

Question-1:

From the two separate curves set for new cases and new deaths daily, it can be inferred that there is a dependency on both the variables. When the cases increased, deaths also increased and when cases decreased, deaths also decreased.

Question 2:

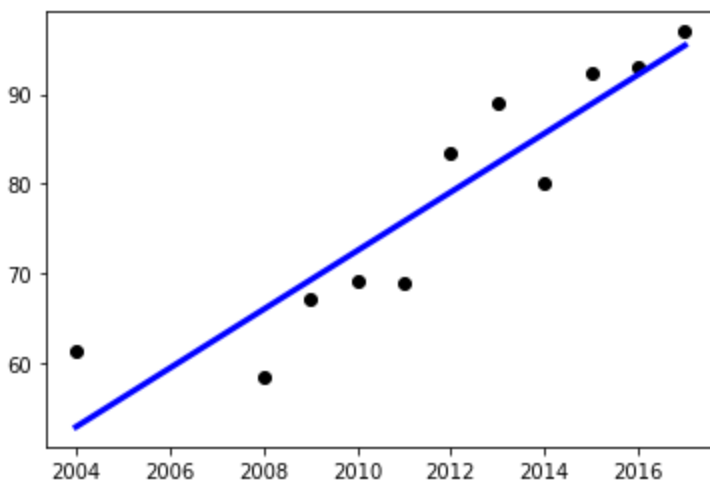
The linear regression model was performing average in predicting the new deaths due to covid-19. The problem was in linear regression the fitting line is monotonic, however if we observe the graph, the deaths were not monotonic in nature. At some intervals they increased and in some they decreased. So, linear regression could not capture this pattern and thereby predict with high accuracy.

Thereby, the validation error is around 9000.

Question 3:

The linear regression was performing really well in this problem as the data showed linear growth when the data was ordered with respect to the independent variable.

I also tried to plot the graph through python3 and this was the result:

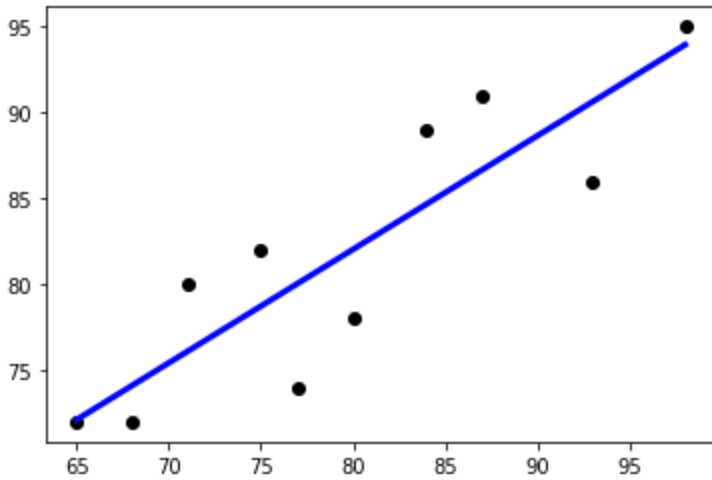


Question 4:

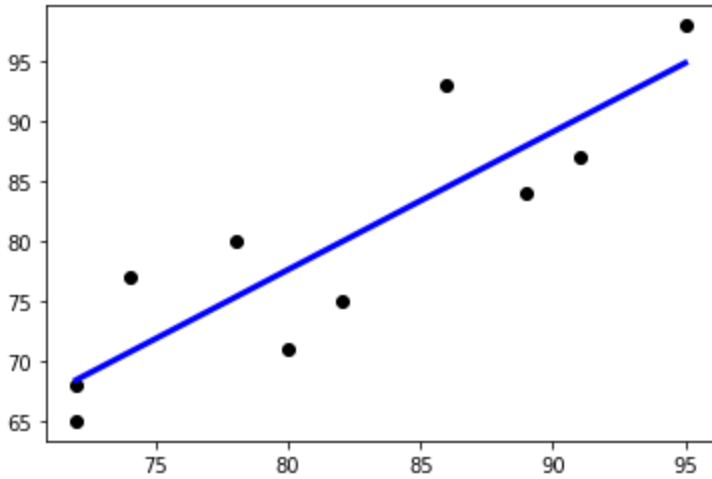
When X and Y are taken as independent variables respectively, they showed similar results when transformed that is one of the matched closely with the inverse of the other.

I also tried to plot the graph through python3 and this was the result:

X as independent variable:



Y as independent variable:

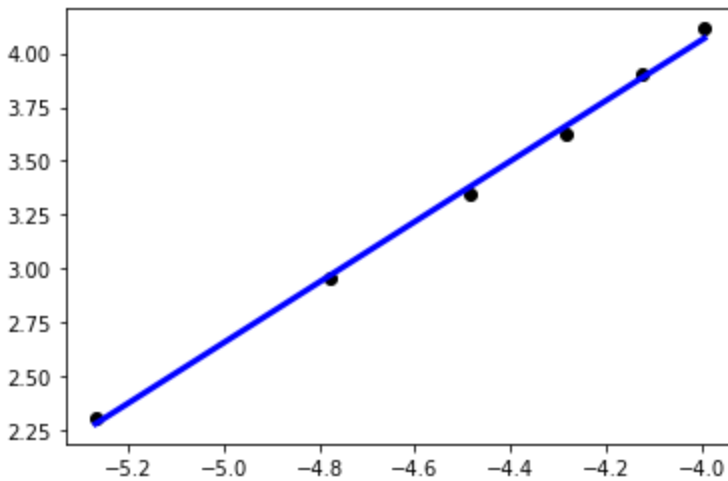


Question 5:

This was an interesting problem as an equation with power greater than 1 and non-integer in nature was predicted using linear regression.

Interestingly, the graph fit correctly with the input data.

I also tried to plot the graph through python3 and this was the result:



Question-6:

This problem gave an insight into how non-linear equations can be predicted using parabolic regression.

Interestingly, the graph fit correctly with the input data.

I also tried to plot the graph through python3 and this was the result:

