | 6 | 36.2 | 6 | 2.5 | 4 | -4.51700 | -2.92030 | 39.27050 | 34.62220 |

| 4.2 | 8 | 31 | 6 | 2.5 | 4 | -4.51700 | -2.92030 | 39.27050 | 28.78160 |

| 4.2 | 8 | 29.3 | 6 | 2.5 | 4 | -4.51700 | -2.92030 | 39.27050 | 28.78160 |

| 3 | 6 | 34 | 7 | 2.5 | 4 | -4.51700 | -2.92030 | 39.27050 | 34.62220 |

| 2 | 4 | 39.7256 | 6 | 3.5 | 6 | -4.51700 | -2.92030 | 34.75350 | 40.46280 |

| 6 | 12 | 23.2715 | 6 | 3.7 | 6 | -4.51700 | -2.92030 | 33.85010 | 17.10040 |

| 3 | 6 | 38.1696 | 6 | 4.7 | 8 | -4.51700 | -2.92030 | 29.33310 | 34.62220 |

| 3 | 6 | 38.7896 | 6 | 3.7 | 6 | -4.51700 | -2.92030 | 33.85010 | 34.62220 |

| 3 | 6 | 39.7103 | 6 | 4.7 | 8 | -4.51700 | -2.92030 | 29.33310 | 34.62220 |

| 3 | 6 | 38.7896 | 6 | 5.7 | 8 | -4.51700 | -2.92030 | 24.81610 | 34.62220 |

| 3 | 6 | 35.5 | 6 | 3.7 | 6 | -4.51700 | -2.92030 | 33.85010 | 34.62220 |

| 3 | 6 | 35.2678 | 6 | 3.7 | 6 | -4.51700 | -2.92030 | 33.85010 | 34.62220 |

| 3 | 6 | 36.1548 | 6 | 5 | 8 | -4.51700 | -2.92030 | 27.97800 | 34.62220 |

| 3 | 6 | 35.7081 | 6 | 5 | 8 | -4.51700 | -2.92030 | 27.97800 | 34.62220 |

| 3 | 6 | 39.7103 | 6 | 3.7 | 6 | -4.51700 | -2.92030 | 33.85010 | 34.62220 |

| 3 | 6 | 38.7896 | 6 | 4.7 | 8 | -4.51700 | -2.92030 | 29.33310 | 34.62220 |

| 3 | 6 | 38.1696 | 6 | 4.7 | 8 | -4.51700 | -2.92030 | 29.33310 | 34.62220 |

| 3 | 6 | 36.798 | 6 | 5.7 | 8 | -4.51700 | -2.92030 | 24.81610 | 34.62220 |

| 3 | 6 | 35.5404 | 6 | 3.7 | 6 | -4.51700 | -2.92030 | 33.85010 | 34.62220 |

| 3 | 6 | 35.4606 | 6 | 3.7 | 6 | -4.51700 | -2.92030 | 33.85010 | 34.62220 |

| 3 | 6 | 36.1548 | 6 | 5 | 8 | -4.51700 | -2.92030 | 27.97800 | 34.62220 |

| 3 | 6 | 35.7081 | 6 | 5 | 8 | -4.51700 | -2.92030 | 27.97800 | 34.62220 |

| 3 | 6 | 36.1548 | 6 | 6.2 | 8 | -4.51700 | -2.92030 | 22.55760 | 34.62220 |

| 3 | 6 | 35.7081 | 6 | 2.2 | 4 | -4.51700 | -2.92030 | 40.62560 | 34.62220 |

| 3 | 6 | 34.7288 | 6 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 34.62220 |

| 3 | 6 | 34.2853 | 6 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 34.62220 |

| 4.8 | 8 | 30.5375 | 6 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 28.78160 |

