

SIMPLE LINEAR REGRESSION

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Simple
Linear
Regression

Co-efficient

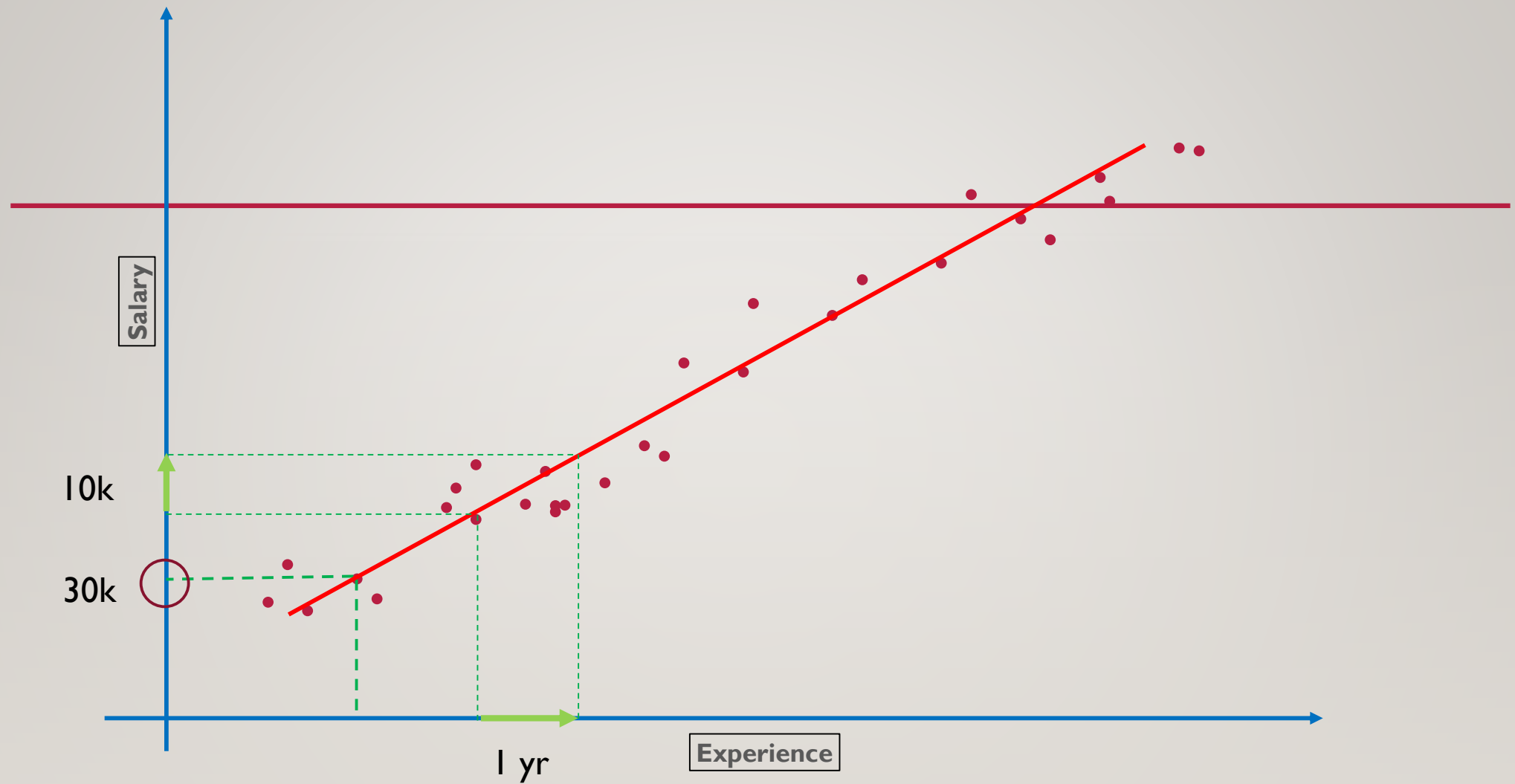
$$y = a * x + b$$

Constant

Dependent variable

Independent variable

The diagram illustrates the components of the simple linear regression equation $y = a * x + b$. A red arrow points from the label 'Co-efficient' to the variable 'a'. Another red arrow points from the label 'Constant' to the variable 'b'. A red arrow points from the label 'Dependent variable' to the variable 'y'. A red arrow points from the label 'Independent variable' to the variable 'x'. The equation is centered on the slide, with the labels and arrows arranged around it to provide context for each part of the formula.



IMPORTING THE LIBRARIES

```
import numpy as np  
import pandas as pd  
import matplotlib.pyplot as plt
```

IMPORTING THE DATA SET

	YearsExperience	Salary
0	1.1	39343.0
1	1.3	46205.0
2	1.5	37731.0
3	2.0	43525.0
4	2.2	39891.0
5	2.9	56642.0
6	3.0	60150.0
7	3.2	54445.0
8	3.2	64445.0
9	3.7	57189.0
10	3.9	63218.0
11	4.0	55794.0
12	4.0	56957.0
13	4.1	57081.0
14	4.5	61111.0

SEPARATING INDEPENDENT AND DEPENDENT VARIABLE

Variable Inspector [-][x]

