



UNSW Business School

**School of Information Systems and
Technology Management**

INFS2608

Database Management and

Big Data Infrastructures

Term 1, 2023

Group Assignment (Part B)

WPH Private Hospital Proof of Concept Project



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1. Assignment Description

The aim of the assignment is for you to learn how transaction data can be transformed to data to be used for data analytics (or business analytics). This group assignment is designed for you to work in a team solving complex data-related problem using Database Life Cycle (DBLC).

There are two parts of the assignment:

Part A: Based on a given case study, in this case WPH Private Hospital, you will apply the basic principles of database design for relational database and data warehousing, which is part of the Big Data infrastructure. You will research how the departments, administrators, and patients in a hospital function and integrated together. You will then create a relational database and data warehouse in Oracle.

Part B: You will also evaluate and discuss data management and big data analytics strategies. Microsoft Power BI is used as a data visualisation tool for Business Intelligence. You will have oral and video (for online) presentations.

In this document, we will focus on Part B of the assignment.

2. Key Dates

Item	Time
Assignment Part B Due: Submission of assignment written report	Word file and video submission via Moodle on or before Friday 14 April 2023, 4pm AEDT (Week 09)
Assignment Part B Due: Presentation (oral or video)	Week 10 (before enrolled Lab/Tutorial class)

3. Summary of Submissions

(a) Group Assignment Part B Report:

- Due on: **Week 09, Friday 14 April 2023, 4pm (Sydney Time)**
- *It is worth 20% of the course mark.*
- Submission requirements:
 - Coversheet,
 - Report,
 - PowerBI file,
 - Oracle Zip file, and
 - Self and peer assessment.

Group Assignment Part B Presentation:

- Due on: **Week 10, Before Class (tutor will publish the times)**
- Submission requirements:
 - PowerPoint slides
 - Oral presentation or Pre-recorded video PowerPoint presentation

4. IMPORTANT NOTES

4.1 File-Sharing Websites

There are some file-sharing websites that specialise in buying and selling academic work to and from university students.

You should be aware that you would be committing **plagiarism** if you download a piece of work from these websites and present it as your own either wholly or partially. For more information about Academic Integrity and Plagiarism, please [click here](#).

If you upload your original work to these websites, and if another student downloads and presents it as their own either wholly or partially, **you might be found guilty of collusion — even years after graduation.**

These file-sharing websites may also accept purchase of course materials, such as copies of lecture slides and tutorial handouts. By law, the copyright on course materials (**including this assignment brief**), developed by UNSW staff in the course of their employment, belongs to UNSW. It constitutes **copyright infringement**, if not plagiarism, to trade these materials.

4.2 Use of Generative AI (e.g., ChatGPT or Chat in MS Bing) [same as 11.4]

- As this assessment task involves some planning or creative processes, you are permitted to use software to generate initial ideas. However, you must develop or edit those ideas to such a significant extent that what is submitted is your own work, i.e., only occasional AI generated words or phrases may form part of your final submission. It is a good idea to keep copies of the initial prompts to show your lecturer if there is any uncertainty about the originality of your work.
- If you use ChatGPT (or any other Generative AI chatbot websites) for assistance (**per the guidelines stated above**), you have to make it clear in the assumption how you use the generated output from ChatGPT. Without clearly stating how the output is used will be regarded as serious academic misconduct and subject to the standard penalties.
- If the outputs of generative AI such as ChatGPT form a part of your submission, it will be regarded as serious academic misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion.

5. Formation of Groups and Contract agreement

5.1 Formation of Groups

- You will sign up to a group in your class.
- All group members must come from the same class.
- You will form a group of **four** (**three** or **five** is only allowed if there is an uneven number of students in the class, and can only be approved by the tutor)
- A group leader should be elected. The group leader is responsible for taking the minutes in a meeting, submit assignments, update the planner, and driving the team to complete the assignment on time.

5.2 Contract Agreement

- To ensure all the group members participate and contribute evenly to the assignment, there will be a contract agreement to be negotiated and signed by all the group members.
- A template of the contract agreement can be downloaded from Moodle.
- The contract agreement is an agreement between all the group members. Thus, all the group members have to agree up front what tasks are to be delivered and when the tasks are to be delivered.
- This contract agreement can be re-examined if one group member has withdrawn from the course, or an unexpected event happened to one of the group members. Please let the tutor know if the contract agreement has changed.
- The group contract agreement to be signed by all group members and should be visible on your private group channel. The best if you can pin to the top of channel to remind the obligation of each of the members.
- The group contract is to be used when there is a dispute such as the amount of contribution by an individual.
- Do not say the whole team will do every single task. Each group member has a specific task to complete. If two members are going to do a task, then include a percentage of contribution for each member. For example, "task to create rows for table Patient", Vincent (40%) and Eric (60%).

