Theory - hw2

November 12, 2017

1 1

$X_1, X_2, ..., X_n$ $y_1, y_2, ..., y_n$.
$M = \frac{1}{n}\sum_{i=1}^{n} y_i$.
- ξ $y_1, y_2, ..., y_n$.
MSE, $\widehat{y}$,:
$E(\sum_{i=1}^{n}(\widehat{y} - y_i)^2) = \sum_{i=1}^{n} E(\widehat{y} - y_i)^2 = \sum_{i=1}^{n} Ey_i^2 - 2\sum_{i=1}^{n} Ey_i\widehat{y} + \sum_{i=1}^{n} E\widehat{y}^2$ 1- 2- :
1- ,
2- $EM = M$, $E\frac{1}{n}\sum_{i=1}^{n} y_i = EM = M$
3-e : $EM^2 = M^2$, $E\xi^2$, $E\xi^2 \geq (E\xi)^2 = M^2$,
MSE , , .

2 2

, MSE, , . , MSE , , MSE , , , ( ) , scipy.optimize .