```
%matplotlib inline
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
plt.rcParams['figure.figsize'] = (20.0, 10.0)

# Reading Data
data = pd.read_csv('headbrain.csv')
print(data.shape)
data.head()
```

```
# Collecting X and Y
X = data['Head Size(cm^3)'].values
Y = data['Brain Weight(grams)'].values
```

```
(237, 4)
```

```
data
```

	Gender	Age Range	Head Size(cm^3)	Brain Weight(grams)
0	1	1	4512	1530
1	1	1	3738	1297
2	1	1	4261	1335
3	1	1	3777	1282
4	1	1	4177	1590
...	...	...	...	...
232	2	2	3214	1110
233	2	2	3394	1215
234	2	2	3233	1104
235	2	2	3352	1170
236	2	2	3391	1120

237 rows × 4 columns

```
# Mean X and Y
mean_x = np.mean(X)
mean_y = np.mean(Y)

# Total number of values
n = len(X)

# Using the formula to calculate m and c
numer = 0
denom = 0
for i in range(n):
    numer += (X[i] - mean_x) * (Y[i] - mean_y)
    denom += (X[i] - mean_x) ** 2
m = numer / denom
c = mean_y - (m * mean_x)

# Print coefficients
print(m, c)
```

```
0.26342933948939945 325.57342104944223
```

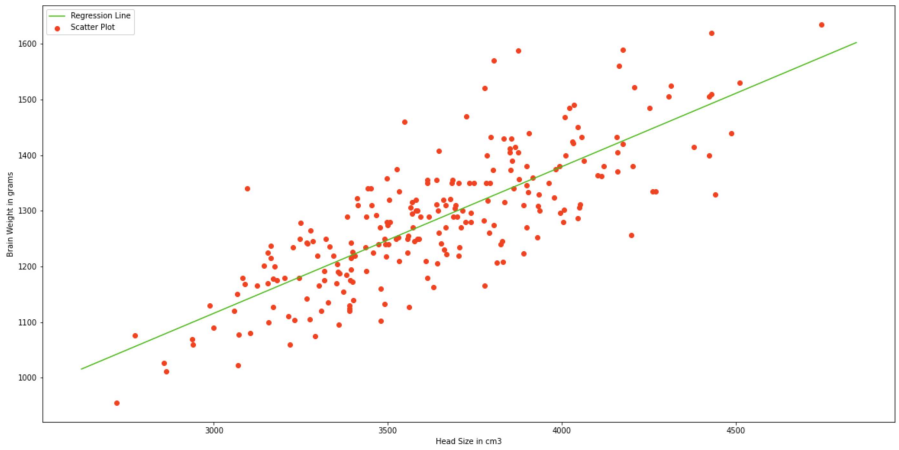
```
y=0.2634*12+2325.573
```

```
# Plotting Values and Regression Line
max_x = np.max(X) + 100
min_x = np.min(X) - 100
# Calculating line values x and y
x = np.linspace(min_x, max_x, 1000)
```

```
y = c + m * x

# Ploting Line
plt.plot(x, y, color='#52b920', label='Regression Line')
# Ploting Scatter Points
plt.scatter(X, Y, c='#ef4423', label='Scatter Plot')

plt.xlabel('Head Size in cm3')
plt.ylabel('Brain Weight in grams')
plt.legend()
plt.show()
```




```
y=0.2634*3000+325.57

print(y)
```

```
1115.77
```