Regression Analysis (회귀 분석) 개념

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본 영상에서 다룰 내용

CODING X

- 회귀에 대한 개념

Regression (회귀)

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- 목적: 숫자화된 데이터로 예측하는 것

회귀 예제

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- Forecast high temperature for next day
- Estimate average house price for a region
- Determine demand for a new product
- Predict power usage

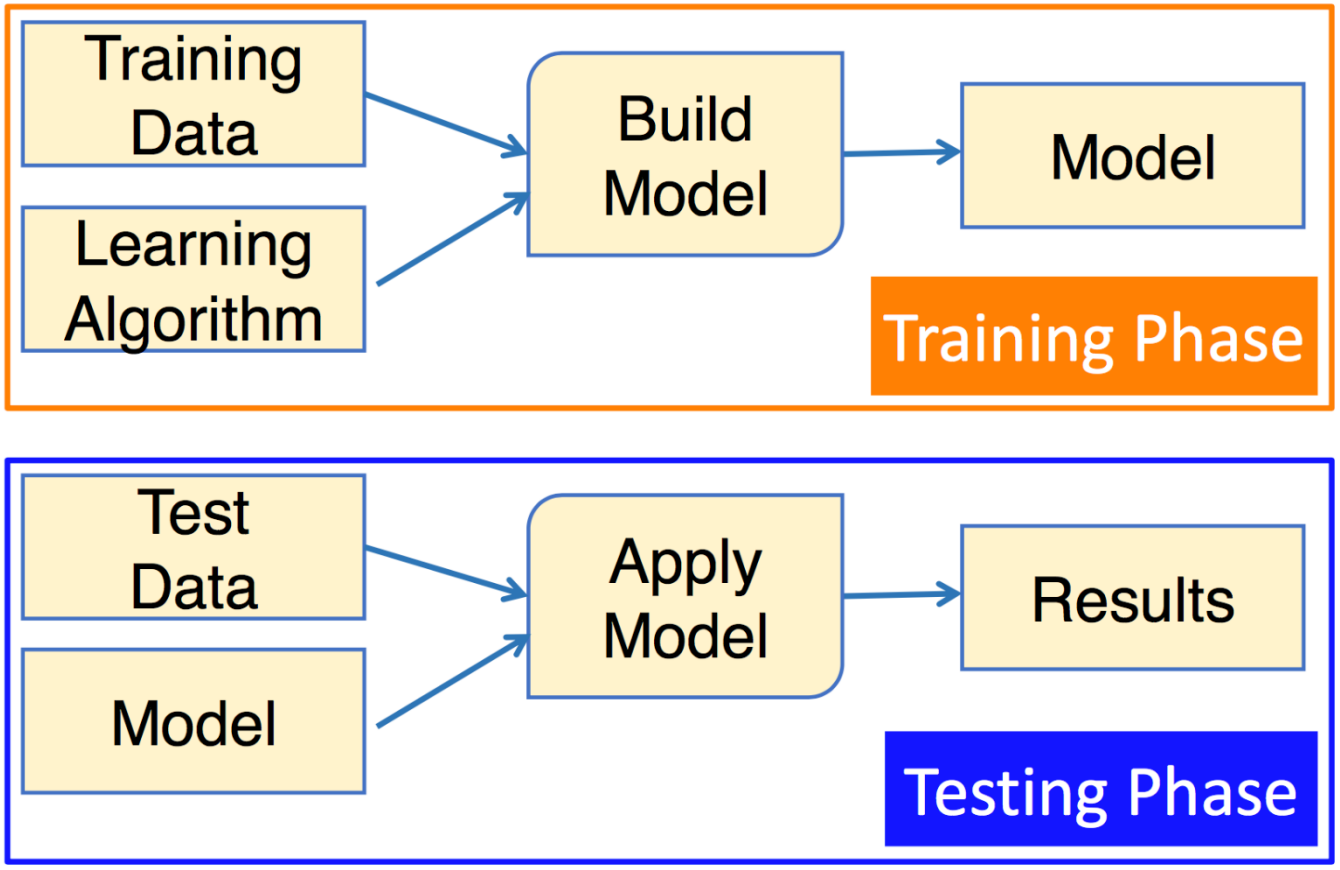
회귀는 지도학습

Input variables

Target variables

Today's High	Today's Low	Month	Tomorrow's High
79	64	July	81
60	45	October	58
68	49	May	65
57	47	January	54

