

# Common Statistical Tests

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# Agenda

1. Hypothesis testing steps
2. Hypothesis testing framework
3. Flowchart to choose the appropriate test

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# Pop Quiz

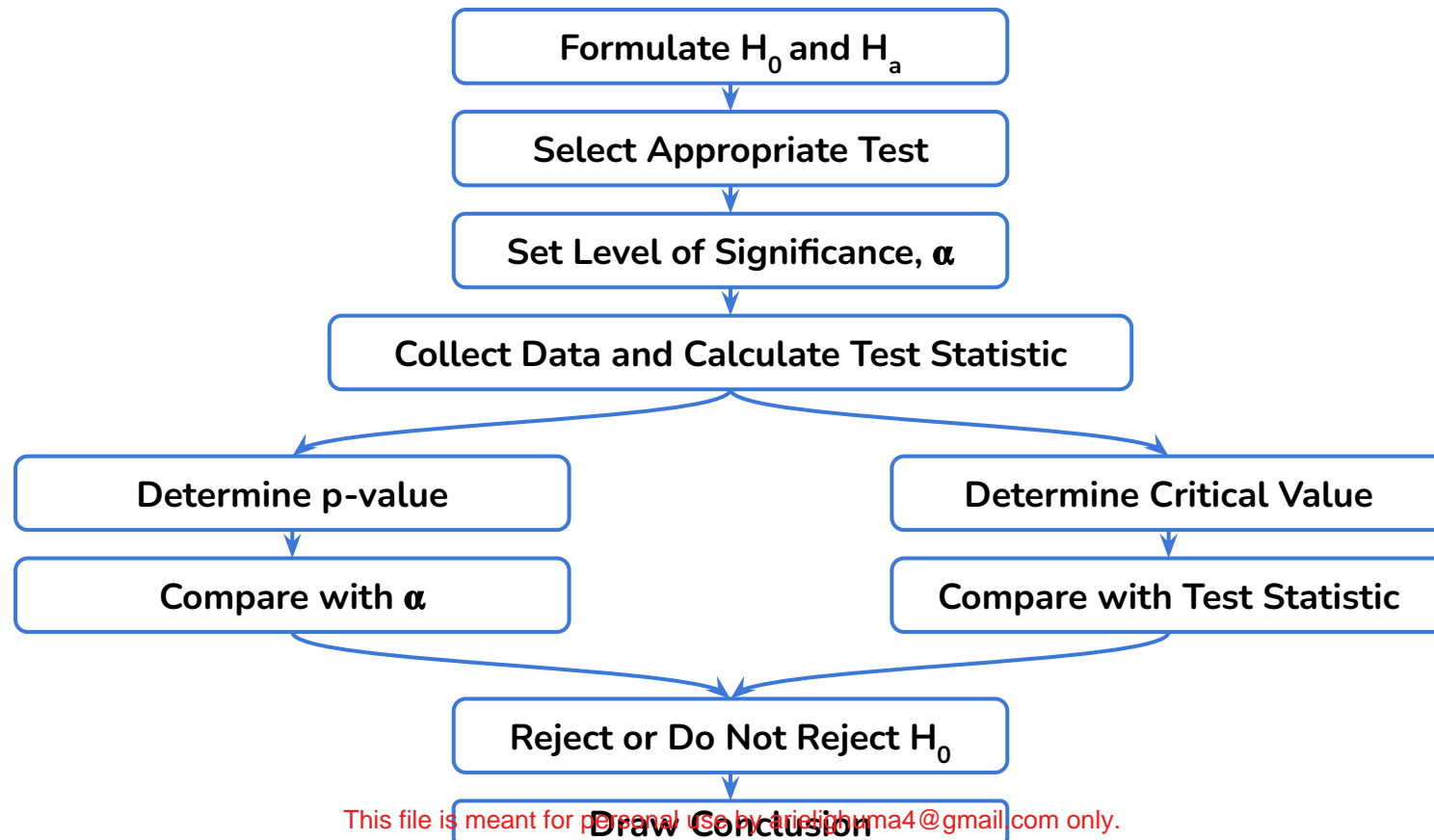
1. What are the steps to perform a hypothesis test?
2. What is the difference between two sample z-test and two sample t-test?
3. What are the assumptions of the ANOVA test?
4. How to choose the correct test for a given problem?

