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Practise problem

Task To DO:

Linear Regression $y=b_0+b_1(x)$

1. Find b_0 and b_1 ?
2. Find RMSE and R^2 square?
3. Predict the price for a house with 1000 square feet?

House Price in \$1000s (y)	Square Feet (x)
245	1400
312	1600
279	1700
308	1875
199	1100
219	1550
405	2350
324	2450
319	1425
255	1700

Code and output screenshot:

Q1) ans:

Firstly, finding means:



```
num=0
den=0
for i in range(len(x)):
    num+=(x[i]-x_mean)*(y[i]-y_mean)
    den+=(x[i]-x_mean)**2
b1=num/den
print("slope is: ",b1)
b0=y_mean-(b1*x_mean)
print("intercept is :",b0)
```

```
↳ slope is: [0.10976774]
intercept is : [98.24832962]
```

Q2) ans:

```
[16] y_pred=b0+ b1*x
      print(y_pred)

[[251.92316258]
 [273.87671015]
 [284.85348393]
 [304.06283805]
 [218.99284123]
 [268.38832326]
 [356.20251352]
 [367.17928731]
 [254.66735603]
 [284.85348393]]
```

```
error = y - y_pred
squared_error = np.sum(error**2)
mean_squared_error = squared_error/len(y)
rmse = np.sqrt(mean_squared_error)
print('root mean square error is: ', rmse)
Sum_of_square = np.sum((y - y_mean)**2)
R2 = 1- (squared_error/Sum_of_square)
print('R square is', R2)
```

```
root mean square error is: 36.96696528565469
R square is 0.5808173118722723
```

Qn 3) ans:

Prediction:

```
y_1000=b0+b1*1000
print('The price for house with 1000 square feet is: ', y_1000)
```

```
The price for house with 1000 square feet is: [208.01606745]
```