| 4.8 | 8 | 31.3747 | 6 | 4.6 | 8 | -4.51700 | -2.92030 | 29.78480 | 28.78160 |

| 4.8 | 8 | 28.8 | 6 | 5.4 | 8 | -4.51700 | -2.92030 | 26.17120 | 28.78160 |

| 4.8 | 8 | 31.8 | 6 | 4.6 | 8 | -4.51700 | -2.92030 | 29.78480 | 28.78160 |

| 4 | 8 | 27.3704 | 7 | 5.4 | 8 | -4.51700 | -2.92030 | 26.17120 | 28.78160 |

| 4 | 8 | 27.3 | 6 | 6.8 | 10 | -4.51700 | -2.92030 | 19.84740 | 28.78160 |

| 4 | 8 | 28.4 | 6 | 5.4 | 8 | -4.51700 | -2.92030 | 26.17120 | 28.78160 |

| 4 | 8 | 27.9711 | 7 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 28.78160 |

| 5 | 10 | 23.227 | 6 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 22.94100 |

| 5 | 10 | 23.6182 | 7 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 22.94100 |

| 5 | 10 | 23.7 | 6 | 4.8 | 8 | -4.51700 | -2.92030 | 28.88140 | 22.94100 |

| 5 | 10 | 24.0505 | 7 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 22.94100 |

| 1.6 | 4 | 47.9 | 4 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 40.46280 |

| 1.6 | 4 | 48.9 | 5 | 4.6 | 8 | -4.51700 | -2.92030 | 29.78480 | 40.46280 |

| 2.2 | 4 | 51.9 | 5 | 5.4 | 8 | -4.51700 | -2.92030 | 26.17120 | 40.46280 |

| 2.2 | 4 | 46.8 | 4 | 6.8 | 10 | -4.51700 | -2.92030 | 19.84740 | 40.46280 |

| 2 | 4 | 41.9 | 5 | 5.4 | 8 | -4.51700 | -2.92030 | 26.17120 | 40.46280 |

| 2.2 | 4 | 51.9 | 5 | 4.8 | 8 | -4.51700 | -2.92030 | 28.88140 | 40.46280 |

| 4 | 6 | 32.7568 | 5 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 34.62220 |

| 4 | 6 | 36.3926 | 5 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 34.62220 |

| 4.6 | 8 | 32.1109 | 5 | 3.6 | 6 | -4.51700 | -2.92030 | 34.30180 | 28.78160 |

| 4.6 | 8 | 33.8 | 5 | 3.6 | 6 | -4.51700 | -2.92030 | 34.30180 | 28.78160 |

| 5.4 | 8 | 30.4 | 6 | 2.7 | 4 | -4.51700 | -2.92030 | 38.36710 | 28.78160 |

| 1.8 | 4 | 50.5 | 5 | 3.5 | 6 | -4.51700 | -2.92030 | 34.75350 | 40.46280 |

| 1.8 | 4 | 48.6 | 5 | 3.5 | 6 | -4.51700 | -2.92030 | 34.75350 | 40.46280 |

| 1.8 | 4 | 51.1915 | 5 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 40.46280 |

| 2 | 4 | 40.5 | 6 | 3.6 | 6 | -4.51700 | -2.92030 | 34.30180 | 40.46280 |

| 2 | 4 | 41.7998 | 5 | 5.7 | 8 | -4.51700 | -2.92030 | 24.81610 | 40.46280 |

| 2 | 4 | 42 | 6 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 40.46280 |

| 3.8 | 6 | 38.0484 | 6 | 3.6 | 6 | -4.51700 | -2.92030 | 34.30180 | 34.62220 |

| 3.8 | 6 | 36.4 | 6 | 3.7 | 6 | -4.51700 | -2.92030 | 33.85010 | 34.62220 |

| 3.7 | 6 | 32.9748 | 6 | 4 | 6 | -4.51700 | -2.92030 | 32.49500 | 34.62220 |

| 3.7 | 6 | 35.2288 | 7 | 3.5 | 6 | -4.51700 | -2.92030 | 34.75350 | 34.62220 |

| 3.7 | 6 | 34.7305 | 6 | 3.5 | 6 | -4.51700 | -2.92030 | 34.75350 | 34.62220 |

| 3.7 | 6 | 37.065 | 7 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 34.62220 |