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# Hypothesis Testing Steps



# Hypothesis Testing Frameworks

Choice of test depends on test statistic and data availability

## Means

Compare the sample mean to the population mean when std dev is known

1-sample z-test

Compare the sample mean to the population mean when std dev is unknown

1-sample t-test

Compare the sample means from 2 independent populations when std devs are known

2-sample ind. z-test

Compare the sample means from 2 independent populations when std devs are unknown

2-sample ind. t-test

Compare the sample means from 2 related populations when std devs are unknown

Paired t-test

Compare the sample means from 2 or more independent populations

ANOVA Test

## Proportions

Compare the sample proportion to the population proportion

1-sample z-test

Compare the sample proportions from two populations

2-sample z-test

## Variances

Compare the sample variance to the population variance

Chi-Square test

Compare the sample variances from two populations

F-test

## Frequencies

Check whether the categorical variables from a population are independent

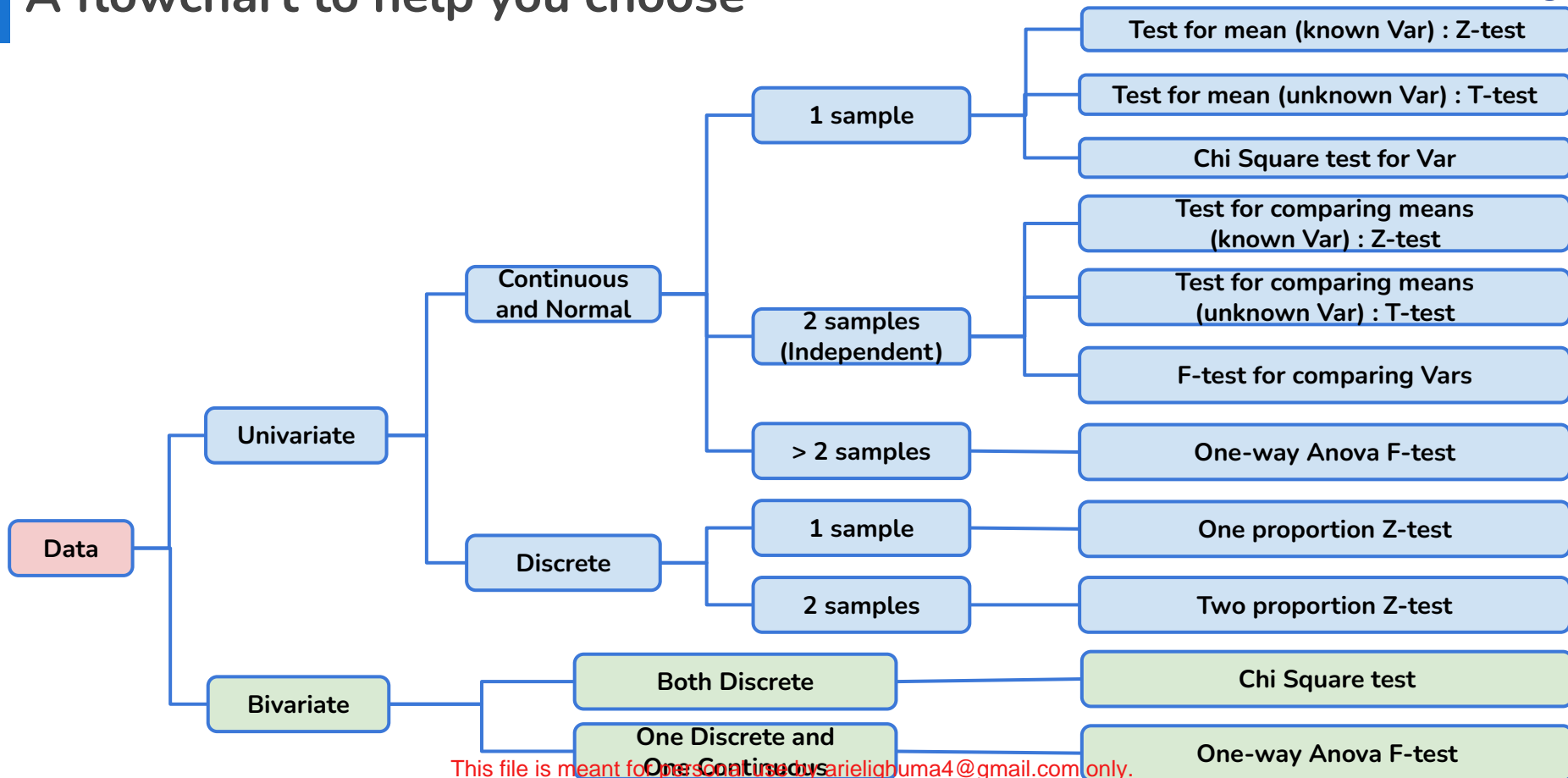
Chi-Square Test of Independence

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# A flowchart to help you choose



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# Let's discuss some of the tests

Now, we will discuss some of the important hypothesis tests in the below case studies.

Case Study	Hypothesis Test
AZ Tunes Case Study	One sample t-test Chi-square test for independence
Diet Case Study	ANOVA test

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# Happy Learning !

