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Problem1 Writeup

Estimated Functions:

Based on the Following Output ->

$$\widehat{y_1}(x) = a_1 x + b$$

$$\widehat{y_2}(x) = a_2 x^2 + a_1 x + b$$

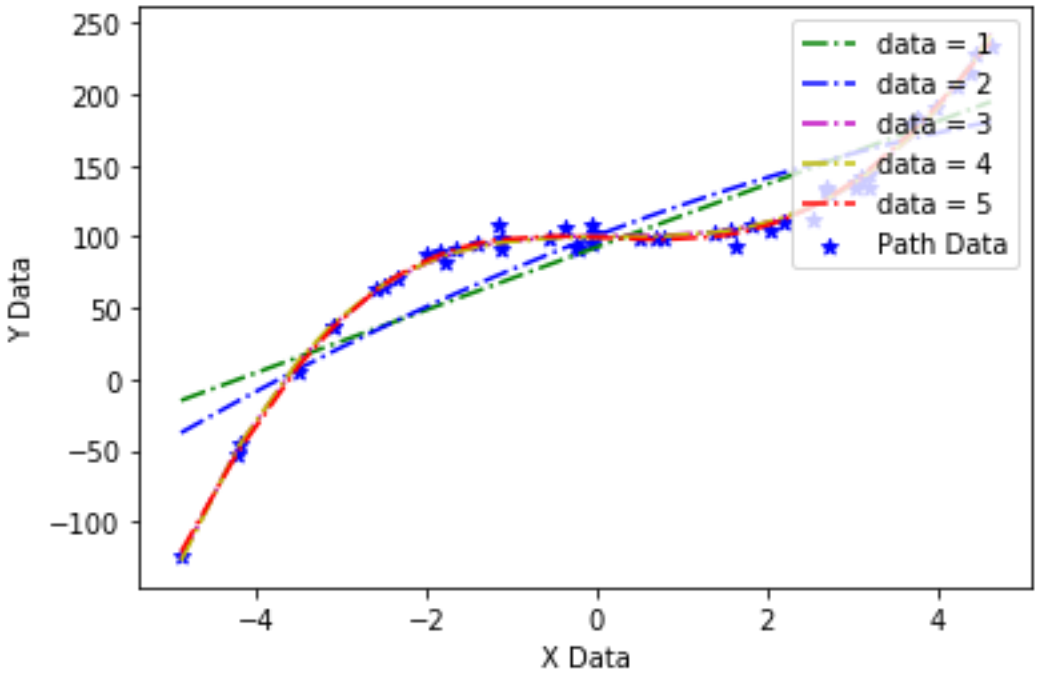
$$\widehat{y_3}(x) = a_3 x^3 + a_2 x^2 + a_1 x + b$$

$$\widehat{y_4}(x) = a_4 x^4 + a_3 x^3 + a_2 x^2 + a_1 x + b$$

$$\widehat{y_5}(x) = a_5 x^5 + a_4 x^4 + a_3 x^3 + a_2 x^2 + a_1 x + b$$

```
Y1: a1 = 21.99190792
, b = 92.70531403


Y2: a2 = -1.15834068
,a1 = 22.60822925
, b = 100.79905593


Y3: a3 = 1.66680649
 , a2 = -1.19334469
 , a1 = 0.39581103
, b = 100.43721865


Y4: a4 = -1.43365571e-02
, a3 = 1.66770942e+00
 , a2 = -9.05694362e-01
, a1 = 3.39499592e-01
, b = 9.97620446e+01


Y5: a5 = -2.31737037e-02
 , a4 = -1.96196620e-02
, a3 = 2.27429003e+00
 , a2 = -8.64397166e-01
 , a1 = -2.65996605e+00
, b = 9.94138526e+01
```

Data Visualization:



The data seems to best follow a fifth order polynomial (a two curves line) which can be seen from the low error between the estimated regression function y 5hat (x), and the data given based on the plot above.

Measuring the new data point x = 2, the predicted y value is approximately : 107.775