CPT_S 534 HW3

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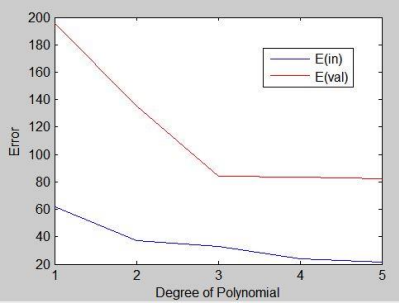
1. **Calculate E_{val} at each degree(1-5)**

Degree(order)	1	2	3	4	5
E_{val}	195.6959	135.2558	84.3556	83.6796	82.5139
E_{in}	67.7956	37.0746	32.8439	23.7083	21.8037

2. **Plot your result to find the "elbow" in E_{val} and best complexity for data mining**



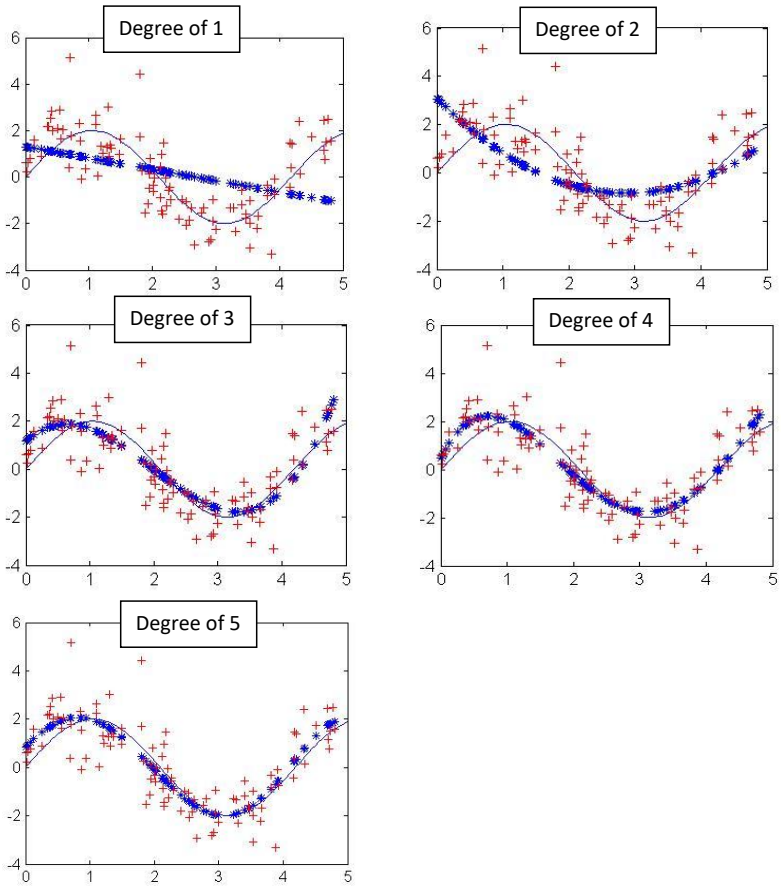
For the graph above, the elbow degree is 3, because after degree of 3 there is no significant decrease of the error.

3. **Use the full data set to find the optimum polynomial of best complexity**
   Show this result as plot of data and fit on the same set of axes.
   Report the minimum sum of squared residuals and coefficient of determination

   Figures for degree 1 to 5:

批注 [Y1]:

批注 [Y2R1]:



The optimum polynomial of the complexity is 3, because after degree of 3 there is no significant improve of data fitting.

Degree	**1**	**2**	**3**	**4**	**5**
Sum of squared residuals(E_{in})	250.4270	175.9094	105.7786	97.4958	94.5210
Coefficient of determination	0.1481	0.4016	0.6402	0.6684	0.6785

The minimum sum of squared residuals is 94.5210