| 3.7 | 6 | 35.162 | 7 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 34.62220 |

| 2.5 | 6 | 36.2901 | 6 | 2.4 | 4 | -4.51700 | -2.92030 | 39.72220 | 34.62220 |

| 2.5 | 6 | 36.7047 | 6 | 2.4 | 4 | -4.51700 | -2.92030 | 39.72220 | 34.62220 |

| 2.5 | 6 | 40.8247 | 6 | 3.5 | 6 | -4.51700 | -2.92030 | 34.75350 | 34.62220 |

| 3.5 | 6 | 36.5564 | 6 | 5.4 | 8 | -4.51700 | -2.92030 | 26.17120 | 34.62220 |

| 5 | 8 | 32.0888 | 8 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 28.78160 |

| 4.2 | 8 | 26.8817 | 6 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 28.78160 |

| 4.7 | 8 | 26.7022 | 6 | 3.2 | 6 | -4.51700 | -2.92030 | 36.10860 | 28.78160 |

| 4.7 | 8 | 26.5604 | 6 | 3.2 | 6 | -4.51700 | -2.92030 | 36.10860 | 28.78160 |

| 1.3 | 2 | 30.2 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 46.30340 |

| 1.3 | 2 | 32.1 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 46.30340 |

| 3.5 | 6 | 36.0876 | 7 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 34.62220 |

| 5.5 | 8 | 31.7 | 7 | 4.4 | 8 | -4.51700 | -2.92030 | 30.68820 | 28.78160 |

| 1.6 | 4 | 51.6555 | 6 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 40.46280 |

| 1.6 | 4 | 47.2025 | 6 | 6.2 | 8 | -4.51700 | -2.92030 | 22.55760 | 40.46280 |

| 1.6 | 4 | 44.5714 | 6 | 6.2 | 8 | -4.51700 | -2.92030 | 22.55760 | 40.46280 |

| 1.6 | 4 | 47.7592 | 6 | 5.3 | 8 | -4.51700 | -2.92030 | 26.62290 | 40.46280 |

| 1.6 | 4 | 46.5047 | 6 | 5.3 | 8 | -4.51700 | -2.92030 | 26.62290 | 40.46280 |

| 2.4 | 4 | 38.5995 | 5 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 40.46280 |

| 2.4 | 4 | 37.4902 | 4 | 3.6 | 6 | -4.51700 | -2.92030 | 34.30180 | 40.46280 |

| 3.8 | 6 | 34.6 | 6 | 5.7 | 8 | -4.51700 | -2.92030 | 24.81610 | 34.62220 |

| 3.8 | 6 | 33.2 | 5 | 3.6 | 6 | -4.51700 | -2.92030 | 34.30180 | 34.62220 |

| 2.5 | 4 | 44.7365 | 1 | 3.7 | 6 | -4.51700 | -2.92030 | 33.85010 | 40.46280 |

| 2.5 | 4 | 43.8 | 6 | 4 | 6 | -4.51700 | -2.92030 | 32.49500 | 40.46280 |

| 3.5 | 6 | 37.9628 | 6 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 34.62220 |

| 3.5 | 6 | 38.0169 | 1 | 5.3 | 8 | -4.51700 | -2.92030 | 26.62290 | 34.62220 |

| 3.8 | 6 | 29.0307 | 6 | 6.2 | 8 | -4.51700 | -2.92030 | 22.55760 | 34.62220 |

| 2.2 | 4 | 51.9 | 5 | 6 | 8 | -4.51700 | -2.92030 | 23.46100 | 40.46280 |

| 2.2 | 4 | 46.8 | 4 | 5 | 8 | -4.51700 | -2.92030 | 27.97800 | 40.46280 |

| 2.2 | 4 | 46.8 | 4 | 2.4 | 4 | -4.51700 | -2.92030 | 39.72220 | 40.46280 |

| 2.2 | 4 | 51.9 | 5 | 3.5 | 6 | -4.51700 | -2.92030 | 34.75350 | 40.46280 |

| 2.2 | 4 | 51.9 | 5 | 5 | 8 | -4.51700 | -2.92030 | 27.97800 | 40.46280 |

| 4.6 | 8 | 29.14 | 5 | 5 | 8 | -4.51700 | -2.92030 | 27.97800 | 28.78160 |

| 4.6 | 8 | 31.61 | 5 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 28.78160 |

