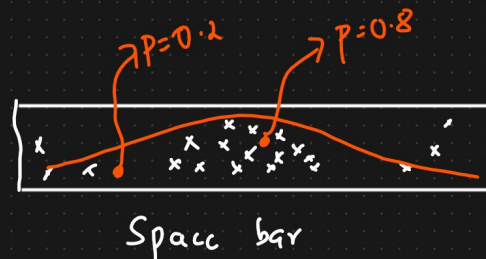# P value

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.

$\nearrow P=0.2$　　　$\nearrow P=0.8$

Space bar

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

Hypothesis Testing

Eg : Coin is Fair or Not {100 times}

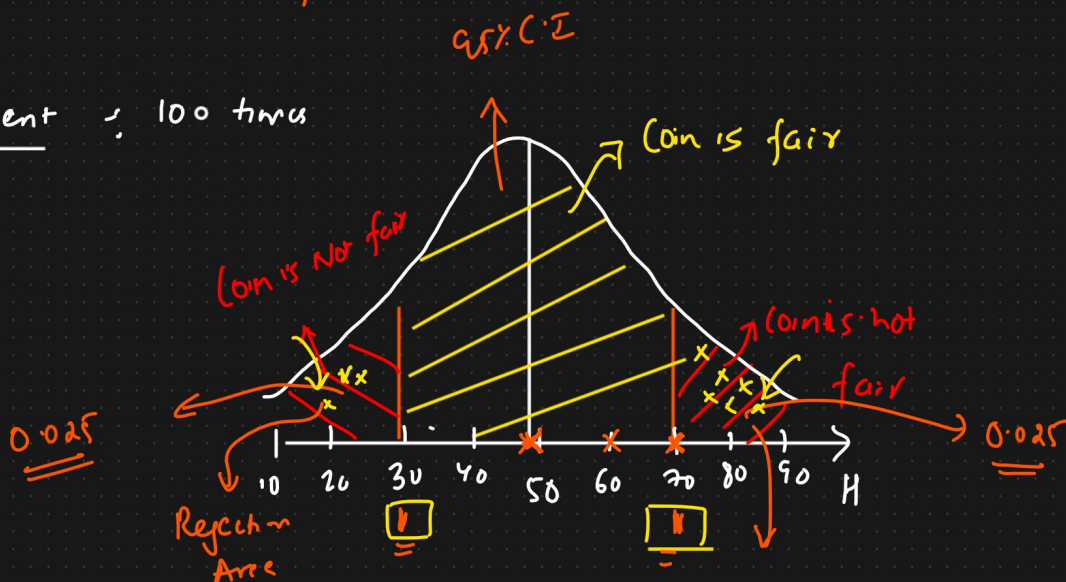$P(H) = 0.5$　　$P(T) = 0.5$

① Null Hypothesis :

$Ho :$ 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

Coin is Not fair

Coin is not fair

0.025

Coin is hot fair

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