Project Deliverables

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Define Architecture of ANN Model:

```
Model: "ANN_Model"

 Layer (type)                 Output Shape              Param #
 input_layer (InputLayer)     (None, 9)                       0
 dense (Dense)                (None, 32)                     320
 dense_1 (Dense)              (None, 16)                     528
 dense_2 (Dense)              (None, 8)                      136
 dense_3 (Dense)              (None, 1)                        9

Total params: 993 (3.88 KB)
Trainable params: 993 (3.88 KB)
Non-trainable params: 0 (0.00 B)
```

The detailed Architecture of ANN Model:

a.   Input Layer:

- Number of Neurons: In this dataset, there are 9 input features, so there are 9 Neurons in the input feature.

- Activation function: In this data, there is no activation function in the input layer.

b. Hidden layer:

We are adding several hidden layers with ReLU activation.

- First Hidden Layer: There are 32 neurons and Activation function is ReLU.

- Second Hidden Layer: There are 16 neurons and Activation function is ReLU.

- Third Hidden Layer: There are 8 neurons and Activation function is ReLU.

Sigmoid Function

$$f(x) = \frac{1}{1+e^{-x}}$$
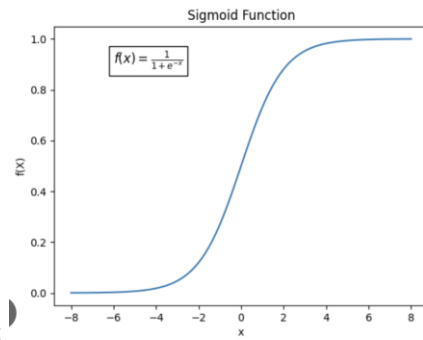
c. Output Layer:

- Number of Neurons: 1 neurons for binary classification.

- Activation Function: Sigmoid, This is a binary classification problem, the sigmoid activation function is ideal as it will output a probability value between 0 and 1.

- Loss Function: Binary Crossentropy

- Optimizer: Adam optimizer, it adjusts learning rates during training.

- Learning Rate: Starting default learning rate is 0.001.