Quadratic Polynomial Regression Model – Solved Example

* Let the quadratic polynomial regression model be

a1 and a2 are called the linear effect parameter and quadratic effect

* The values of **, and** are calculated using the following system of equations:

| **x** | **y** |
| --- | --- |
| 3 | 4.5 |
| 4 | 5.2 |
| 5 | 6.8 |
| 6 | 7.5 |
| 7 | 9.5 |

| x | y |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
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Substitute values in equation and find a0,a1and a2

Find predicted y

| x | y (predicted)(  ) | Y pred -Y |
| --- | --- | --- |
| 2.5 |  |  |
| 210 |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

R^2

R^2= ∑(y p -ẏ)2 / ∑(y- ẏ) 2

| x | y (predicted)(  ) | **y p -ẏ** | **(y p -ẏ)2** | **y- ẏ** | **(y- ẏ) 2** |
| --- | --- | --- | --- | --- | --- |
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