INFO6090 - Business Intelligence for the Enterprise
Assignment 2

Worth: 25% of your course mark (Group Report 20% , Individual Presentation 5%)

Due Date: 11.59pm Sunday 12th November 2023

Assignment Outcomes

This assignment requires multiple outputs to be created to exhibit your understanding of business intelligence/data analysis through an example of 'real world' scenario, comparable to what you may be asked of you as you become an IT professional.

Key outcomes to be delivered are:

- Data Modelling/ETL to get the data in a usable format,
- Output of your analysis,
- Report summarising your findings and
- Video presentation of your work.
    - Note: The presentation is expected to concentrate more on your findings/recommendations as if it were a situation where you are presenting the response to the CEO. Remember that the statistics and answers you obtain should be used as a basis for your business intelligence suggestions and recommendations to the CEO and the Board of BIA Incorporated.

Assignment Scenario

The CEO of 'BitsAndBobs' Australia, Bill Smotherington, has been speaking to the Corporate Sales Executive and had heard about some recent work you had completed for the Newcastle branch. He thought you might be able to assist them with some problems they have.

> *"I've heard that you helped the Sales Exec recently with understanding more about our Australian branch, especially the Newcastle site, and our business processes (we have reduced the discount to 5%).*
>
> *I would now like your help to get a handle on the whole business in Australia. As you are aware, the Newcastle office is just 1 of 10 sites we have across Australia. Unfortunately, sales in some items have dropped across the country in recent years and we are currently running at a loss.*
>
> *We need to consider consolidating our company offices in Australia. We need to reduce costs for the longevity of the company as a whole. I need you to get some numbers together around the performance of our 10 offices, so that I can factor this information into any decision regarding which office (or offices) we might consider closing. As you can imagine, this is a very sensitive topic so, as part of your response I want you to provide the justification as to which office we may close. Our decision will upset some people and I want to make sure we have all the background information on hand. If you can provide a ranking of offices based on your analysis that would be wonderful.*

I would like a summary of recent numbers and some trend analysis as well please. It would be great if you could also project sales for the next 12 months for each office as well. It would be helpful if you could indicate the 3 most popular and 3 least popular items in each of our stores, as well as the worst performing items for the company as a whole.

I would also like to see the top sales persons in all 3 categories, taking into account all branches (i.e., the 'best of the best') for the past year.

I believe you started to bring together a data store of this information from the Newcastle branch, can you expand that and load all of the sales information for all offices and complete your analysis."

<u>Part A: Analysis and reporting (Group Submission)</u>

Part A will be completed and submitted to Canvas as a group submission.

Using the data file provided in Excel (*AssignmentTwo2023Data.xlsx*), your group is required to complete the following components as part of the assignment.

1. Group submission documentation including:
   - *Group assignment cover sheet* (*AssessmentItemCoverSheetGroup.docx*) signed by each team member.
   - *INFO6090 Team Peer Review* indicating overall contribution by each group member. (see details below)
   - *Team Weekly Progress and Planning Document.xlsx* showing weekly contribution and task completion for each group member. (template available on Canvas)

2. Data Model/Data Load Process
   - Produce a Data Model with appropriate data attributes and cleaned data.
   - Provide an overview of the data model & ETL process completed to get the data ready for analysis (including identification of any anomalies found, methods of cleaning them and the overall effect of cleaning on the final business analysis).
   - Ensure you record any assumptions you have made as part of this component and your reasoning behind the assumptions.

3. Analysis including any predictive work undertaken and recommendations to Management
   - Provide the SQL and raw output of your base analysis for top salespersons, best performing stores, best and worst performing items, etc.
   - Provide workings of the predictive work you completed for the trending & prediction on future sales.
   - Ensure you record any assumptions you have made as part of this component and your reasoning behind the assumptions.

4. Business recommendations to management (with justifications) based on your analysis
   - Provide the business analysis and recommendations for the issues raised in the assignment scenario.

5. Dashboard
   - Create a dashboard that allows quick comparisons between the sites to be undertaken as well as containing at least one element of 'predictive' analysis.
   - You may use either Excel and pivot tables to provide a dynamic view of the dashboard, or you can use Power BI to construct your dashboard.
   - You should present your dashboard in your video presentation and, if you used Excel and pivot tables for the dashboard, display its dynamic nature.

6. Executive Summary in response to the business requirements.
   - Provide an Executive report that includes a short Executive Summary that presents a clear concise response back to the CEO question about possible downsizing of operations including evidence/justification (not to exceed 1.5 pages).

Part B: Video Presentation (Individual Submission)

Part B will be completed and submitted to Canvas as an individual student submission.

Based on the business recommendations developed your group in Part A, record a 3-minute video to communicate your findings to management. Use graphs where appropriate and only tables for detail. Focus on business recommendations, not on the detailed analysis you needed to perform to develop the findings.

Each student will record and submit their own video presentation. You may use the materials developed in Part A (analysis, reports, dashboard) but you must record your own video. You may use your own presentation materials (i.e. slides) in your presentation.

Breakup of assignment marks

Part A - Group Assessment

Component	**Marks Allocation**
Data Model/Data Load Process	20
Analysis & Predictions	30
Business Recommendations	20
Dashboard	20
Executive Summary	10
TOTAL:	**100**

Part B - Individual Assessment

Component	**Marks Allocation**
Video Presentation	25
TOTAL:	**25**

Submission instructions

The due date for Part A and Part B of the assignment is:
11.59pm Sunday 12th November 2023

Part A will be submitted to Canvas via group submission. Ensure that Group submission documentation is included with this submission including

- *Group assignment cover sheet,*
- *INFO6090 Team Peer Review* and
- *Team Weekly Progress and Planning Document.xlsx*

Part B individual video presentation will be submitted to Canvas individually by each student. You do not need to include a cover sheet with this submission.

