School of Electrical Engineering and Computing

INFO6002: Database Management 2

Trimester 2, 2021 – Callaghan & Online

Assignment 3 – Data Marts and Business Intelligence
Due: <mark>10am</mark>, Friday 30th July 2021

<mark>**Demonstration Sessions:**</mark>
<mark>**Callaghan students (via Zoom): *1 - 3pm, Friday 30th July 2021***</mark>
<mark>**Online students (via Zoom): *5 - 6pm, Friday 30th July 2021***</mark>

WORTH 20% of final course mark.
This is an INDIVIDUAL Assignment.

Part 1: Tasty'n'Yummy Pizzas Data Mart Design (5 marks)

In this section you will design and document a data mart star schema for *Tasty'n'Yummy Pizzas* (the scenario discussed in Assignment 1).

Design a data mart schema to satisfy *Tasty'n'Yummy Pizzas* decision makers' information needs. You will create a single star schema diagram which focuses on one area of the business. You do not need to implement it.

Write a short report (approx. 200 words excluding diagram & queries) which includes:

A. Documented schema (star schema diagram)
B. Subject-area covered by your data mart
C. A discussion of how the data mart satisfies the information analysis needs of *Tasty'n'Yummy* Pizzas
D. Give 5 examples of analysis queries that your design supports. These will be a description of the queries, not actual T-SQL queries.

Save your document as *A3_<student name>_PizzaDataMartDesign*.

Part 2: Business Intelligence Reporting (15 marks)

Adventure Works is a fictitious company that manufactures and sells metal and composite bicycles to North American, European and Asian commercial markets. The Adventure Works Data Warehouse database contains a number of data marts for the fictitious Adventure Works company.

Download and restore the AdventureWorks Data Warehouse database from the backup file which is available on Blackboard at *Assessment / ASSIGNMENT 3 /*

Assignment Specification / AdventureworksDW2019.zip. You will need to unzip this file before using it in SQL Server.

Part 2A: SQL Server Reporting Services Report (5 marks)

Create the following report using SQL Server Reporting Services. Save the project as *A3_<student name>_SSRSReport*. The report provides the monthly and yearly reseller sales for **Australian territory** for all years.

The format of the report is given below:

Monthly-Yearly Sales Report
(Australia)

Year	Month	Monthly Sales Amount
2001	January	$2,345.98
	February	$2,532.99
…		
	Yearly Sales	**$1,232,322.99**
2002		**…**

Note that the data is sample data and does not contain the exact values from the actual database. You do not need to deploy the report to a Reporting Server.

Part 2B: Data Analytics – Written Report (5 marks)

Explore the data warehouse schema and data. Select subject area(s) that you would like to analyse in Adventure Works. Create data mart(s) either using either: SQL Server Analysis Server, or Power BI. Save the project/file as *A3_<student name>_AWorksDataMart.*

Analyse the data and write a Business Intelligence report based on the Adventure Works data using:

- Power BI's visuals, dashboards etc. in your analysis, data visualisation and presentation and/or
- Excel's BI features such as pivot tables, charts and graphs.

Your report will include data analysis, information discovered and helpful insights and actions items from your data analysis. Include appropriate tables, charts, graphs etc. in your report to present your findings.

Note that your target audience for the BI report is the business management team of Adventure Works such as the CEO and senior management, so your BI report should be understood by business managers.

Save your report as *A3_< student name >_BIReport.docx*

In addition to your written report, you will record a 3-5 minute video in which you present your Business Intelligence analysis findings. Your presentation should be professional with some form of visual demonstration (i.e. slides). At the beginning of your video, please show your face and your photo id. Save your presentation document/s as *A3_<student name>_Presentation* and name your video file *A3_<student name>_Video*

Submission Requirements

All submission links are found on Blackboard in *Assessments / ASSIGNMENT 3.*

Part 1:

Submission link (Turnitin)	*Assignment 3 Turnitin Submission Part 1(Data Mart Design)*
Component	Part 1: Data Mart report document
File name	*A3_<student name>_PizzaDataMartDesign*
Format	PDF or MS Word (Must not be a .zip file)