훈련 과 테스트


Training Data
Learning Algorithm
Build Model
Model
Training Phase
Test Data
Model
Apply Model
Results
Testing Phase

Datasets

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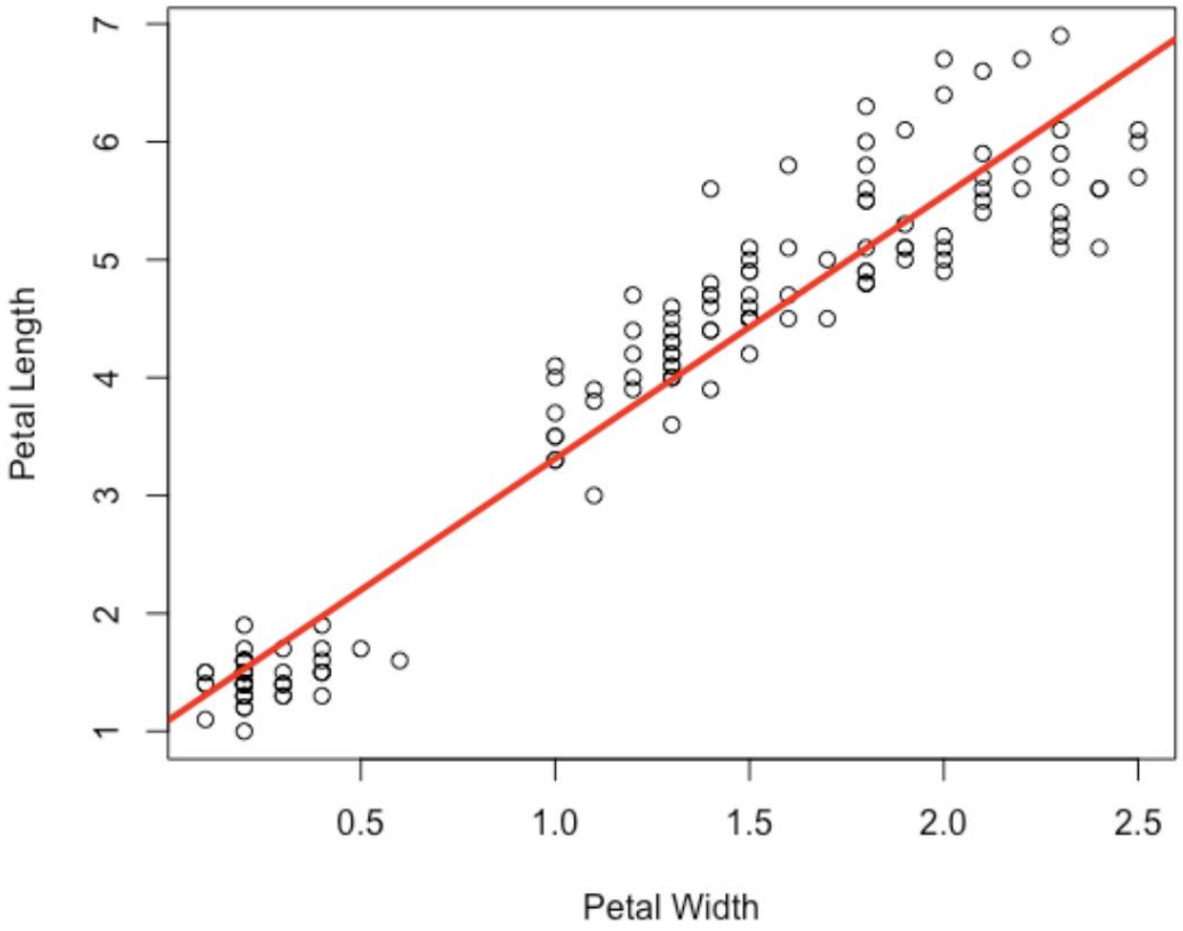
