DATA SCIENCE WITH R

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HYPOTHESIS TESTING

Introduction to Hypothesis Testing

Basic Framework of a Hypothesis Test

Distance Measures

Central Limit Theorem

Types of Hypothesis Tests

Basic Set up of a Hypothesis Test

Null Hypothesis (H^O):

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- Example: Production process is fine

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Test Distribution:

Basic Set up of a Hypothesis Test

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- Example: Production process is fine

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Test Distribution:

- Appropriate distribution to be used to calculate probability of outcome

Basic Set up of a Hypothesis Test

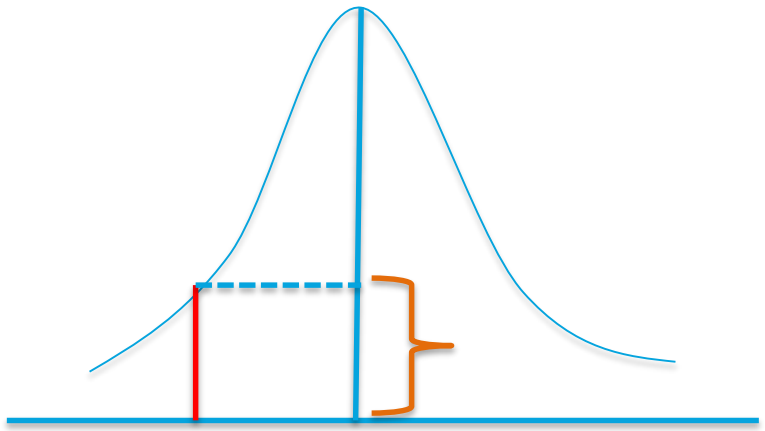
Significance Level (alpha : α)

Basic Set up of a Hypothesis Test

Significance Level (alpha : α)

Criterion used for rejecting the null hypothesis

Red line in figure



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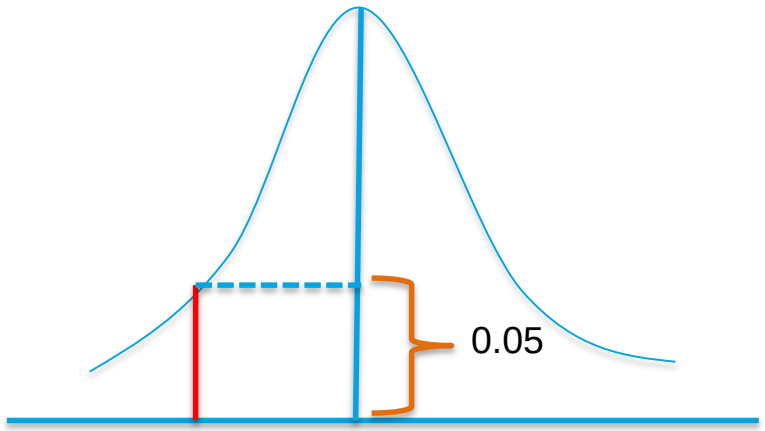

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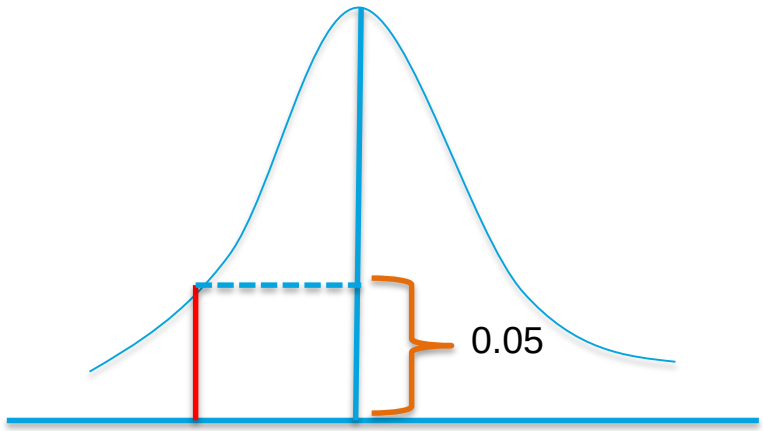

P-Value:

The probability of outcomes more extreme than the observed outcome, assuming the null is true

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Significance Level (alpha : α)

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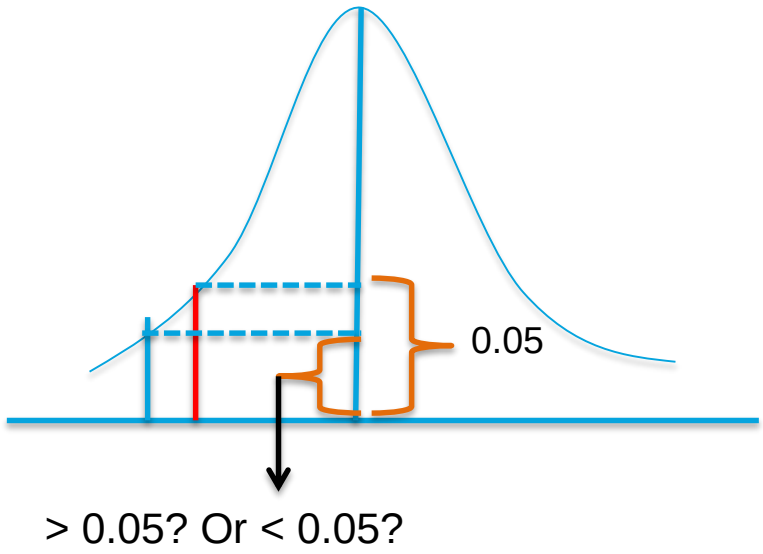


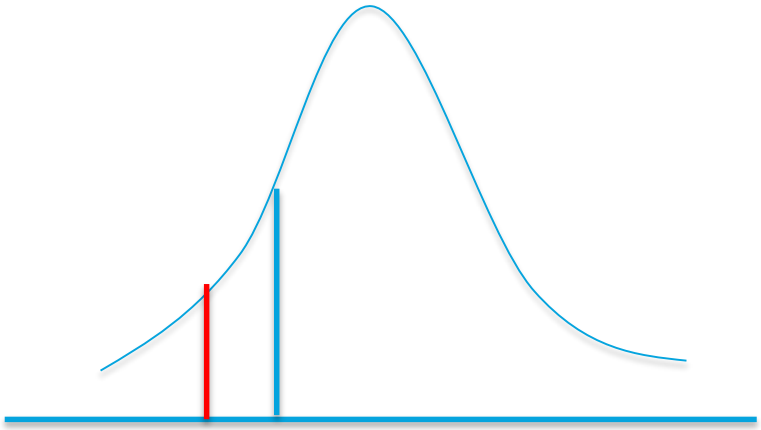
P-Value:

The probability of outcomes more extreme than the observed outcome, assuming the null is true

Area to the left of the blue line

Basic Set up of a Hypothesis Test

What if p-value > significance level?



Conclusion?

Recap

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- **P –value** (using norm.dust) function = 0.07

Recap

- **Null**: Ho: Process is fine, sample not different from population
- **Alternate:** H1: Process not fine, sample wts > population wt
- **Test Distribution**: Normal
- **Significance value:** 5%
- **P –value** (using norm.dust) function = 0.07
- **Conclusion?** Fail to reject the null

THANK YOU