University of Warwick
MSc Business Statistics

Module Code: IB94X0 Business Statistics
School Year: 2024 - 2025

Individual Assignment Question and Guidance

The Structure

The assignment should be completed in RMarkdown and knitted into a html file. Your submission should be a zip file containing the RMarkdown file and the html output it creates. When the RMarkdown file is re-run, it must produce the same html output that you submit.
This should be a professionally formatted technical report that another analyst could use to verify all the steps of your analysis (including code), clearly understand what conclusions you draw, and see why you make those conclusions. It should read in the datafiles provided, check the integrity of data, calculate all of the statistics requested, and knit together to form a html file.

The purpose of this report is that it could be shared with someone else who is not familiar with the data or project, but is expert in R, tidyverse, and statistics. They should be able to see how you achieved your results, and if necessary, easily modify the code to work with new or updated data. Therefore, the appropriateness of your comments and data documentation will also be assessed.
Where appropriate, you should report both NHST and estimation approaches. You should ensure that the results of statistical tests are reported in a professional manner, following standard reporting conventions. You should also state the results in plain English and say what they mean or what they tell us about the real scenario. Any tables and figures (if appropriate) should be professionally formatted, such that they could be used in public reports or external publications.

The official word count for this assignment is 2500 words**, but the written content of the report should be *much* shorter than this**. Since this is a code and analysis based assignment, the word count is not directly applicable in the way that it is for an essay. The word count is provided as a guide: that this assignment is assumed to be approximately the same amount of work as a 2500 word essay.

The report should be short, succinct and clear in communicating the main results only of the elements requested in the assignment question. Including additional irrelevant information or materials can have a negative impact on your mark.

The Request

Question 1 – Cardio Vascular Disease in England – 50% of the Grade
This section uses data from various datasets from the UK Office for National Statistics. Each row of the data represents one local authority region. It contains data representing the percentage of people living in the area who have recently experienced Cardiovascular Disease (CVD), the proportion who are overweight, the proportion who meet the definition of living in poverty, the proportion who smoke, the average wellbeing score of people living in the area, and the total population living in each area.

We are interested in identifying which of these factors (overweight, smokers, wellbeing, and poverty) affect the prevalence of CVD in an area. You should perform and present appropriate analyses. You should report these results using standard statistical reporting conventions, and summarise in plain English what it is you find or conclude.

You should also present a professionally formatted figure that visualises the effect of Poverty upon CVD.

Question 2 – Customer Satisfaction – 50% of the Grade
This question asks you to examine customer satisfaction data from a furniture retail company.

Each row represents one store. The data includes the average customer satisfaction score, the average staff job satisfaction score, the average delivery time of large and custom items, whether the store was carrying a new range of products, and the company's categorisation of store type by local socio-economic-status (low, medium and high).

You should examine the effect of these variables upon customer satisfaction. You should report these results using standard statistical reporting conventions, and summarise in plain English what it is you find or conclude.

The company is particularly interested in the effect of delivery times upon customer satisfaction, and whether the effect is the same across high, medium and low ''Socio-Economic-Status'' (SES) stores. Present appropriate analyses to answer this question. You should report these results using standard statistical reporting conventions, and summarise in plain English what it is you find or conclude. Also, include an appropriate figure that shows the pattern you find.

Marking Criteria

Comprehension
Demonstrate understanding of the data and the purpose of the analysis steps taken. Appropriately interpret both the task and the implications of the results.

Analysis & Critical Evaluation
Apply appropriate checks and validation of the data and apply appropriate analyses. Where appropriate, critique and evaluate the data and results.

Academic Writing
Clear description of the analysis and results that is appropriate for the stated audience(s). Concise description that clearly identifies and communicates the important and relevant elements.

Technical Capability
Clear and appropriate data analysis with well structured code and appropriate commenting.

Maximum Length:	**2500 words** *(this is a strict limit, not a guideline)*
Assessment Weighting:	**80%**
Submission Deadline:	**Monday 13 January 2025 before 12:00:00 (Midday, UK time)**
Marks Released by:	**Monday 10 February 2025** *(we will aim to release marks by this date, but in the event of an unavoidable delay a message will be posted on the module page)*
Artificial Intelligence:	*Permitted*

Use of Artificial Intelligence

The University recognises an increasing number of technologies such as Artificial Intelligence and that they may be applicable in your completing this assessment. The assessment brief sets out specific requirements or restrictions, and your student handbook has further guidance and advice.

You are reminded that the inappropriate use of such a technology may constitute a breach of University policy, such as the Proofreading Policy or Regulation 11 (Academic Integrity). If you breach these policies, it may have significant consequences for your studies. Please make sure you read and understand the assessment brief and how AI may or may not be used.

When you submit the assessment, you will be required to explain the use of any AI. Failure to disclose at the point of submission may be prejudicial in any later investigations should they arise.

For this assessment, AI is:

PERMITTED (neither prohibited or required)
If you use a generative Artificial Intelligence (AI) in the process of completing this assessment you MUST set out clearly the following:
- WHY you used a generative AI
- WHAT it was used for
- WHICH AI was used; and
- If any generated content has been used directly in this submission, if so where.

Note that this declaration does NOT contribute towards the word count for the assessment.

You will also have to confirm in your declaration that the work remains yours and you have intellectual ownership of it. You may be called for viva or other interview to demonstrate such intellectual ownership. A failure to disclose the use of AI, or the use of a misleading description of its use may have significant consequences for your studies. As a result, keeping good records of your interactions is strongly advised.

<u>**Submitting your work**</u>

Before you submit your assessment, you should ensure you are familiar with the guidance and rules in the "Your Assessments" section of your Student Handbook, paying particular attention to:

- Academic Integrity (including Plagiarism)
- Referencing
- Word Count Policy and Formatting
- Confidentiality of your work
- Extensions and late submission of work
- Guidelines for Online Submission

<u>**Mitigating Circumstances**</u>

Mitigating circumstances MUST be submitted **within 20 working days following the submission deadline**. Mitigating circumstances not submitted by the relevant deadline are not required to be considered by the School/Department and may have to be considered by an Academic Appeals Committee as part of an academic appeal – for further information, please see: https://warwick.ac.uk/services/gov/calendar/section2/regulations/reg42academicappeals

Please see your Student Handbook for more guidance on mitigating circumstances

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