DAT7003

Data Design

Report

Date for Submission: Please refer to the timetable on ilearn

(The submission portal on ilearn will close at 14:00 UK time on the date of submission)

Assignment Brief

As part of the formal assessment for the programme you are required to submit a **Data Design** report. Please refer to your Student Handbook for full details of the programme assessment scheme and general information on preparing and submitting assignments.

Learning Outcomes:

After completing the module, you should be able to:

1.   Critically assess desired outcomes from data analysis activities.

2.   Evaluate the use of data collection methods in solving specific organisational needs.

3.   Critically analyse the effectiveness of an employed data collection tool.

4.   Design a data collection tool to meet a specific organisational purpose.

5.   Carry out, and interpret the results of, a pilot exercise for a data collection too.

6.   Make developmental recommendation to enhance the effectiveness of an employed data collection tool.

Graduate Attribute – Lifelong Learning

Manage employability, utilising the skills of personal development and planning in different contexts to contribute to society and the workplace.

Maximum word count: 5,000 words

Please note that exceeding the word count by over 10% will result in a reduction in grade by the same percentage that the word count is exceeded.

You must not include your name in your submission because Arden University operates anonymous marking, which means that markers should not be aware of the identity of the student. However, please do not forget to include your STU number.

Assignment Task - Report

This report is worth 100% of the overall marks for this module.

As a data analyst of an organisation, you are expected to identify strategic business questions, critically evaluate whether the existing data collection methods and the existing data enable you to solve the strategic business question. If the answer to your evaluation is 'yes', carry out an analysis of the existing data, deliver your analysis results and recommendations out of it in answering the strategic business question. If the answer to your evaluation is 'no', design a data collection tool to meet your organisation's purpose, collect the relevant data, clean and organise it properly for analysis. Deliver your analysis results and recommendations out of it in answering the strategic business question. The audience of your report would be non-technical executives, so make sure you add non-technical interpretations and suggestions throughout the report. The following are suggestions for the assignment:

- It is recommended that you use the report you have been working on throughout this module as a basis.

- If possible choose the business question and collect your datasets from within your own organisation, or any organisation which you are familiar with or affiliated to. This will ease your access to data and will enable you to better grasp the challenges and the business nuances.

- If this is not possible, we urge you to find a publicly available dataset and then think about relevant business questions. A list of public sources for datasets will be given to you by your tutor.

- When reporting the results and concluding, please try and use non-technical terms when possible. Think of a non-technical executive you are reporting to and try to focus on the business implications of your analysis.

- For the analysis you are welcome to use SPSS, Tableau or Excel.

Question 1

Phrase a business objective you want to target and the following question. Classify and describe its type, and elaborate on the implications this type of question has had currently and on future phases of the process. Identify and write about data requirements that are derived from this question. For example: what is your unit of analysis and what are the implications of the analysis technique you choose to use. Write about your risk assessments (e.g., applicability, availability of resources, ethics and more) and describe relevant knowledge artefacts in addition to business rules that should be applied to compute significant business variables.

(750 words)
(15 marks)
(LOs 1, 7)

Question 2

Critically analyse the effectiveness of an employed data collection tool that was used to collect the data required to answer the business question asked. Ensure that you cover the potential strengths and weaknesses of the data collection tool using appropriately referenced scholarly material and the collected data. Please make sure you attach the survey or interview questions as an appendix to your assignment.

(300 words)
(6 marks)
(LOs 2 and 3)

Question 3

Based on the results of your critique, either use the dataset(s) already available or collect two datasets by designing a data collection tool that mitigates the disadvantages of the existing data collection tool. If using two datasets, the two datasets should be complementing, i.e., each of the datasets should add its own dimension, related to your business question. If using one dataset, ensure that the dataset contains all the relevant information required to answer the business question else collect additional data. Describe the datasets you are collecting. If you choose to use designed data collection to one or two of your datasets, please design each as a short survey or interview, and briefly describe them. Also, please attach the survey / interview as an appendix to this assignment. If you can collect a minimum of 30 responses, that is ideal, but if you cannot, 10-20 responses would be fine, as long as you specify that as a limit of your study. If you choose automatic collection, please describe the source, how data is being collected, and bring a short preview of the data. For each dataset, please specify how it applies to your business question, what tool did you use, what is your sampled population and what are the biases you ought to be aware of.

(1000 words)
(20 marks)
(LOs 4, 7)

Question 4

Describe your integrated dataset using the concepts explained in this module (data types formats etc.). Describe the integration points. Make sure it is in the right tabular format, and that you identify your unit of analysis. Identify which of the variables that you might need is missing, and try to come-up with ways to collect those in future studies. Following this, run exploratory analysis and add some graphs as appropriate and summarize what you can conclude at this point. Please reflect on what you cannot conclude using only exploratory analysis and explain. Don't forget to raise problems and anomalies you find in the data (e.g., missing values, outliers, and other biases).

(1250 words)
(25 marks)
(LO 5)

Question 5

For this task choose just one or two types of analysis and explain what made you choose this type:

- If you choose to use experimental design: please describe a relevant experiment. Please report and reflect on possible statistical biases. Describe the inferential test you are using. Specify what assumptions on the data you have made and which tools you have used.

