

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 “fe2011” table by using the input variable from “fe2011” and beta coefficients from “fe2010” table. Insert the predicted values in an additional column in table “fe2010”.

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.

```
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

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

	4.7		8		28.0198		6		5.9
	4.7		8		25.6094		6		4.2
	4.2		8		26.8		6		4.2
	4.2		8		25.0451		6		5.2
	5.2		10		24.8		6		5.2
	5.2		10		23.9		6		3
	2		4		39.7256		6		1.5
	6		12		24.4		6		1.5
	3		6		39.7103		6		6.3
	3		6		38.7896		6		6
	3		6		33.6296		7		6.2
	3		6		35.2678		6		3.6
	8		16		17.8		7		3.8
	6.2		8		27.1		6		3.4
	6.2		8		34.3493		6		3.4
	6.2		8		35.8		6		5
	7		8		33.7		6		3.8

	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 (0.50sec)
```

```
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> Alter table fe2011
```

```
-> Add column predictedval2FE decimal(10,5) Not NULL;
```

```
Query OK, 0 rows affected (0.55sec)
```

```
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> update fe2011
```

```
-> set Becoef_Engd2010= -4.517;
```

```
Query OK, 245 rows affected (0.22sec)
```

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

```
mysql> update fe2011
```

```
-> set Becoef_Numcyl2010= -2.9203;
```

```
Query OK, 245 rows affected (0.13sec)
```

```
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 |
```

```
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+  
-----+-----+
```

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. Mohit & Mr. Gaurav, who taught us the R and related subjects to understand the Analytics

Thank you Acadgild!