Detailed submission requirements will be provided in Canvas.

Assignment Specification – Peer Review and Group Teams Management

Groups for assignment two:

For assignment two, you are expected to continue working with the rest of your group members from assignment one. In case you have encountered some difficulties while dealing with your group members that have affected your productivity and/or performance during assignment one, you could have the option to choose not to continue with your group.

However, we unfortunately won't be able to assign you to another group at this stage and as a result you will be doing the whole Assignment Two on your own. Please let us know ASAP via email (by Friday, 27 Oct 2023, 11.59pm) if you want to leave your current group and you need to provide along with your email some evidence regarding your reasons for leaving the group.

You are to fill in a **team peer review** (a suggested format for the team peer review is at the end of this document) on the title page (the first page following group assignment cover sheet) of your assignment. It should simply list each member and contribution as a % (the total of all member percentages should add up to 100%). To help with this, imagine I gave the team $100 for the assignment – you decide how it is to be split amongst members and that is the peer percentage. There are many factors that come into this – everyone does work differently and has different expertise and level of work. It helps to assess amongst several dimensions:
DO people:

- Turn up to team meetings (there should be at least one team meeting per week)?
- Hand in assigned work on time?
- Hand in quality work?
- Attempt to be proactive, anticipate problems and risks, try to lead potential work, try to manage teamwork?
- Communicate regularly with team members?
- Communicate a risk assessment of the amount of time and difficulty in their assigned work – or report potential problems or difficulties with their assigned work?

- Answer team requests within an adequate timeframe (i.e., do they check communication from the team?)
- Take an active part in the assignment of work to other team members?
- Check and report on the progress or quality of other team member's work?
- Etc…

There are many facets to working effectively in a team and usually it balances out for members who are committed to achieving a result. However, sometimes people have different priorities or lack skills that are important in doing the work. The peer review should reflect that. It is the first process in getting an individual mark, as the peer % will moderate the team mark to provide an individual team member mark. The peer review is a team effort – However, if someone does not agree with their peer % then the lecturer will arbitrate contribution. For that, you will each submit your individual work-in-progress documentation and, if you have one, your personal work or reflective diary before a meeting in which the WHOLE team is present with the lecturer. That will be the final arbitration of individual marks.

For people who have not worked in teams before, there are more formally some rules that each team needs to follow:

1) If there is a problem with a team member, report it to your lecturer so we can try to remedy the situation before it is too late (such as, before the assignment is due);
2) Have a progress and planning meeting once a week at an established time (people may zoom in but <u>everyone</u> should be present. This meeting should take only 1—20 minutes as it is ONLY intended to be a status report from each member on progress of his or her assigned work. It should also plan and allocate future tasks based on the status reports (this may mean allocating more people to difficult or uncomplete tasks, assigning new tasks, etc).
3) Document the assigned work from each team meeting (who is assigned what work and the progress of previously assigned work is all that is required). A suggested template for this is posted in the assignment folder under name "**Team Weekly Progress and Planning Document.xlsx**".
4) Have a document repository (this can be <u>anywhere</u>, that is convenient for team members to access, e.g. Google docs, OneDrive,. Etc).
5) Establish times when work-in-progress is to be uploaded to the team document repository. This is set at the team meeting for different tasks, or a specific time for all tasks – the team can decide.
6) Establish a team rule that if work-in-progress is not uploaded by the assigned time then it is taken as not being done. This is documented in the weekly meeting (any lateness is therefore transparent). It establishes an audit trail of individuals performance and contribution and no one person has to be the 'nasty person with the big stick' as it is a group policy; This allows:
   - People to see the actual quality of other members work, rather than a team member's estimate or promises of their work;
   - Team members sufficient time to read peoples work before a team meeting and provide feedback that can help, or can indicate potential problems that might require urgent action;
   - Risk assessment to be undertaken when assigning work to team members – some tasks take shorter, or longer, time than first anticipated. The team should evaluate the resources and time needed for tasks when allocating them at the

weekly meeting, or better yet, before the meeting if you anticipate work required. If a task is new, or the assigned person inexperienced, then the reporting times can be more frequent to alert for potential trouble or the need for more resources.

7) Always refer to rule 1.

These are simple rules that establish easily–followed team policies that are used professionally, that allow transparency of contribution of individuals and overall team management, that indicate problems and potential problems while there is still time to remedy them, and that are intended to ease tensions in team members.

Following is a sample Team Peer Review sheet:

<table>
<tr><td colspan="5">INFO6090 Team Peer Review</td></tr>
<tr><td rowspan="2"></td><td colspan="4">Team Name:</td></tr>
<tr><td>Given Name</td><td>Family Name</td><td>Student Number</td><td>Contribution %</td></tr>
<tr><td>1</td><td></td><td></td><td></td><td></td></tr>
<tr><td>2</td><td></td><td></td><td></td><td></td></tr>
<tr><td>3</td><td></td><td></td><td></td><td></td></tr>
<tr><td>4</td><td></td><td></td><td></td><td></td></tr>
<tr><td>5</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Reasons for low peer contribution (Only if required)</td><td colspan="4"></td></tr>
</table>