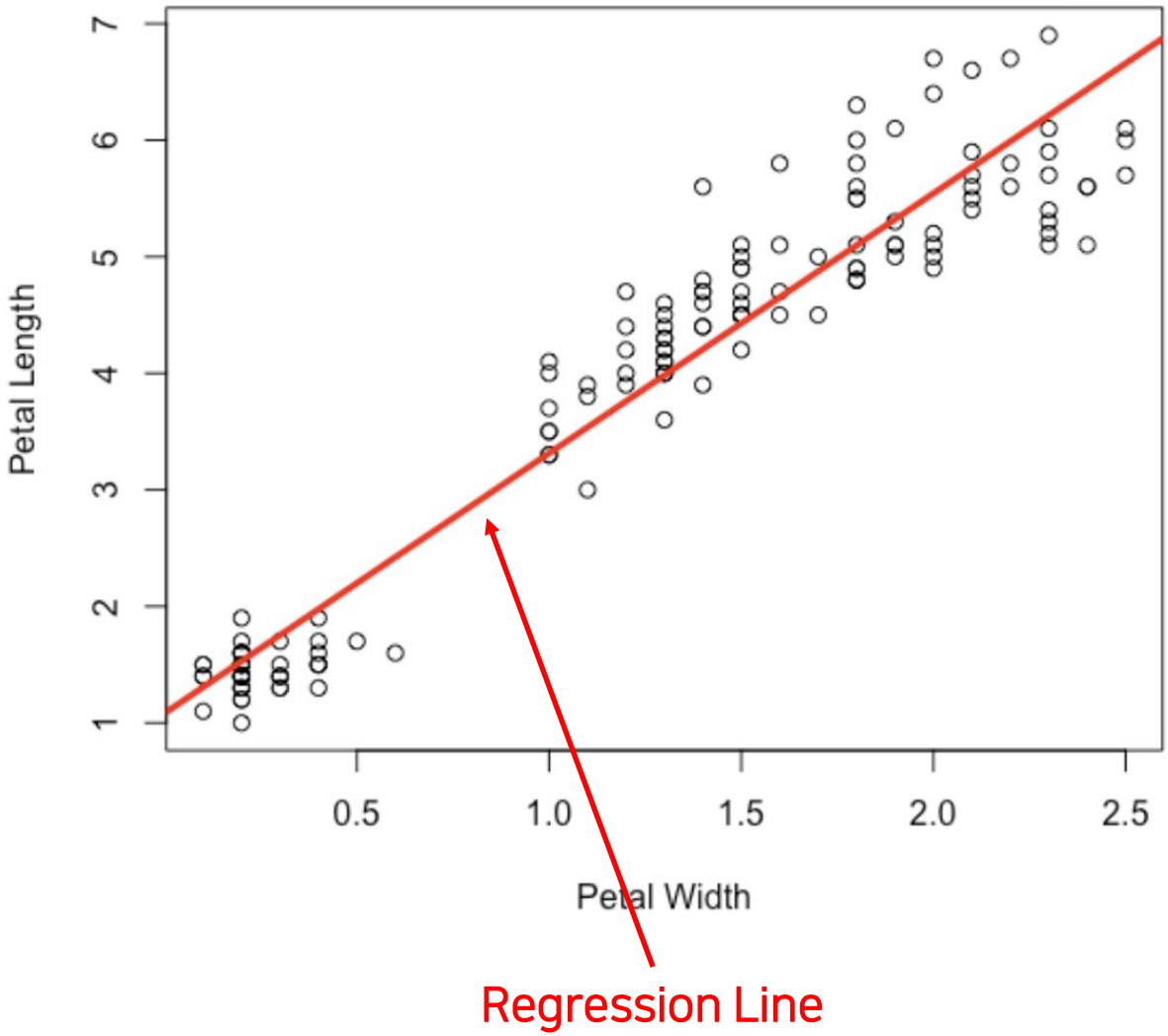
Training Data	Validating Data	Test Data
모델 파라미터 조절 (70~80%)	Overfitting (오버피팅)을 줄이기 위해 Parameter (파라미터) 결정 (5~10%) 일반적인 성능 평가	새로운 데이터에 모델 성능 평가 (15~20%)

