

---

# Curse of Dimensionality

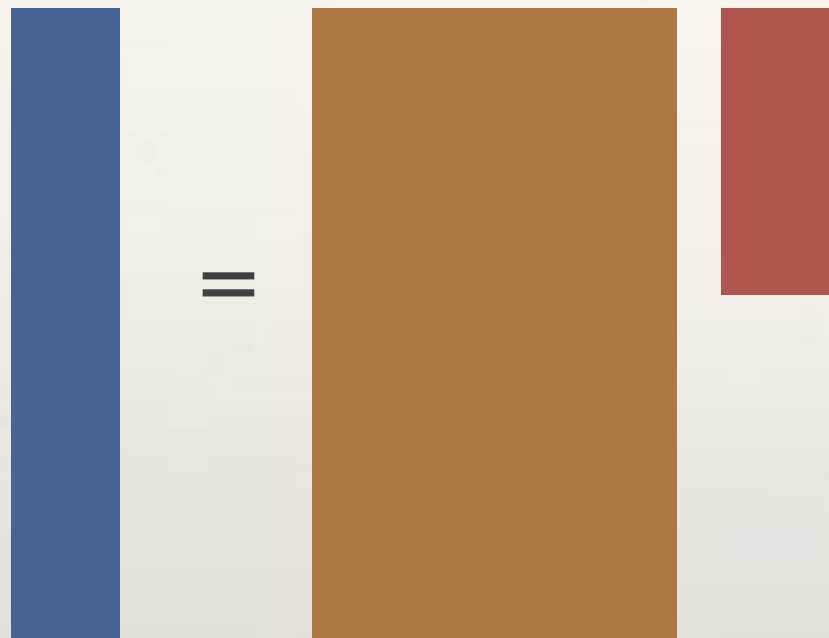
---

- ❖ Curse of Dimensionality in Classification:
  - ❖ 1NN (one-nearest-neighbor) predicts perfectly on the training data
  - ❖ Illustration on how dimensionality changes the performance of linear classifiers: <http://www.visiondummy.com/2014/04/curse-dimensionality-affect-classification/>

---

# Curse of Dimensionality

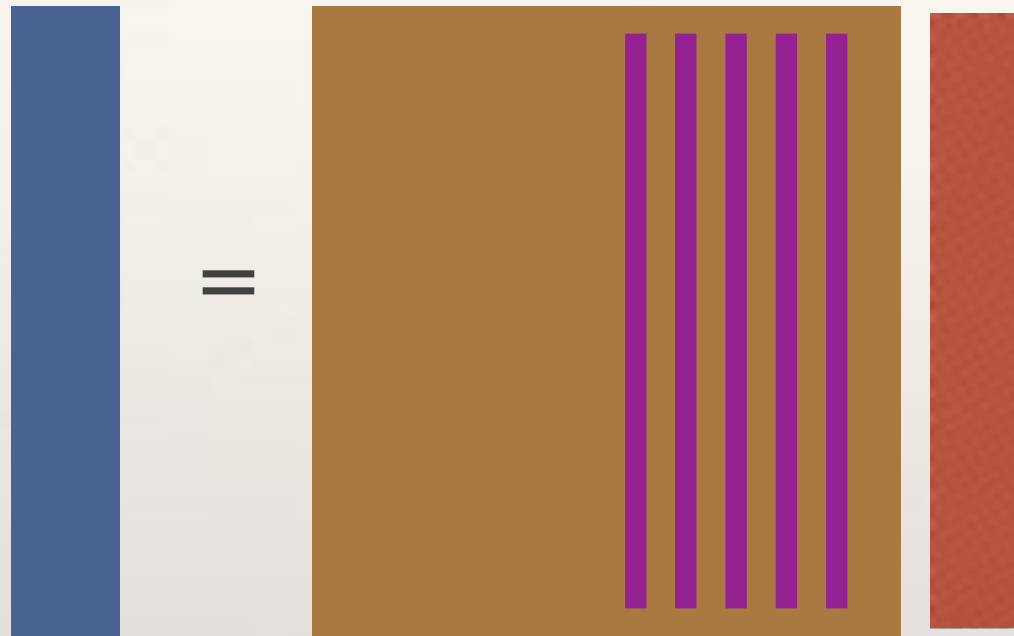
---



$$y_{n \times 1} = X_{n \times p} w_{p \times 1}$$

Curse of Dimensionality in Regression

# Curse of Dimensionality



$$y_{n \times 1} = X_{n \times n} w_{n \times 1}$$

$n$  equations and  $n$  parameters  
*Perfect fit on the training data!*