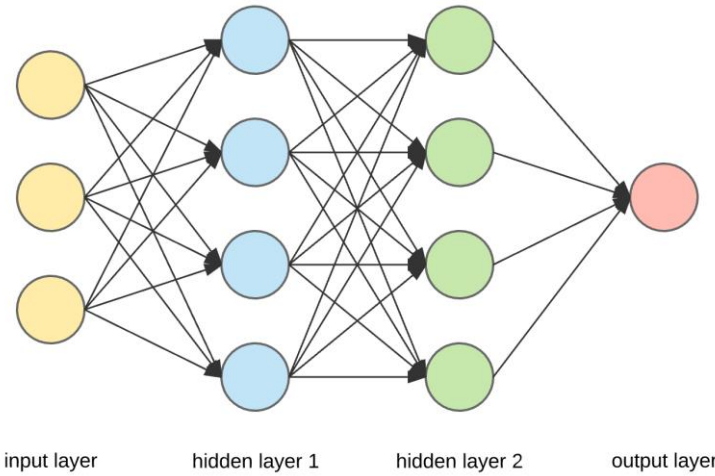
Siddhardhan

Model Parameters & Hyperparameters



Types of Parameters

Parameters

Model Parameters

These are the parameters of the model that can be determined by training with training data. These can be considered as internal Parameters.

- **Weights**
- **Bias**

Y = w*X + b

Hyperparameters

Hyperparameters are parameters whose values control the learning process. These are adjustable parameters used to obtain an optimal model. External Parameters.

- **Learning rate**
- **Number of Epochs**

Model Parameters

Weights: Weight decides how much influence the input will have on the output.

Applicant's Details

Name	Degree	College	C	C++	Python	Height	Weight	No. of Backlogs
A	B.E	ABC college	✓	✗	✓	165	72	1
B	M.E	XYZ College	✓	✓	✗	168	80	0
C	M.C.A	State College	✓	✗	✗	175	67	0
D	B.E	ZYX College	✓	✓	✓	168	70	2

✗ ✓ ✓ ✓ ✓ ✓ ✗ ✗ ✓

Model Parameters

Weights:

Weight decides how much influence the input will have on the output.

$$Y = w*X + b$$

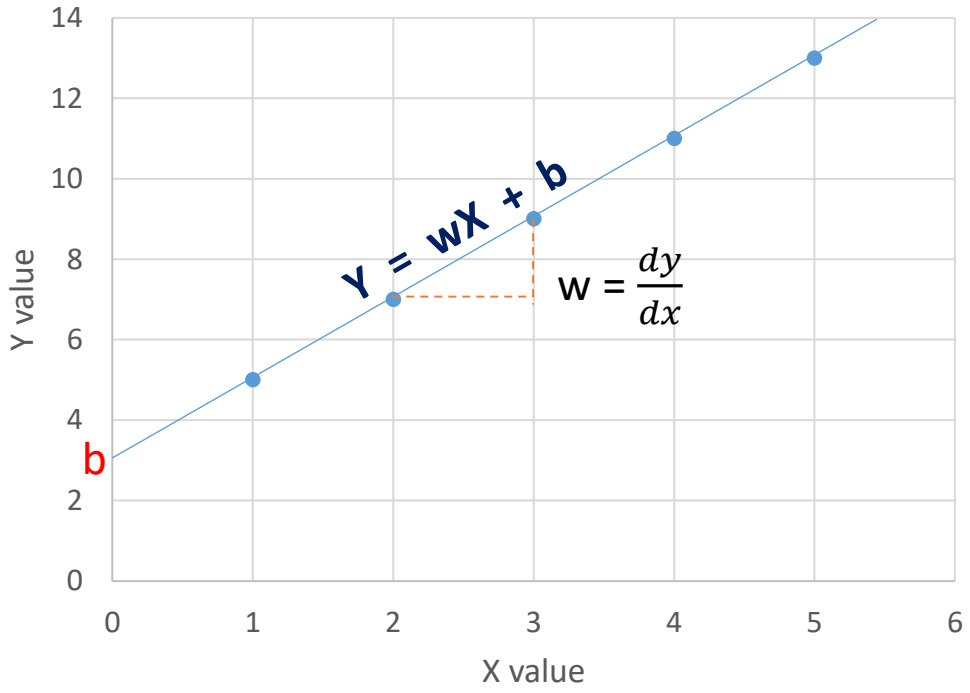
$$Y = w_1*X_1 + w_2*X_2 + w_3*X_3 + b$$

X – feature or input variable
Y – Target or output variable
w – weight
b – bias

Bias:

Bias is the offset value given to the model. Bias is used to shift the model in a particular direction. It is similar to a Y-intercept. ‘b’ is equal to ‘Y’ when all the feature values are zero.

Linear Regression



Y = wX + b

X --> X value
Y --> Y value
w --> weight
b --> bias

Bias:

Bias is the offset value given to the model. Bias is used to shift the model in a particular direction. It is similar to a Y-intercept. 'b' is equal to 'Y' when all the feature values are zero.

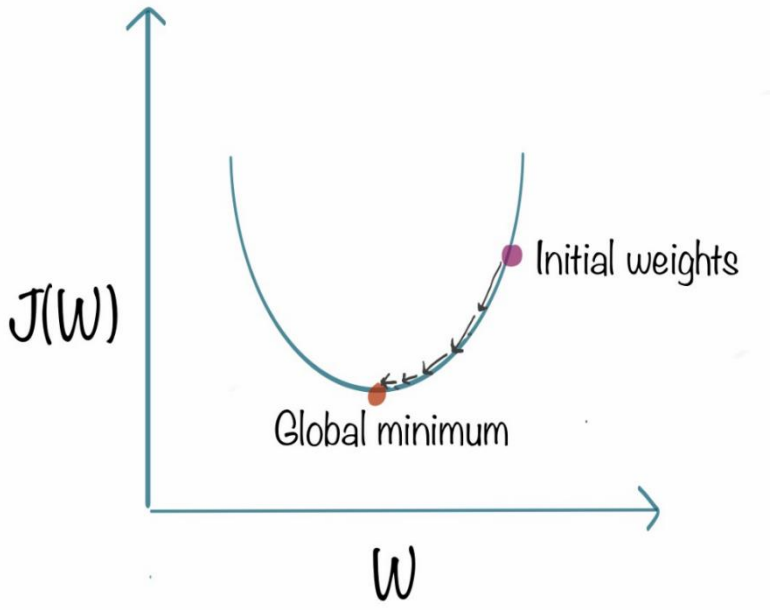
Hyperparameters

Learning Rate:

The **Learning Rate** is a tuning parameter in an optimization algorithm that determines the step size at each iteration while moving toward a minimum of a loss function.

Number of Epochs:

Number of Epochs represents the number of times the model iterates over the entire dataset.



Gradient Descent

Types of Parameters

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