선형 회귀 모델



Regression Task(회귀 작업):
주어진 Petal Width에서 Petal Length 를 예측하시오.

선형 회귀 모델


Petal Length
Petal Width
1
2
3
4
5
6
7
0.5
1.0
1.5
2.0
2.5
Regression Line

선형 회귀 모델

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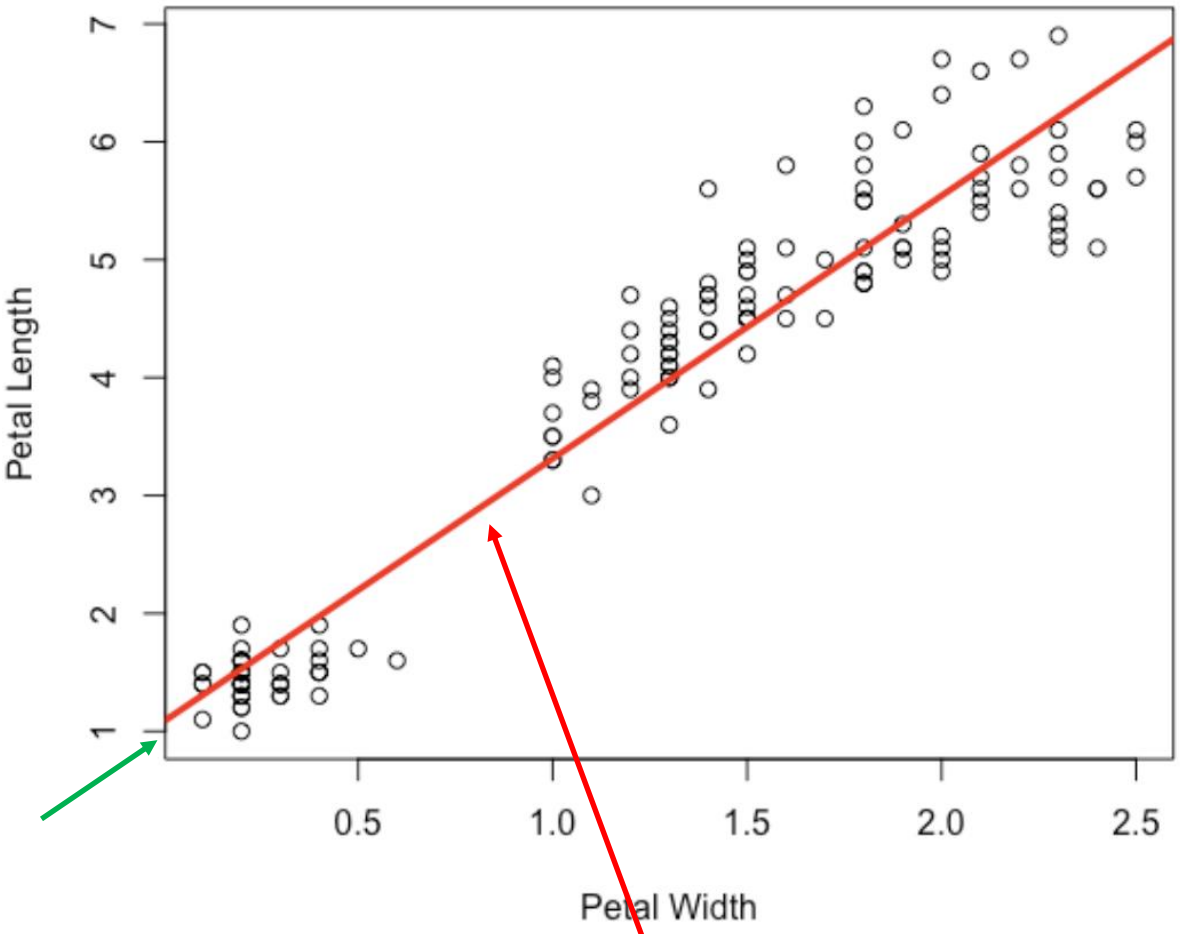


