

## 2\_model\_representation

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In [ ]: import numpy as np # Numpy

In [ ]: weight_vector = np.array([[1], [1], [1]]) # Weight Vector
        x_vector = np.array([[3], [4], [5]])

In [ ]: weight_vector.T.dot(x_vector) # 1 * 3 + 1 * 4 + 1 * 5 = 12

In [ ]: import pandas as pd

In [ ]: data_url = 'data/housing.data' #Data URL
        df_data = pd.read_csv(data_url, sep='\s+', header = None) #csv , separate , Column
        df_data.columns = ['CRIM', 'ZN', 'INDUS', 'CHAS', 'NOX', 'RM', 'AGE', 'DIS', 'RAD', 'TAX']
        df_data.head()

In [ ]: df_data['weight_0'] = 1 # weight 0
        df_data= df_data.drop("MEDV", axis=1) #Y
        df_data.head()

In [ ]: df_matrix = df_data.as_matrix() # Matrix Data
        weight_vector = np.random.random_sample((14, 1))

In [ ]: df_matrix.dot(weight_vector)

In [ ]: df_data.values.dot(weight_vector)

In [ ]:
```