## Dublin Business School

# Assessment Brief

# Assessment Details

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| Module Title: | Data Analytics and Visualisation |
| Module Code: | B9IS107 |
| Module Leader: | Dr Shazia A Afzal |
| Stage (if relevant): | Award |
| Assessment Title: | Implementing several techniques for Data Analytics |
| Assessment Number (if relevant): | 1 |
| Assessment Type: | Lab-based |
| Restrictions on Time/Length: | N/A |
| Individual/Group: | Individual |
| Assessment Weighting: | 50% |
| Issue Date: | Week 5 |
| Hand In Date: | Week 12 |
| Planned Feedback Date: | May 2020 |
| Mode of Submission: | On-line **ONLY Moodle** |

# Assessment Task (100 Marks) - Weighting (100%)

The following is the assignment as set out for the module of Data and Data Analytics (B9IS100).

The purpose of this assignment is to perform BI and data analytics jobs using techniques learned as part of this module.

**PART I**

**Design and Implement a Data Warehouse/Data Mart (proof of concept) and develop BI reports based on it**

Choose some operational database(s)/sources and select an appropriate subject for analysis and Business Intelligence (BI).

* + - 1. Develop a dimensional model/star schema for developing Data warehouse.
      2. Implement the data warehouse in SQL Server by creating dimension and fact tables. Write SQL code for ETL or use an ETL tool to populate the data warehouse from operational database(s)/sources.
      3. Develop 4 reports using SQL Server Reporting Services (SSRS) as pdfs demonstrating BI.
      4. Using your data warehouse, develop a dashboard in Tableau with four different multi-dimensional visualisations presenting data analysis/analytics of your data using several features such as colours, calculated fields, filters, trend lines, etc.
      5. Conclusions / Bibliography
      6. Write a brief report to include

1. Requirements for developing the data warehouse.
2. Source(s) for Data Warehouse
3. Star Schema
4. All code for implementing the data warehouse and for extraction (E) of data from operational databases, transformation to the required format (T) and loading (L) to data warehouse or screen shots taken for the ETL tool.
5. Screen shot/shared link for dashboard

**Note:** *Sections I, 2 and 4 must be included in the report and SSRS reports must be included in the folder. Otherwise no marks will be awarded.*

**PART II**

You are required to carry out a series of analyses on a dataset and develop a predictive model using the Python programming language used in this module. The dataset can be obtained from data warehouse implemented as first part of your assessment or from some other source. Dataset should have at least 1,000 records (rows).

You are required to:

* Prepare and analyse the data using a number of techniques in Python
* Explore the data by implementing several data visualisations
* Develop a model using suitable data mining algorithms
* Analyse the results and provide a comparative evaluation using different data mining and visualisation methods.

You are required to compile a **report** of your analysis**. Your report** (Word document) should provide unique insights based on your data analysis. Examples of insights might include relationships, trends/patterns, correlations, models based on the data, visuals, etc.

All the Python code elements must be included in an appendix. Dataset or link to dataset must be uploaded.

Your project report must discuss the challenges that you encountered whilst handling your chosen datasets and the techniques you implemented to overcome these challenges.

**Presentation (10 Marks)**

You are required to:

* Individually present your ***work*** in your **last class**.
* Duration of Presentation must be between 5 -8 minutes.
* Answer any questions that may arise and be prepared to answer the questions related to your work.

**Submission:**

Create a folder with your name\_moduleCode and include the following:

**PART I**

* Include report (MS Word)
* Include Visio file with star schema
* SSIS Project
* BI and Data analysis reports developed using SSRS
* Visualisations

**PART II**

* Include Report (MS Word) including Python code in Appendix.
* Dataset or link to dataset.