| 2 | 4 | 41.2 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 40.46280 |

| 2 | 4 | 37.5 | 5 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 40.46280 |

| 1.6 | 4 | 48.9 | 5 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 40.46280 |

| 1.6 | 4 | 42.1 | 4 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 40.46280 |

| 2.4 | 4 | 40.2 | 4 | 2.5 | 4 | -4.51700 | -2.92030 | 39.27050 | 40.46280 |

| 2.4 | 4 | 38.2 | 5 | 2.5 | 4 | -4.51700 | -2.92030 | 39.27050 | 40.46280 |

| 1.8 | 4 | 47.2 | 4 | 2.5 | 4 | -4.51700 | -2.92030 | 39.27050 | 40.46280 |

| 1.8 | 4 | 46.9 | 5 | 2.5 | 4 | -4.51700 | -2.92030 | 39.27050 | 40.46280 |

| 1.5 | 4 | 48.8622 | 4 | 2.5 | 4 | -4.51700 | -2.92030 | 39.27050 | 40.46280 |

| 1.5 | 4 | 50.6725 | 5 | 3.6 | 6 | -4.51700 | -2.92030 | 34.30180 | 40.46280 |

| 2 | 4 | 41.521 | 6 | 3.6 | 6 | -4.51700 | -2.92030 | 34.30180 | 40.46280 |

| 2 | 4 | 41.3156 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 40.46280 |

| 2.5 | 5 | 40.8 | 6 | 1.8 | 4 | -4.51700 | -2.92030 | 42.43240 | 37.54250 |

| 2.5 | 5 | 39.3753 | 5 | 1.8 | 4 | -4.51700 | -2.92030 | 42.43240 | 37.54250 |

| 2.5 | 5 | 38.4 | 5 | 4.6 | 8 | -4.51700 | -2.92030 | 29.78480 | 37.54250 |

| 2.5 | 5 | 38.6 | 6 | 4.6 | 8 | -4.51700 | -2.92030 | 29.78480 | 37.54250 |

| 2.4 | 4 | 39.3 | 6 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 40.46280 |

| 2.4 | 4 | 42.3 | 5 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 40.46280 |

| 3.5 | 6 | 37.6 | 5 | 2.4 | 4 | -4.51700 | -2.92030 | 39.72220 | 34.62220 |

| 2 | 4 | 42.7743 | 1 | 2.4 | 4 | -4.51700 | -2.92030 | 39.72220 | 40.46280 |

| 2 | 4 | 37.7989 | 6 | 2.4 | 4 | -4.51700 | -2.92030 | 39.72220 | 40.46280 |

| 2 | 4 | 42.575 | 6 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 40.46280 |

| 3 | 6 | 34.1 | 6 | 3.5 | 6 | -4.51700 | -2.92030 | 34.75350 | 34.62220 |

| 3 | 6 | 35 | 7 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 34.62220 |

| 6.8 | 8 | 21.006 | 6 | 2 | 4 | -4.51700 | -2.92030 | 41.52900 | 28.78160 |

| 6.8 | 8 | 21.006 | 6 | 2.8 | 6 | -4.51700 | -2.92030 | 37.91540 | 28.78160 |

| 6 | 12 | 23.8 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 17.10040 |

| 3 | 6 | 39.7103 | 6 | 3 | 6 | -4.51700 | -2.92030 | 37.01200 | 34.62220 |

| 3 | 6 | 38.7896 | 6 | 2.4 | 4 | -4.51700 | -2.92030 | 39.72220 | 34.62220 |

+----------+--------+---------+----------+--------------+------------+-----------------+-------------------+-------------------+-------------------+

