

Individual report questions + sample report

Instructions

1. Answer the three (3) questions in the form of a workplace report, containing brief, easy-to-read paragraphs
2. Use the MS Excel data in Moodle > Assessments > Assessment 2: Individual report > [Excel data](#)
3. Find Question 1's data in the spreadsheet labelled 'Q1', Question 2's data in 'Q2', and so on
4. Write your report in MS Word (1,000 word or less— length is not an issue, but explain findings satisfactorily)
5. In your report, use the results that you calculated from the Excel spreadsheet. But don't just transfer the numbers from Excel into Word; write a proper report. Interpret and discuss what the numbers mean in sentences and paragraphs as you'd do in a workplace report (see sample report below).
7. Submit it in Moodle > Assessments > Assessment 2: Individual report > 'Turnitin submission: [lecturer name]'
8. Due by 11:59 pm, Sunday, Week 9 (if you forget this time, day and week, do not go to step 9)
9. [Celebrate with a tasty drink.](#)

Report format

1. Round all final answers to two decimal places ($t = 3.0823165563 \rightarrow t = 3.01$)
 2. Make your report look good. Out of the 35% awarded for this assessment, 5% is given for how neat, articulate and professional your report looks. See sample report to learn how to structure this report.
 2. Font: Your choice $\rightarrow$ Font size: 12 $\rightarrow$ Line spacing: single or 1.5 $\rightarrow$ Insert page numbers + space between paragraphs
 3. Attach electronic student declaration form at the front. Give report a title inside. Divide report into sections:

1. Introduction 2. Chi-squared test 3. Hypothesis testing I	4. Hypothesis testing II 5. Conclusion (summarise findings)
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Question 1: Week 4 | chi-squared test | 10 marks

When you write this section, remember to:

- (a) State the null (H_0) and alternative (H_a) hypotheses
- (b) Show all observed (O) and expected (E) values (copy and paste as a screenshot)
- (c) Show all the X^2 values (copy and paste as a screenshot)
- (d) Assess the total and critical X^2 values (as sentences in a paragraph): based on their values, will you keep the H_0 or reject it and go for H_a ? Why?
- (e) Interpret (as sentences in a paragraph): comparing the O and E values, and referring to the X^2 values, what pattern do you see if there is a relationship? What business advice would you provide?

Question 2: Week 7, hypothesis testing I (for one sample) | 10 marks

When you write this section, remember to:

- (a) State the null (H_0) and alternative (H_a) hypotheses. Explain briefly what they mean.
- (b) Does it involve a one-tailed test or a two-tailed test? Why do you say that?
- (c) What is your calculated t-score? What is the critical t-score?
- (d) Assess the calculated and critical t-scores (as sentences in a paragraph): based on their values, will you keep the H_0 or reject it and go for H_a ?

- (e) Interpret: what does your chosen hypothesis says (the findings)? Next, what business advice would you provide?

Question 3: Week 8, hypothesis testing II (for two samples) | 10 marks

When you write this section, remember to:

- (f) State the null (H_0) and alternative (H_a) hypotheses. Explain briefly what they mean.
- (g) Does it involve a one-tailed test or a two-tailed test? Why do you say that?
- (h) Did you use an independent samples test or a paired samples test? Why?
- (i) Copy and paste a screenshot of your Data Analysis output. What is your calculated t-score? What is the critical t-score?
- (j) Assess the calculated and critical t-scores (as sentences in a paragraph): based on their values, will you keep the H_0 or reject it and go for H_a ? Interpret what your chosen hypothesis says (the findings). Finally, what business advice would you provide?

Comments on marks

→ 30 marks for correct answers for each question
 → 5 marks for how well you wrote the report: was it brief and direct, laid out professionally, easy-to-read and explains what the data and calculations say?
 → 35 marks, or 35% overall

Where does that fit in? Overview of marks (with some examples of marks and grades you could get)

Assessment	Max. marks	You: "What did I get?"
Online Quiz 1	20 marks	E.g. 11 (55% → P)
Individual report	35 marks	E.g. 29 (83% → D)
Group presentation	25 marks	E.g. 20 (80% → D)
Online Quiz 2	20 marks	E.g. 15 (75% → D)
Total	100 marks (100%)	E.g. 75% (D)*

*What this shows is that HDs or Ds are possible even if you got a pass or fail for Online Quiz 1. So do your best.

Sample report (the cases used here might be different from the ones in your actual questions)



Data-informed decisionmaking for Starducks Café by Kanye East

1. Introduction

This report discusses the findings from data that was collected for three different situations for our company, and how these findings might improve our company's performance.

The first case is about _____ . Here, I will use [what technique or test?].

The second one concerns _____ . Here, I will use [what technique or test? And so on].

2. Analysing whether high-spending customers tend to sit outdoors or not: chi-squared test

Should all our cafes move towards having more outdoor seating than indoors? Could it be more profitable? To analyse this at our Starducks Cafés, we sampled $n =$ _____ customers during the period _____ .

The hypotheses of our investigation are:

Null hypothesis (H_0): _____

Alternative hypothesis (H_a): _____

In Tables 2 to 4 are our observed, expected and chi-squared values.

Tables 2 to 4: Observed, expected and chi-squared values for _____

Observed

Chi-squared

Expected

Total χ^2 _____

Critical χ^2 _____

From here we can see that the total _____

Since we reject the H_0 and thus accept the H_a , this means that _____

Looking at the O and E values closely, it shows us that _____ . What this might mean for the business is that _____ .

3. Are our customers' ratings significantly higher than normally presumed? Hypothesis testing I

We've known that customer ratings of our service quality have been on average 7.2 out of 10 in the last several years. However, has the new training we introduced at the end of last year worked to significantly increase customer rating?

I did an investigation that involves a ____ -tailed test. Therefore, the H_0 and H_a are:

$H_0: \mu = 7.2$ points

$H_a: \mu > 7.2$ points

What these hypotheses are saying is that _____. To investigate this, I sampled _____.

The sample average and standard deviations are _____.

The critical t-score is _____ whereas, based on the following calculations, the calculated t-score is _____.

Comparing the critical and calculated t-scores shown above, I do not reject the H_0 because _____. Therefore I conclude that as a business, we should _____.

4. Does hiring more international workers significantly improve sales? Hypothesis testing II

The investigation here is to find out whether, at Starducks Café, hiring more international workers compared to domestic staff significantly boosted our sales beyond the average we normally get.

To investigate if this is true in general, I sampled two types of Starducks branches: A with mostly international workers, and B with mostly domestic workers.

I obtained data for $n = 30$ weeks at the A branches, and obtained data for $n = 32$ weeks at B branches _____ [keep going].

This is a ____ -tailed test. Therefore, the H_0 and H_a are:

$H_0: \mu_{A, \text{international}} = \mu_{B, \text{international}}$

$H_a: \mu_{A, \text{international}} > \mu_{B, \text{international}}$

What these hypotheses are saying is that _____.

[Keep going]...

Given the critical and calculated t-scores shown above, I found that the H_0 _____. Therefore I conclude that as a business, we should _____.

5. Conclusion

My analyses show that the strategies we should take as a business are:

- When it comes to _____, we should _____ ...
- _____ ...
- _____ ...

Some further ideas I propose are _____ .

by: Hemant Shah