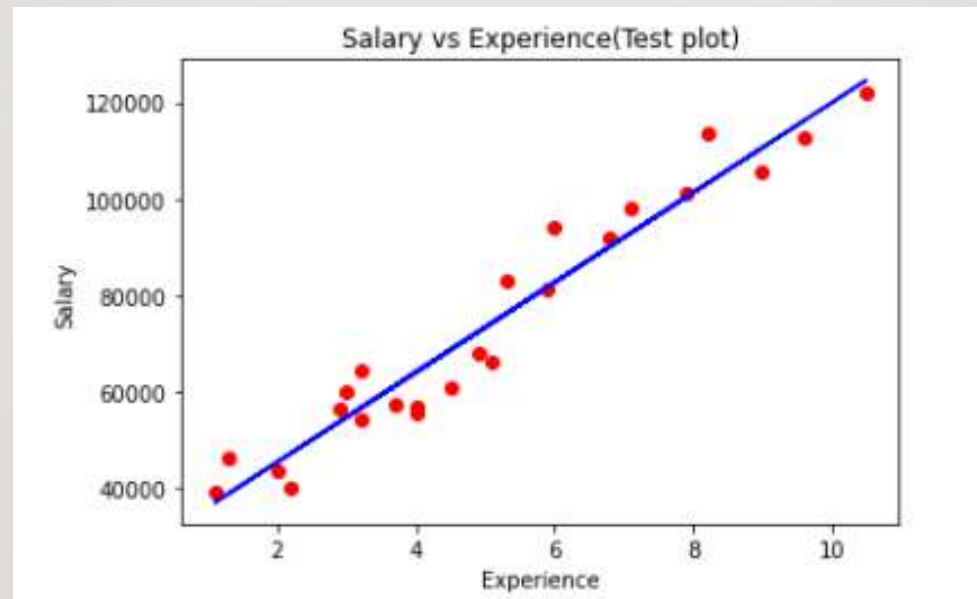
X	Name	Type	Size	Shape	Value
x	s_dataset	DataFrame	608	(30, 2)	YearsExperience Salary 0 ...
x	x	ndarray	240	(30, 1)	[[1.1] [1.3] [1.5] [2.] [2....
x	y	ndarray	240	(30,)	[39343. 46205. 37731. 43525. 398...

SPLITTING THE PREVIOUS DATA INTO TRAIN AND TEST DATA AND CREATING LINEAR REGRESSION MODEL

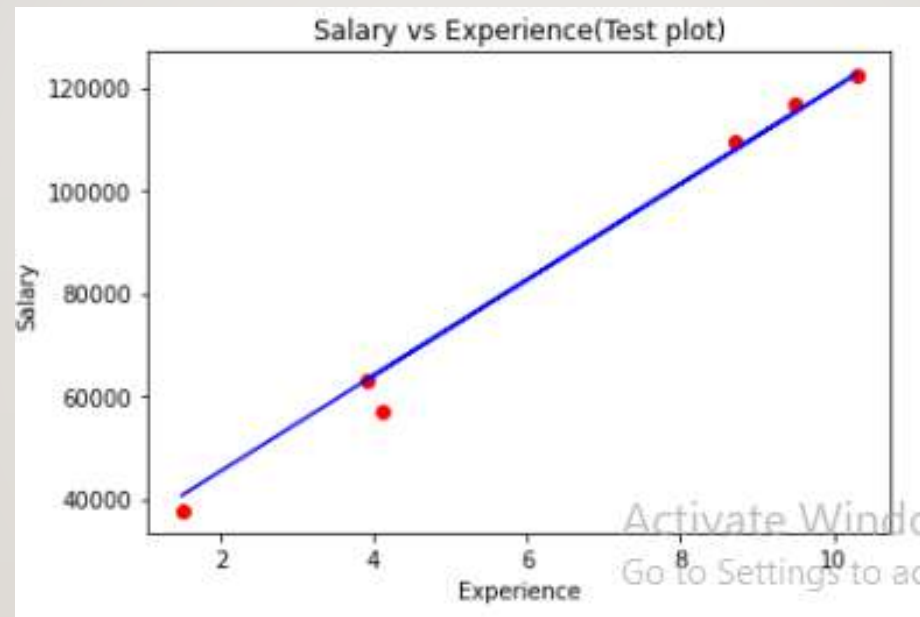
Variable Inspector [\[-\]](#) [\[x\]](#)

X	Name	Type	Size	Shape	Value
x	LinearRegress...	ABCMeta	1192		
x	lr	LinearRegress...	48		LinearRegression(copy_X=True, fit_int...
x	s_dataset	DataFrame	608	(30, 2)	YearsExperience Salary 0 ...
x	x	ndarray	240	(30, 1)	[[1.1] [1.3] [1.5] [2.] [2....
x	x_test	ndarray	48	(6, 1)	[[1.5] [10.3] [4.1] [3.9] [9....
x	x_train	ndarray	192	(24, 1)	[[9.6] [4.] [5.3] [7.9] [2....
x	y	ndarray	240	(30,)	[39343. 46205. 37731. 43525. 398...
x	y__train	ndarray	192	(24,)	[112635. 55794. 83088. 101302. 566...
x	y_pred	ndarray	48	(6,)	[40748.96184072 122699.62295594 649...
x	y_test	ndarray	48	(6,)	[37731. 122391. 57081. 63218. 1169...

PLOTTING THE TRAIN DATA



PLOTTING THE TEST DATA



THANK YOU