6. Private Group Channel (in Microsoft Teams)

- A private group channel will be created in Microsoft Teams by the teaching team after the group formation in Week 03.
- The name of your private group channel is same as your group ID.
- Only your group members and the teaching team will have access to your private group channel. That is, no member from outside the group can access to your private group channel.
- All conversations and files saved in the private group channel remain in the channel.
- The purpose of the private group channel is to work as an environment for you to meet, chat, leave messages, and upload/download files. Moreover, the teaching team can communicate directly with the group in this channel.
- All the posts, files, meeting times and other group activities must be saved in the channel. This is marked as part of PLO3 and PLO4 (see course outline).
- Another important factor of using the private group channel in Microsoft Teams is it is transparent to all the group members and the teaching team. When there is a dispute between the group members, the LiC will only examine evidence such as posts, meeting activities and uploaded files in the private group channel (see 10. Self and Peer Assessments). The LiC **will not** examine other communication channels such as WhatsApp, Facebook, and WeChat.

6.1 Planner (Trello or Excel)

- Planner such as Microsoft Planner (if you have access) or a Weekly Chore Schedule or Trello template or something similar which can be found in Microsoft Excel can be used to improve planning of tasks.
- The whole team can access the planner so there will be no excuse such as, “I don’t know what’s going on”.
- Notifications can be used as a reminder task to be completed.
- Planner should be maintained by the team leader or an appointee. All other group members should also assist in managing the tasks in the Planner.

Note: We will examine the activities such as chat and planner in the channel as the means of assessing **PLO 3: Business communication** and **PLO 4: Teamwork**.

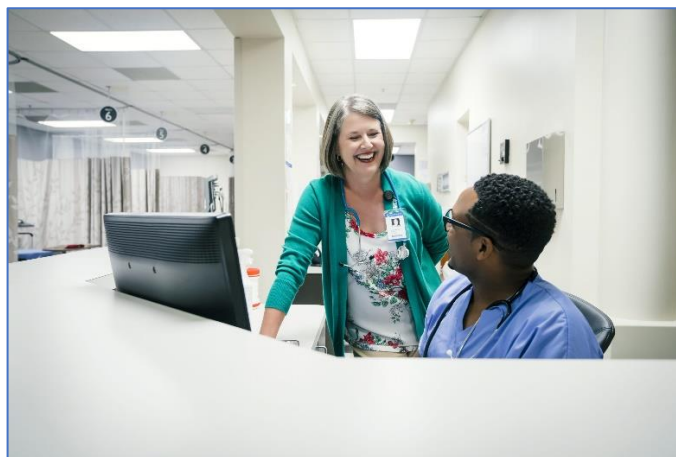
7. Case study

7.1 WPH Private Hospital

In the recent redevelopment project, similar to [Randwick Campus Redevelopment project \(nsw.gov.au\)](#), WPH Private Hospital (a fictitious hospital) or just WPH, is in Eastern suburbs of Sydney, built and renovated a few of its buildings. WPH has a reputation of delivering a high standard of medical service.

You are asked by the management of WPH to provide a prototype database for WPH. The focus of the prototype is on patients, administrators, and departments. There are many areas you can focus on, but you were told that your objective is to build an ERD of a data model based on these three areas:

- (1) WPH is an integration of several **departments**, namely clinical departments, nursing departments, supportive departments, technical departments and administrative departments. The purposes of these departments can be found on the website: [Departments in a Hospital](#).
- (2) There are different types of **administrators** working at WPH (see [Background of Administrators](#)). There are also doctors including specialists, general staff and supporting staff (such as chef) working in WPH. However, the focus of this project is on the **administrators**. [Note: an administrator used here is a generic term describing someone who is responsible for carrying out the administration an organisation rather than the name of the position.]
- (3) When registering at WPH, a **patient** must provide their name, date of birth, address, other personal details, and Health fund (if any). Registration date (date of the first contact with WPH Private Hospital) is automatically assigned. You can assume the details of the patient either provided by the patient, or patient's relative or friend. Each resident patient has an attribute called Date Admitted and will stay in the hospital for at least one night. A day-surgery means the patient only had to book for the surgery on a given day and does not stay in the hospital.