245 rows in set (0.00 sec)

mysql> Alter table fe2011

```
    -> Add column Becoef_Engd2010 decimal(10,5) Not NULL;
Query OK, 0 rows affected (0.57 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> Alter table fe2011
    -> Add column Becoef_Numcyl2010 decimal(10,5) Not NULL;
Query OK, 0 rows affected (0.65 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> Alter table fe2011
    -> Add column predictedval1FE decimal(10,5) Not NULL;
Query OK, 0 rows affected (0.50 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> Alter table fe2011
    -> Add column predictedval2FE decimal(10,5) Not NULL;
Query OK, 0 rows affected (0.55 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> update fe2011
    -> set Becoef_Engd2010 = -4.517;
Query OK, 245 rows affected (0.22 sec)
Rows matched: 245  Changed: 245  Warnings: 0

mysql> update fe2011
    -> set Becoef_Numcyl2010 = -2.9203;
Query OK, 245 rows affected (0.13 sec)
Rows matched: 245  Changed: 245  Warnings: 0

mysql> update fe2011
    -> set predictedval1FE =  50.563 + Becoef_Engd2010*EngDispl;
```

Query OK, 245 rows affected, 25 warnings (0.22 sec)

Rows matched: 245 Changed: 245 Warnings: 25

mysql> update fe2011

-> set predictedval2FE = 52.144 +Becoef_Numcyl2010*Numcyl;

Query OK, 245 rows affected (0.14 sec)

Rows matched: 245 Changed: 245 Warnings: 0

11. Once point 10. is done, Calculate the Predicted value for “feb2011” table by using the input variable from “feb2011” and beta coefficients from “feb2010” table. Insert the predicted values in an additional column in table “feb2010”.

mysql> select*from fe2011 limit 5;

+----------+--------+---------+----------+-------------+-----------------+------------------+--------------------+-----------
-----+--------------+----------------+------------------+----------------+----------------+

| EngDispl | NumCyl | FE | NumGears | TransLockup | TransCreeperGear | IntakeValvePerCyl |
ExhaustValvesPerCyl | VarValveTiming | VarValveLift | Becoef_Engd2010 | Becoef_Numcyl2010 |
predictedval1FE | predictedval2FE |

+----------+--------+---------+----------+-------------+-----------------+------------------+--------------------+-----------
-----+--------------+----------------+------------------+----------------+----------------+

| 5.9 | 12 | 22.9258 | 6 | 0 | 0 | 2 | 2 | 0 | 0
| -4.51700 | -2.92030 | 23.91270 | 17.10040 |

| 4.2 | 8 | 26.7678 | 6 | 0 | 0 | 2 | 2 | 1 | 0 |
-4.51700 | -2.92030 | 31.59160 | 28.78160 |

| 4.2 | 8 | 24.301 | 6 | 0 | 0 | 2 | 2 | 1 | 0 |
-4.51700 | -2.92030 | 31.59160 | 28.78160 |

| 5.2 | 10 | 24.3325 | 6 | 0 | 0 | 2 | 2 | 1 | 0
| -4.51700 | -2.92030 | 27.07460 | 22.94100 |

| 5.2 | 10 | 23.0667 | 6 | 0 | 0 | 2 | 2 | 1 | 0
| -4.51700 | -2.92030 | 27.07460 | 22.94100 |

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-----+--------------+----------------+------------------+----------------+----------------+

5 rows in set (0.00 sec)

The first part Excel Analytics is submitted separately as submission in this project 1.1

Acknowledgement

This is a quite interesting project and I have gained a lot of knowledge about Excel analytics, MYSQL and finding the linear relationship in R, Excel graphs are very much interesting. I thank the institute Acadgild and the Mentors Mr. Sunil who taught us the R Excel, MYSQL and other subjects to understand the Analytics. I thank the support coordinator Mr. Anuj for guiding me to understand the project related queries and complete the project on time. I once again thank Acadgild for enlighten me on Machine learning through online teaching and various coding support through the support coordinators. Thank you Acadgild.