- If you choose not to use an experimental design, please explain why. Try to identify which analysis method can help solve your question. Can your problem be solved using a supervised or unsupervised learning? Explain your choice in your report: how did this method fit both the question and the available data.

- Summarize the results of the analysis method you have executed using texts, tables and graphs. Explain the results and suggest how these can be applied to help with your business question.

- Critically evaluate your report. Refer to the quality of your data collection tool, data analysis model, your data, and refer to their limitations. What could have helped you in making a more informed report?

(1250 words)
(25 marks)
(LOs 5 and 6)

Question 6

This question concerns the deployment, ethical and business conclusions of the project:

- Suggest deployment considerations and risks, should your project be deployed in your organisation.

- Propose ethical considerations and risks, should your project be deployed in your organisation.

- Summarize the business conclusions, limitations and suggestions for future analysis.

(450 words)
(9 marks)
(LOs 1, 3, 6 & 7)

Formative Feedback

You have the opportunity to submit a draft assignment to receive formative feedback.
The feedback is designed to help you develop areas of your work and it helps you develop your skills as an independent learner.

If you are a distance learning student, you should submit your work, by email, to your tutor, no later than 2 weeks before the actual submission deadline. If you are a blended learning student, your tutor will give you a deadline for formative feedback and further details.

Formative feedback will not be given to work submitted after the above date or the date specified by your tutor - if a blended learning student.

Student Guidelines

Development of academic skills:

You **MUST** underpin your analysis and evaluation of the key issues with appropriate and wide ranging academic research and ensure this is referenced using the AU Harvard system. The My Study Skills Area contains the following useful resources:

Guide to Harvard Referencing
http://moodle.bl.rdi.co.uk/guides/HarvardRef/AU_Harvard_Quick_Ref_Guide.pdf

Guide to Harvard Citation
http://moodle.bl.rdi.co.uk/guides/HarvardRef/AU_Guide_to_Harvard_Citation.pdf

You must use the AU Harvard Referencing method in your assignment.

Students are required to indicate the exact word count on the title page of the assessment.

*The word count excludes the **title page, tables, figures, diagrams, footnotes, reference list and appendices.** Where assessment questions have been reprinted from the assessment brief these will also be excluded from the word count. **ALL other printed words ARE included in the word count** See 'Word Count Policy' on the homepage of this module for more information.*

Submission Guidance

Assignments submitted late will not be accepted and will be marked as a 0% fail.

Your assessment should be submitted as a single *Word (MS Word) or PDF* file. For more information please see the "Guide to Submitting an Assignment" document available on the module page on iLearn.

You must ensure that the submitted assignment is all your own work and that all sources used are correctly attributed. Penalties apply to assignments which show evidence of academic unfair practice. (See the Student Handbook which is on the homepage of your module and also in the Induction Area).

Assessment Criteria: Level 7

Level 7 is characterised by an expectation of students' expertise in their specialism. Students are semi-autonomous, demonstrating independence in the negotiation of assessment tasks (including the major project) and the ability to evaluate, challenge, modify and develop theory and practice. Students are expected to demonstrate an ability to isolate and focus on the significant features of problems and to offer synthetic and coherent solutions, with some students producing original or innovative work in their specialism that is potentially worthy of publication by Arden University. A clear appreciation of ethical considerations (as appropriate) is also a prerequisite.

Grade	Mark Bands	Generic Assessment Criteria
Distinction	70%+	Excellent analysis of key issues and concepts. Excellent development of conceptual structures and argument, making consistent use of scholarly conventions. Excellent research skills, independence of thought, an extremely high level of intellectual rigour and consistency, exceptional expressive / professional skills, and substantial creativity and originality. Excellent academic / intellectual skills. Work pushes the boundaries of the discipline and demonstrates an awareness of relevant ethical considerations. Work may be considered for publication by Arden University.
Merit	60-69%	Very good level of competence demonstrated. High level of theory application. Very good analysis of key issues and concepts. Development of conceptual structures and argument making consistent use of scholarly conventions. Some evidence of original thought and a general awareness of relevant ethical considerations.
Pass	50-59%	A satisfactory to good performance. Basic knowledge of key issues and concepts. Generally descriptive, with restricted analysis of existing scholarly material and little argument development. Use of scholarly conventions inconsistent. The work lacks original thought. Some awareness of relevant ethical considerations. Satisfactory professional skills (where appropriate).
Marginal Fail	40-49%	Limited research skills impede use of learning resources and problem solving. Significant problems with structure / accuracy in expression. Very weak academic / intellectual / professional skills. Limited use of scholarly conventions. Errors in expression and the work may lack structure overall.
	39% and below	A poor performance in which there are substantial gaps in knowledge and understanding, underpinning theory and ethical considerations. Little evidence of research skills, use of learning resources and problem solving. Major problems with structure/ accuracy in expression. Professional skills not present. Very weak academic / intellectual / professional skills. No evidence of use of scholarly conventions.