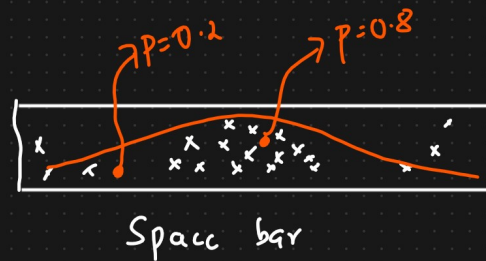# P value

The p value is a number, calculated from a statistical test, that describes **how likely you are to have found a particular set of observations if the null hypothesis were true**. P values are used in hypothesis testing to help decide whether to reject the null hypothesis.

$\nearrow P = 0.2$ $\nearrow P = 0.8$

Out of 100 touches, we touch around 20 times in this region

Space bar

Hypothesis Testing

Eg : Coin is Fair or Not {100 times}

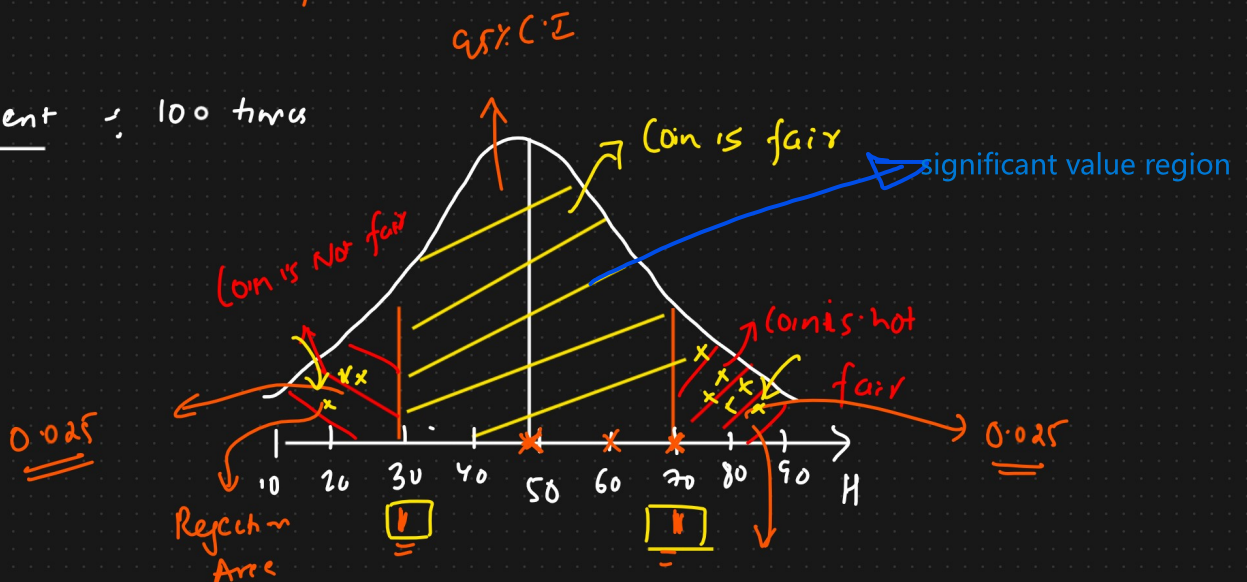$P(H) = 0.5$ $P(T) = 0.5$

① Null Hypothesis :

H_0 : Coin is fair

$P(H) = 0.6$ $P(T) = 0.4$

$P(H) = 0.7$ $P(T) = 0.3$

② Alternate Hypothesis :

H_1 : Coin is not fair

③ Experiment : 100 times

95% C.I

Coin is fair

significant value region

Coin is Not fair

Coin is hot fair

0.025

0.025

10   20   30   40   50   60   70   80   90   H

Rejection Area

Rejection Area

④ Significance Value : $\alpha = 0.05$ ←

$C.I = 1 - 0.05 = 0.95$

⑤ Conclusion

$p <$ Significance value

Reject the Null Hypothesis

else

Fail to Reject the Null Hypothesis