**Assessment criteria**

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| **Criteria/**  **Mark** | **< 40** | **40 - 49** | **50 - 59** | **60 – 69** | **70 +** |
| **Report** | Insufficient or incomplete report with poor or incomplete code and explanations. | Some but insufficient and poorly written report with poorly developed code and explanation not enough to meet the requirements. | Sufficient explanation with code that solves problem in but lacks attention to good report writing skills. | Well-structured and well-written report with good specifications/ code and explanation. | Excellent solution to problem proving originality, creativity and evidence of research – very well written code. |
| **Demonstration** | Very Weak demonstration with no knowledge/  Understanding of the working of code/visualisations. | Weak demonstration showing little knowledge of different aspects of the programs/visualisations. | Average demonstration showing some knowledge of relevant issues. | Good demonstration showing good knowledge Data Warehouse. | Excellent demonstration showing excellent knowledge of Data Warehouse. |

**General Requirements for Students:**

1. A proportion of assessment marks is allocated to presentation. All assignments must be word-processed, with word count noted unless otherwise stated by the lecturer.
2. Where a hardcopy submission is required, an Assignment Submission Form must be securely attached to each submission.
3. All assignments must be submitted no later than the stated deadline.
   * Assignments submitted after the latest deadline (date and time) specified, including any extension, are deemed to be ‘late’ and are penalised, as follows:
     + Where the assignment is submitted not more than seven working days after the latest specified date, the mark awarded to the assignment is reduced by 25%.
     + Where the assignment is submitted more than seven working days after the latest specified date, it is awarded a mark of zero
     + Where the assessment is undertaken in a group, the piece of work should be submitted in its complete entirety, and any penalty for late submission incurred applies to all group members.
4. All relevant provisions of the Assessment Regulations must be complied with.

1. Extensions to assignment submission deadlines will be not be granted, other than in exceptional circumstances. To apply for an extension please go to <http://www.dbs-students.com/Registrar/> and download the Assignment Extension Request Form. *Once completed* *this form should then be returned to your Programme Leader, for approval.*

1. Students are required to retain a copy of each assignment submitted, and the submission receipt (If a physical submission is required) until the issuing of a transcript indicating the mark awarded.
2. Assignments must be appropriately packaged and presented.
3. Where a submission involves digital media, it is the submitting students’ responsibility to ensure the media is appropriately labelled, fully working and they must retain a copy.
4. Assignments that *breach* the word count requirements will be penalised. *There is a 10% discretion, either way, applicable in terms of word count.*
5. Students are required to refer to the assessment regulations in their Student Guides and on the Student Website.

# Dublin Business School penalises students who engage in academic impropriety (i.e. plagiarism, collusion and/or copying).

# To prevent plagiarism please follow this link to the Harvard/OSCALA (delete as appropriate) Style Referencing Guide - all referencing is required in this format.

# <http://issuu.com/dbslibrary/docs/harvard-referencing-guide/1?mode=a_p>

(Guide on referencing is also available under DBS library guides at [www.library.dbs.ie](http://www.library.dbs.ie))

1. In relation to electronic submissions:
2. All assignments should be submitted to your subject/course page on Moodle by the deadline date.
3. It is the student’s responsibility to ensure their file is uploaded correctly.
4. When an assignment is submitted, it is the student’s responsibility to ensure that the file is in the correct format and opens correctly.
5. When you submit your assignment you will be asked to click on a button which will declare the following:

By submitting this assignment I confirm that I am aware of DBS’s policy regarding cheating, plagiarism and all other forms of academic impropriety. The coursework submitted is my own or my group’s work, and all other sources consulted have been appropriately acknowledged. I am aware that in the case of doubt an investigation will be held.

1. Include an electronic **cover sheet** with the following details to the front of the assignment:

**Electronic Assignment Cover sheet**

Please fill out and attach as the first page of Assignment.

**Student (s) Number as per your student card:**

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**Course Title:**

**Lecturer Name:**

**Module/Subject Title:**

**Assignment Title:**

**No of Words:**

Note: Technical support is available to student between **0930- 1700 hrs only**. There is no technical support after 1700 hrs. It is your responsibility to ensure that you allow time to troubleshoot any technical difficulties by uploading early on the due date.