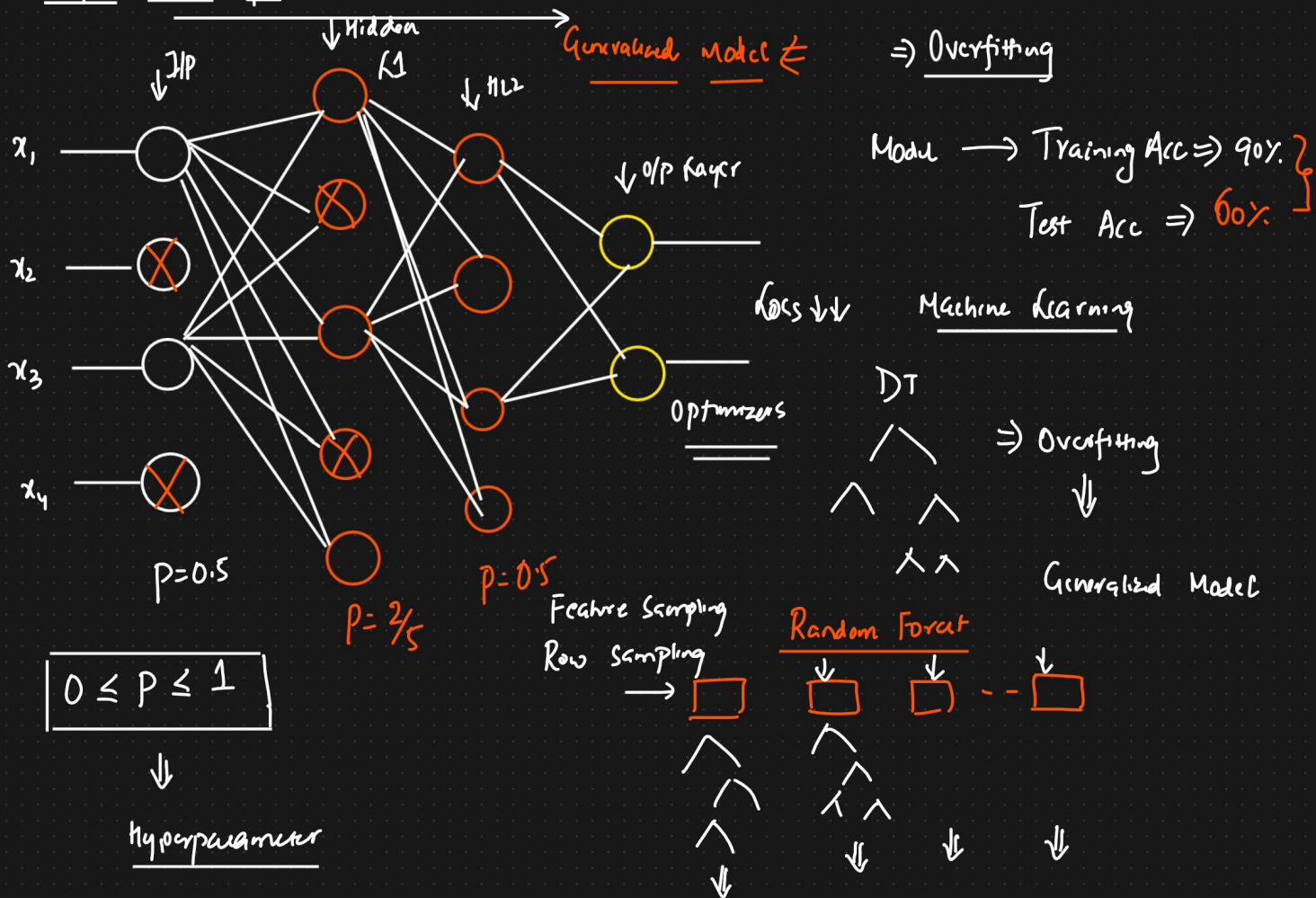
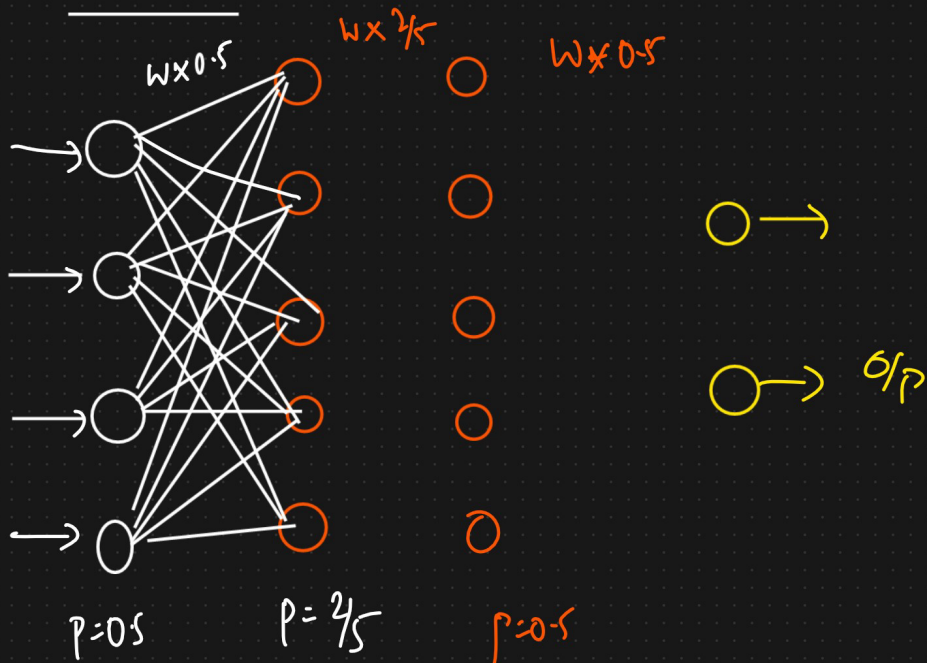


Drop Out layer



Test data



🧠 What is a Dropout Layer (in Deep Learning)?

A Dropout layer is a regularization technique used in neural networks to **prevent overfitting**.

✏️ How it works:

During **training**, the Dropout layer:

- **Randomly turns off (drops)** a percentage of neurons in a layer.
- This means those neurons don't **contribute to forward or backward passes** for that batch.

For example, if you set:

python

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```
Dropout(rate=0.5)
```

➡️ 50% of the neurons in that layer are randomly "shut off" during each training step.

→ *very important*

📌 Why use Dropout?

- It forces the network to **not rely too heavily** on specific neurons.
- Encourages the network to **learn redundant representations**, making it more **robust**.
- Great for **reducing overfitting**, especially in large networks.

📄 In Code (Keras Example):

python

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```
from tensorflow.keras.layers import Dense, Dropout

model.add(Dense(128, activation='relu'))
model.add(Dropout(0.5)) # Drop 50% of neurons
model.add(Dense(10, activation='softmax'))
```