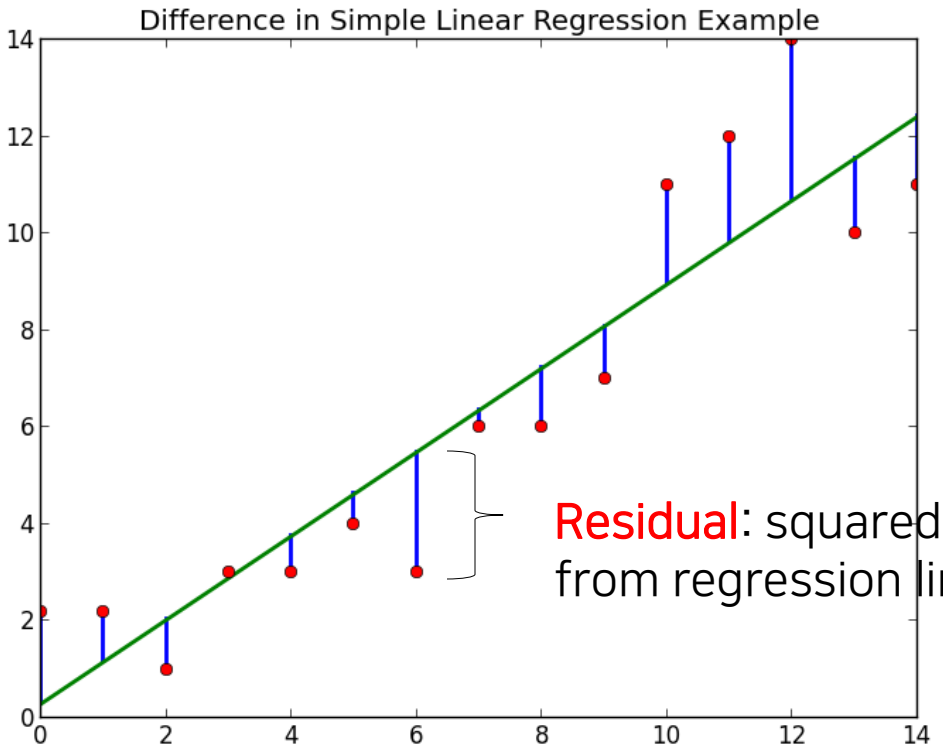
b: y-intercept

$$y = mx + b$$

Regression Line (m: slope)

(m and b are model parameters)

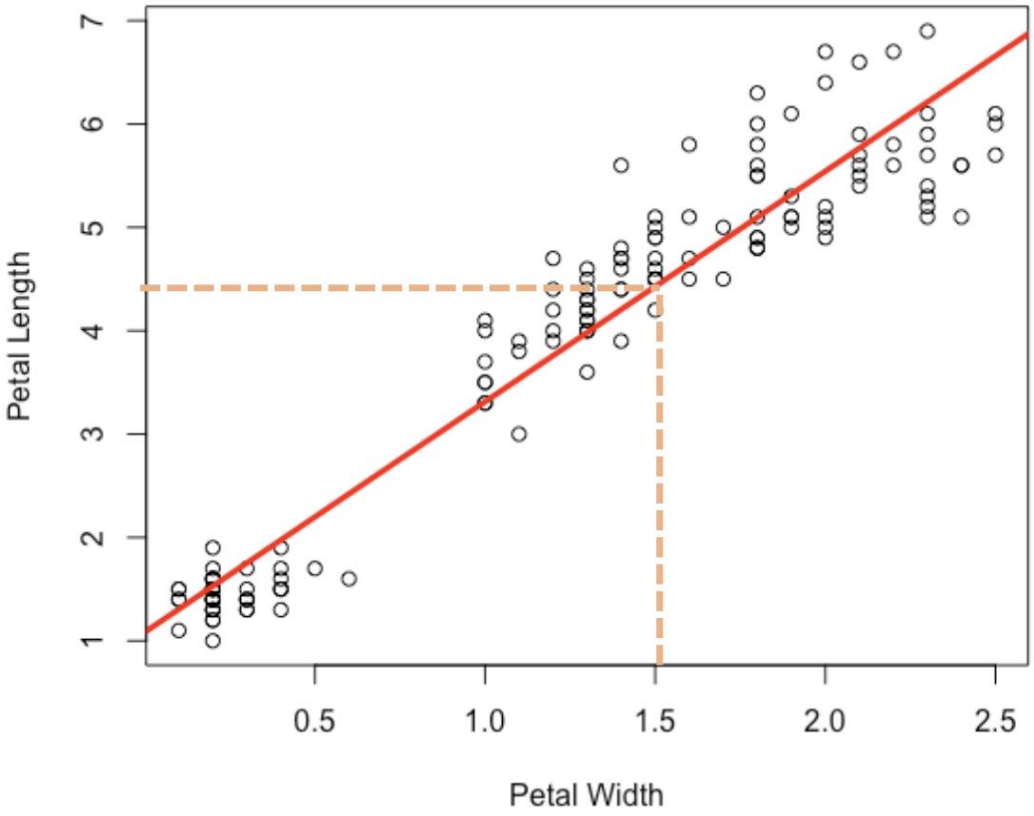
최소 제곱법



Residual: squared distance from regression line

Goal: find regression line that makes sum of residuals as small as possible

선형 회귀 모델



Applying Model:

꽃잎 폭 = 1.5,

꽃잎 높이 = 4.5

다음 영상에서 배울 내용

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- 지도학습 회귀(regression) 알고리즘 학습

수고하셨습니다