Part 2A, 2B & 2C:

Submission link	*Assignment 3 Blackboard Submission Part 2 (AdventureWorks BI Reporting)*
Components	Part 2A: Files for your SSRS project Part 2B: Project files for your AdventureWorks Data Mart Part 2C: Presentation file
File name	*A3_<student name>*.zip
Format	.zip folder containing the following sub-folders:

Folder name	**Components & file name**
SSRS	Part 2A: SSRS Project files *A3_<student name>_SSRSReport*

DataMart	Part 2B: Project files for your AdventureWorks Data Mart *A3_<student name>_ AWorksDataMart*
Presentation	Part 2C: Presentation file *A3_< student name >_Presentation.<filetype>*

Part 2B:

Submission link (Turnitin)	*Assignment 3 Turnitin Submission Part 2B (BI Report document)*
Component	Part 2B: Data Analytics – Written Report
File name	*A3_< student name >_BIReport*
Format	PDF or MS Word (Must not be a .zip file)

Part 2C:

Submission method	Upload your video to the *UONCapture* folder named: *INFO6002 T2 2021 Assignment Video Submissions*. For assistance, see *Assessment / ASSIGNMENT 3 / Video Assignment Instructions* and click on "2. Upload" to watch a video demonstration of how to do this. Once uploaded, hover over the video and click 'Share'. This will show a link (https://uoncapture.ap.panopto.com/...). Copy this link into the comments section of *Assignment 3 Blackboard Submission Part 2*.
Component	Part 2C: Data Analytics – Video Presentation
Format	Video uploaded to *UONCapture*

Demonstration Requirements

In addition to the above submission requirements, each student must attend a Zoom marking demonstration session. These session will be held at the times posted on page 1 of this specification. A schedule will be posted in Blackboard announcements during week11 to confirm the timing of the sessions and to assign student timeslots.

Demonstrations are required for:

Part 2A: SQL Server Reporting Services Report	You will open your SSRS project and show a preview of the report, showing the correct report data and formatting.
Part 2B: Data Analytics	You will open and explain the Business Intelligence tools / projects you have used for your analysis. This may be SQL Server Analysis projects, Power BI or Excel BI projects. You will not deliver your presentation as this is still done as a video submission.

Failure to attend the demonstration can result in a zero grade for the assignment.

Assessment RUBRIC

The assessment RUBRIC is given below:

	Excellent	Good	Satisfactory	Poor	Fail
	(5)	(4)	(3)	(1-2)	(0)
Data Mart Design (5)	The data mart design is illustrated, documented and clearly justified.	The design meets most of the requirements specified. The schema is well documented and justified.	A schema for data mart is given. The schema is partially documented.	An undocumented and poorly justified data mart schema is provided.	No submission
	(5)	(4)	(2-3)	(1)	(0)
SQL Server Reporting Services (5)	Reports generated without any errors. The formatting is as specified in the specification.	Report contains most data correctly. Minor errors in the formatting.	AdventureWorksDW 2019 database restored. Report contains some data.	AdventureWorksDW 2019 database restored but no report is provided.	No submission
	(5)	(4)	(3)	(1-2)	(0)
Data Analytics - Report (5)	Data Mart(s) design and implementation without flaws. A well written report with detailed data analysis supporting conclusions/claims.	Data Mart(s) design is implemented. A report with data analysis supporting conclusions/claims is presented.	Data Mart is correctly implemented. May contain minor design flaws (e.g. hierarchies). Basic OLAP reports and simplistic data analysis and evaluation	Data Mart design is correct. Errors in implementation and cannot populate data. No report submitted.	No data Mart design or report submission
	(5)	(4)	(3)	(1-2)	(0)
Data Analytics – Presentation (5)	Presentation delivered in a confident and professional manner. Contains detailed explanation of data analysis. Accompanied by professional visual materials	Presentation adequately explains data analysis. Accompanied by professional visual materials.	Evidence of effort in preparation. Basic explanation of data analysis.	Little or no preparation evident for presentation.	No presentation given