Your team (= assignment group) has been hired as a group of technical consultants by WPH Private Hospital to develop their database and data warehouse to improve what the administrators of the hospital are currently doing. Moreover, they want you to develop a business intelligence platform to produce some basic reports. The first stage of the project is to demonstrate as a *proof of concept* that the introduction of a data warehouse will help to improve the speed and accuracy of producing reports. As this is a *proof of concept* project, we do not expect you to produce a fully functional database or data warehouse for WPH Private Hospital.

7.2 Considerations

Actions you must take when building an ERD:

- (a) You start to do research on two or more of the **departments**.
- (b) This is followed by doing further research on one or more types of **administrators working on the departments**. You have to research the types of administrators who work in a particular department, and their duties. Not all the administrators' duties will be captured in an entity. For example, a nurse who helps to clean/wash a patient will not be captured because you do not need to record a 'nurse cleaning/washing a patient'.

Based on your research, you can select one or more **departments**, and two or more types of **administrators** to serve patients. Please note that having many departments or many types of administrators do not necessarily translate into a higher mark.

For example, The **Nutrition and Dietetics department** provides professional advice (see the diagrams below) and suggests **a dietary plan** to the **patients**. The **catering and food services department** will then provide meals based on the dietary plan to the **patients**.

Nutrition and Dietetics -

- This department provides professional advice on diet for the inpatients as well as outpatients.
- This department collaborates with certain departments that require patients to be put on a diet such as diabetes, kidney diseases, elderly care, gastroenterology, surgery and critical care.
- This department suggests a dietary plan followed by the hospital canteen facilities.

Catering and Food Services -

- This department provides balanced meals to inpatient clients, their families and hospital staffs according to the advice of the nutrition department.

Ref: [Departments in a Hospital](#)

This is a simple story you can tell the management of WPH:

A dietician from the ***Nutrition and Dietetics department*** suggests a dietary plan to a patient. Based on the dietary plan, a chef in the ***catering and food services department*** will then prepare a meal for the ***patient***. The chef will decide produces and ingredients needed. An order will be created based on the number of produces and ingredients. The ***administrator*** of the ***catering and food services department*** is responsible for handling the order and payment of goods.

However, when you create an ERD, you should not create a department entity. That is usually a big mistake made by the students. Instead, you are likely to create entities for (1) *dietary plans*, (2) *patients*, (3) *ordering of goods*, (4) *storage of goods*, and (5) *administrators who processed the order and payment of goods*.

Note: you should not use this given example in your assignment.

7.3 Proof of Concept Project

A *proof of concept* project is common in a business environment (see [Proof of concept - Wikipedia](#)). Instead of committing a large sum of money to build or upgrade a system. The *proof of concept* project is to demonstrate how a system works but in a cut-down version. In other words, you demonstrate only a portion of the system and not the full system. The purpose is to show viability of the proposal of the system. It also helps stakeholders of the project to visualise what the system can deliver or sometimes we call it a “stakeholder buy-in”.

In this project, you do not expect to develop a full system. The purpose of this *Proof of Concept* Project is to evaluate the feasibility of using data warehouse for reporting.

You introduce the concept of using data warehouse to provide data for creating reports in using the business intelligence tools.

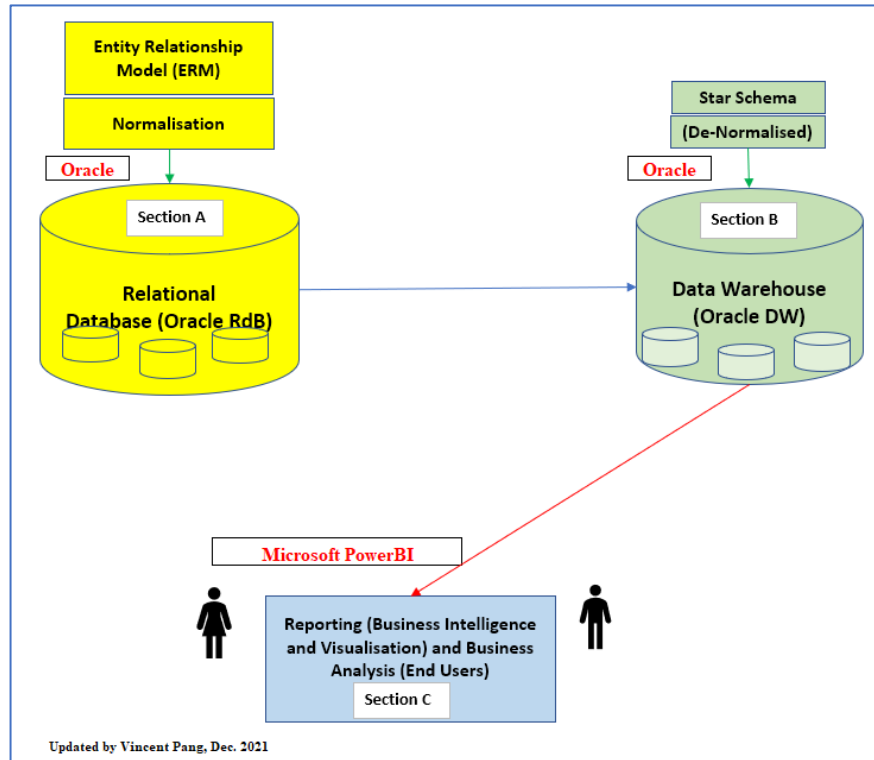
You just have to demonstrate:

