Linear regression

x = [5,7,8,9,11]

y = [89,90,97,100,111]

y=mx+c

y=input data

x= input data

m=slope

c=y intercept of line

m=∑(x-ẍ)(y-ẏ) / ∑(x- ẍ)2

**Ster 1** Find x bar and y bar

**Step 2** : find m and c

| x | y | x-ẍ | y-ẏ | (x-ẍ)(y-ẏ) | (x- ẍ)2 |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Find m using m=∑(x-ẍ)(y-ẏ) / ∑(x- ẍ)2

Find c

Find y predict

| x | y (predicted)( y= mx + c) |
| --- | --- |
| 12 |  |
| 14 |  |
| 16 |  |
| 4.5 |  |
|  |  |

Find R ^2

R^2= ∑(y p -ẏ)2 / ∑(y- ẏ) 2

| x | y (predicted)( y= mx + c) | **y p -ẏ** | **(y p -ẏ)2** | **y- ẏ** | **(y- ẏ) 2** |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Find R=