Common Statistical Tests

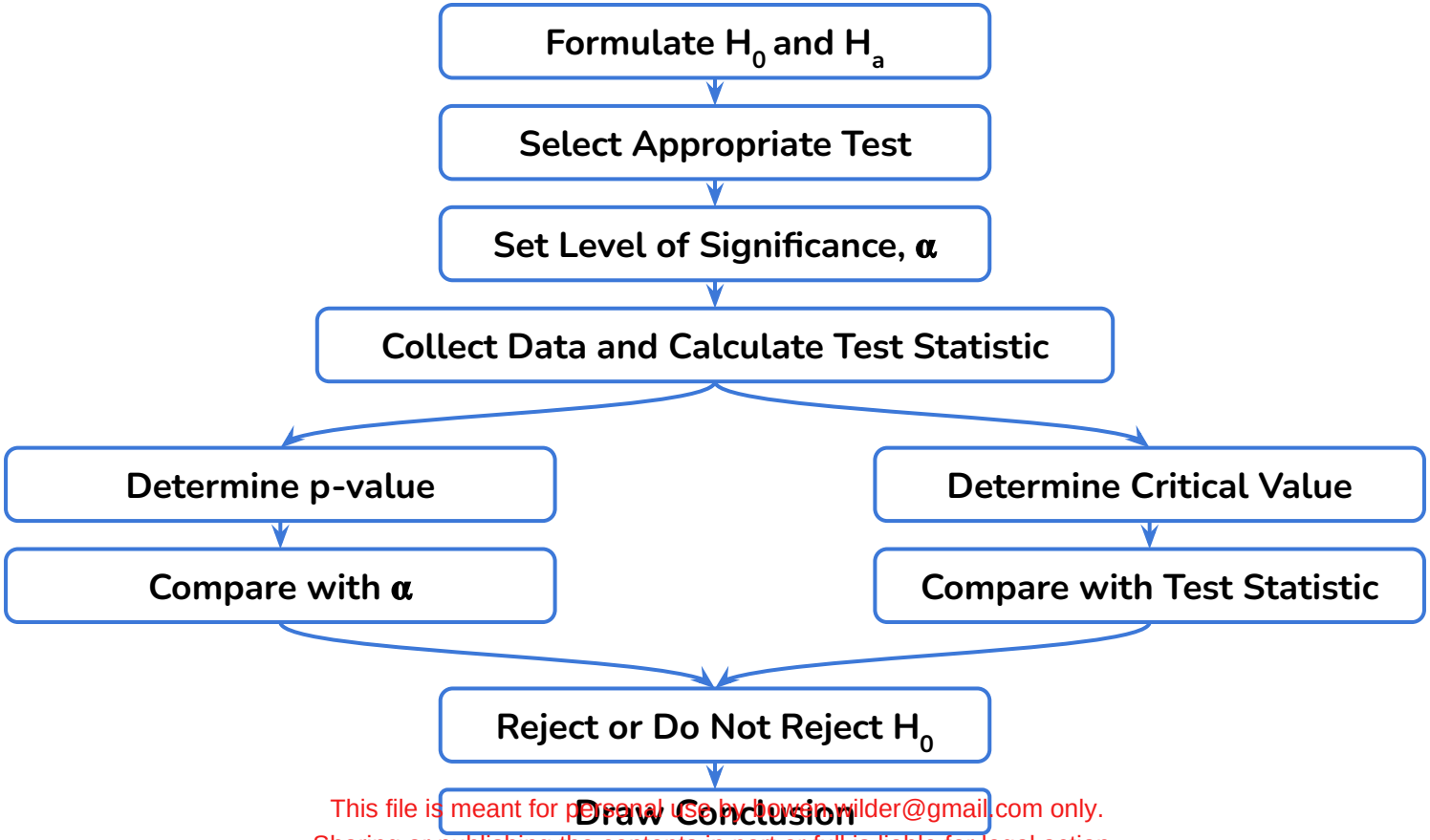
Agenda

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

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?