- (a) how a transaction data is captured in a relational database,
- (b) how the data is then transferred to a data warehouse, and
- (c) how the reports are generated using the data warehouse.

7.4 Requirements

There are three sections of the project shown below you need to address:

- (a) Section A Entity Relationship Model and Relational Database (Oracle)
- (b) Section B Star Schema and Data Warehouse (Oracle)
- (c) Section C Business Intelligence (Microsoft PowerBI)



7.4.1 Section A Entity Relationship Model and Relational Database (Oracle)

- (a) You have to create an Entity-Relationship model (ERM) in Part A of the assignment. You need to address the feedback you received for Part A. That is you fix up any issues raised in Part A.
- (b) A schema is generated from the ERM.
- (c) The model must be normalised to 3NF or BCNF.
- (d) The number of tables to be generated is based on the number of members in your group. As a rule of thumb, you have to create at least four tables per group member. For example, a four-member group will have to create at least **twenty** tables, but you can create more tables as required.
- (e) If you do not have enough tables in your relational database, then you might find it difficult to create enough attributes for the fact table and dimensions in the data warehouse (in Section B).
- (f) You have a choice of using one of these tools to create your ERM:
 - (1) Oracle SQL Developer/Data Modeler or

- (2) draw.io (used in INFS1603).
- (g) As for the notation, you have a choice of using:
 - (1) Barker (default notation used in Oracle SQL Data Modeler) or
 - (2) Chen (learned in INFS1603) or
 - (3) Crow Foot (used in the textbook).
- (h) The selection of a tool and a notation in (h) and (i) will not impact on how you will be marked.

[Note: The advantage of using Oracle SQL Data Modeler/Developer is the ERM and tables are automatically generated by the software.]
- (i) Implement a relational database in Oracle based on your relational database schema. Populate the tables of the database with **at least ten sample records** in each table. Create data with proper names and description. For example, do not have a name called “ABC” or “XYZ”. Ensure that you have adequate data to run and test queries and showcase the database.
- (j) You do not need to write any computer programs or use Oracle Apex for data entries. You use Oracle SQL statements defined in Data Manipulation Language (DML) to insert, update, or delete data records.

7.4.2 Section B Star Schema and Data Warehouse (Oracle)

- (a) A star schema is to be created based on the ERM. **Note: the term star schema in this instance includes snowflakes and galaxy.**
- (b) You have to justify the selection of fact table(s) and dimension tables from the star schema from ERM.
- (c) You have to show how a fact table and dimension tables in a star schema are created from tables in the relational database or ERM in Section A. A star schema should be de-normalised. You can go one step further to create a snowflake schema or even a galaxy schema as your data warehouse model. Any of the three schemas is fine for this project.
- (d) You might need to create a new calendar dimension table and populate the table with data.
- (e) Apart from adding a calendar dimension table, if you have any other dimension tables or even a fact table not based on ERM, you have to explain why you need to create such table.
- (f) Once the schema is created, you can create the tables and at least one materialized view in Oracle. Data warehouse is made up of tables (classified as fact and dimension) and materialized view.
- (g) You must populate the tables with data from the relational database using Oracle SQL statements defined in Data Manipulation Language (DML).

- (h) The schema (star, snowflake, or galaxy) and data warehouse must be associated with the ERM and relational database.
- (i) You do not need to worry about the storage parameters for the data warehouse.

7.4.3 Section C Business Intelligence (Microsoft PowerBI)

- (1) You have to use Materialized View to create the data from the data warehouse created in Section B to be used in Microsoft PowerBI.
- (2) You might want to create one or two tables and one or two graphs. The tables and graphs in PowerBI just have to be simple and not complex.
- (3) As part of the *proof of concept*, you have to demonstrate:
 - (1) some transaction data created in the relational database (in Section A),
 - (2) the data are then added or updated to a fact table in the data warehouse (in Section B), and
 - (3) the data is retrieved using a materialized view from the data warehouse and displays in a graph (or a table).

