

# Python (1/3)

- Download data set **regression.csv** from moodle

```
# loading libraries
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt

# loading training data
data = pd.read_csv('regression.csv')
X = data.iloc[:, 0].values
y = data.iloc[:, 1].values
```

```
data.corr()
```

	X	y
X	1.000000	0.949494
y	0.949494	1.000000

# Python (2/3)

## ■ Complete the cost function

```
# ===== Gradient descent algorithm =====  
# Initialization  
theta = [0,0]
```

```
# cost function
```

```
def computeCost(X, y):
```

```
    \\ 回傳
```

$$E(\theta_0, \theta_1) = \frac{1}{2} \sum_{i=1}^m (h_{\theta}(x^{(i)}) - y^{(i)})^2$$

# Python (3/3)

- Complete gradient descent algorithm

```
eta = 0.01
```

```
count = 200
```

```
temp = [0,0]
```

```
for iter in range(1, count+1, 1):
```

```
    \\ update  $\theta_0, \theta_1$ 
```

- 畫出散點圖及最終的迴歸線
- [加分題] 畫出 iteration-cost 圖