**Final Assessment – Project**

|  |  |  |  |
| --- | --- | --- | --- |
| **Semester** | 202310 | **Division** | Business |
| **Assessment title in Syllabus** | Final Assessment | **Program** | [Business Analytics](https://nextcatalog.hct.ac.ae/programadmin/?key=12) |
|  |  |  |  |
| **Course Code** | STS 3113 | | |
| **Course Title** | Advanced Statistical Models | | |
| **Course Instructor** | ###### | **CRN** | ###### |
| **Assessment Weight** | 30% | **Submission Date** | **######** |
| In this assessment, you will undertake a report (80%) based on a series of statistical data followed by an individual defense (20%). | | | |
|  | | | |
| **Student Declaration**:  **Academic Integrity Statement**  In accordance with the HCT Academic Integrity Policy  • Students are required to refrain from all forms of academic integrity breaches as defined and explained by HCT.  • A student found guilty of having committed acts of academic integrity breach(es) will be subject to the relevant sanctions as outlined by HCT.  إفادة النزاهة الأكاديمية  **وفقًا لسياسة كليات التقنية العليا للنزاهة الأكاديمية**  **• على الطلبة الإلتزام بلوائح وقواعد النزاهة الأكاديمية، كما هو مبيّن وموضح في السياسات والإجراءات الخاصة بكليات التقنية العليا.**  **• في حالة ارتكاب الطالب أي شكل من أشكال الإخلال بالنزاهة الأكاديمية، سيتعرض الى العقوبات الموضحة في السياسات ذات الصلة.**  This assignment is entirely my own work except where I have duly acknowledged other sources in the text and listed those sources at the end of the assignment. I have not previously submitted this work to the HCT, or any other entity. I understand that I may be orally examined on my submission.  **Student (s) Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | |
|  | | | |
| **Student Name:** |  | | |
| **Student HCT ID:** |  | | |

**For Examiner’s Use Only**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **PART #** | 1A | 1B | 2 | **Individual Defence** | **Total** | **%** |
| **Marks Allocated** | 20 | 20 | 40 | 20 | 100 | **100** |
| **Marks Obtained** |  |  |  |  |  |  |

**Chatbot ( e.g. ChatGPT ) statement**

**This submission does not allow you to use any AI tool to complete. Any breach of this requirement will be treated as a plagiarism attempt and shall be subject to the HCT Academic Integrity Policy.**

**Coversheet instructions:**

**Assessed Learning Outcomes:**

CLO 4: Analyze time variables using composite index numbers and by decomposing time series components.

CLO 5: Make recommendations for quality improvements based on the analysis by statistical process control tools.

In this assessment, you will undertake a report based on a series of statistical data followed by an individual defense.

In this assessment, you will undertake a **report** (80%) based on a series of statistical data followed by an **individual defense** (20%).

**Project Report (80%)**

In this assessment, you will undertake a report based on a series of statistical data followed by an individual defense. The course project will undertake TWO components of UAE based Statistics and then use them with statistical techniques learnt in the course. The 80% weight of this report is distributed as follows:

**Part 1A: Basic Index numbers (20 %)**

Look at the “Price monitor” file in the website below and copy the information for the table and base product assigned to you by your instructor into excel to answer the following questions:

<https://consumerrights.ae/en/Pages/download-center.aspx>

1. Compare and contrast the percentage differences, as an index number, between the minimum and maximum prices for all products in your assigned tables, using the minimum price as the base.
2. Use your assigned base product to compare and contrast the percentage differences, as an index number, between the minimum and maximum price to the rest of the products in your assigned tables or other tables (must compare 6 other products).
3. Write a brief report with the highlights from your observations for parts a and b in your excel and in your presentation.

**Part 1B: Weighted Indexes (20 %)**

Use your allocated part 1B ”version” tables (Appendix) regarding price and quantity changes and calculate in Excel the following:

1. Calculate the simple aggregate Index
2. Calculate the Laspeyres Price Index
3. Calculate the Paasche Price Index
4. Calculate the Value Index
5. Calculate the Fisher’s Ideal Index
6. Write a brief report to compare and contrast in your excel and in your presentation.

**Part 2: Quality Improvement and Process Control Charts (40 %)**

In this section please use the following website <https://www.tomtom.com/en_gb/traffic-index/dubai-traffic/> (Note: hover over the table to see updated data)

In this site, you will find a congestion table of traffic in two cities, Dubai and one other. Your instructor has assigned the second city for you already. (Note this table changes on a regular basis)

1. In Excel download the traffic congestion data in both cities (you may do it in percent or use whole numbers). Use only from 6.00 AM to 11 PM data.
2. Use this data in Excel to determine the mean control chart and a range control chart for the traffic flow or congestion from Monday to Friday for each city. All final answers should be to TWO decimal points.
3. Compare and contrast the mean chart and a range chart of both cities clearly showing any out of control behavior in your excel file and in your presentation.
4. Similar to numbers 2 and 3 Use all SEVEN days of the week to determine a mean control chart and a range control chart for both cities. Compare and contrast their traffic behavior and any out of control data in your excel file and in your presentation. All final answers should be to TWO decimal points.
5. Develop a Pareto chart for each city for a weekday to a weekend day of your choice.
6. Compare and contrast the Pareto charts to understand the traffic flow/congestion for each city for a weekday vs a weekend day. Provide possible explanations for observations in your excel file and in your presentation.

**Deadline for project report is #####**

**Project Individual Defense (20%)**

As you develop your individual presentation, please keep in mind to:

1. Write an introduction about the project and for each section you were assigned to complete
2. Input all charts and tables from Excel and use these tables and charts as a basis for a statistical analysis into the two tasks in the project
3. Construct an comprehensive analysis for each finding (charts or table) and give insights of what you found and how you interpret your findings
4. Make a conclusion into the whole analysis and state what your overall findings were
5. Construct a short reflection into what you learnt from this project and also how you could use data like this in your future studies or career
6. Ensure the presentation is professionally formatted with
7. no spelling or grammatical errors
8. Provide a cover page with your name and Id Number
9. All font size, font type and line spacing is consistent throughout the report
10. Reference slide
11. A recommendation is 12 slides excluding title slides
12. Each person should present for 10 / 12 minutes
13. Marks are gained for both knowledge of project and professionalism of presenting it.
14. A number of questions will be asked after the presentation.

**Project Individual Defenses starts #####**

**Rubric:**

**See attached Excel and Word Files**