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

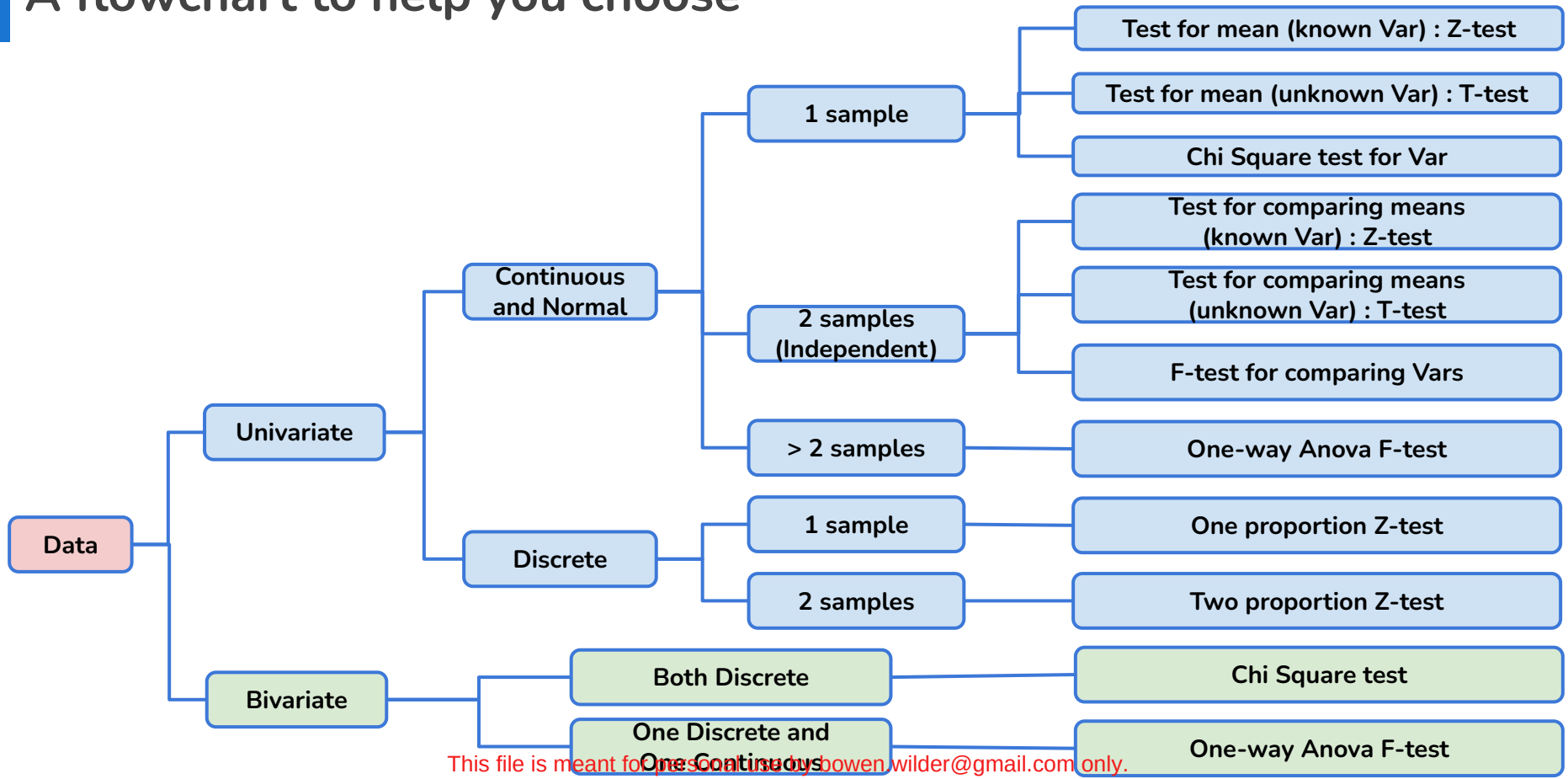
Compare the sample variance to the population variance
Chi-Square test

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

A flowchart to help you choose



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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Power Ahead

Happy Learning !