7.4.4 QnA Support for the Assignment

- (a) A Group Assignment channel is already set up in Microsoft Teams for Questions and Answers (QnA). All questions related to the group assignment should be posted in the channel.
- (b) All announcements from the teaching team related to the assignment will be posted in this channel.
- (c) Before posting your questions, please check in the channel that your question has not been answered.
- (d) Please do not send your lecturer and tutors an email with your questions because if you have a question, then someone might have the same question as well. If you send us an email, we will ask you to post your question.

8. Tasks and Deliverables

8.1 Part A ERM and DW Model Feedback

- (1) Submit a revised Entity-Relationship model (ERM) based on your feedback. The ERM should be normalised to 3NF or BCNF. Describe the changes to the model briefly (changes may or may not arise from the feedback on Part A and the experience in the implementation process).
- (2) Provide a **revised star schema for data warehouse model**. Describe the changes to the model briefly (changes may or may not arise from the feedback on Part A and the experience in the implementation process). Note: Note: star schema can be referred to one of the three types of schemas, namely star, snowflake or galaxy.
- (3) The ERM should associate between the three objects, namely departments, administrators and patients.
- (4) Each group member **must present at least five (5) entities**. This means:
 - i. A group of three has 15 entities,
 - ii. A group of four has 20 entities, and
 - iii. A group of five has 25 entities.

8.2 Part B ERM and DW Model

- (1) You have to write a report and perform a presentation (discussed later) to cover what you have done in the proof-of-concept project.
- (2) Your report should include some of the points required throughout this document. However, you will have to present your work, we will leave that to you to think what is the best way to present in the report as well as the presentation.
- (3) To ensure the “weight” of the entities are fairly even distributed between the group members within the group, and between the groups, here are some of the rules for counting the number of entities:
 - a. Each entity must have at least four attributes.
 - b. A supertype entity is counted as one entity.
 - c. All subtype entities belong to one supertype entity is counted as one entity. That is, if you have four subtype entities belonging to one supertype, then you count the four subtype entities as one entity.
 - d. A “simple” entity with only two or three attributes will be counted as half-an-entity. For example, a country entity with only two attributes, namely country code and country name, will be counted as half-an-entity (i.e., 0.50 Entity).

- (4) You need to list reasonable assumptions that you have made to draw the ER diagram.
- (5) You have to reference all the websites you used to create the entities and used in the project.

8.3 Part C Microsoft PowerBI

- (1) As part of the *proof of concept* to demonstrate you have to demonstrate the journey of a set of transaction data and finishes on a report in PowerBI:
 - a. Transaction data captured in a relational database,
 - b. The data are then uploaded to data warehouse, and
 - c. the data are then retrieved using a materialized view from the data warehouse to PowerBI. The data are then displayed as a graph (or a table). You have to provide the PowerBI file.

8.4 Tool and Notation for Model

To create these models, you have a choice of one of these tools:

- (1) Oracle SQL Developer/Data Modeler, or
- (2) Lucidchat, or
- (3) draw.io. or
- (4) Draw option in Microsoft Excel.

As for the notation, you have a choice of using:

- (5) Barker (default notation used in Oracle SQL Data Modeler) or
- (6) Chen (learned in INFS1603) or
- (7) Crow Foot (used in the textbook).

Selection of tool(s) and notation (for Part B):

- (8) If you were to use the Oracle SQL Developer/Data Modeler to create the models, then by default, you will use Barker notation. The bright side of using the Data Modeler is attributes, tables, keys, and other parameters will all be created automatically.
- (9) If you were to use either Chen or Crow Foot notation, you still need to use Oracle SQL Developer to create the tables.
- (10) You can create attributes, tables, keys, and other parameters first in Oracle SQL Developer, and then reverse engineer back to an ERM. Please note that there are some limitations such as sub-types might not be generated in the reverse engineering process (if that is the case, you have to state the sub-types).

8.5 Format and Deliverables

- (a) You have to write a report and perform a presentation (discussed later) to cover what you have done in the proof-of-concept project.
- (b) Your report should include some of the points required throughout this document. However, you will have to present your work, we will leave that to you to think what is the best way to present in the report as well as the presentation.
- (c) You can download a report template from Moodle.

- (d) **Length.** You must be concise. The total length of the report must not exceed **2,000 words** (excluding coversheet, table of contents, references, footnotes, endnotes, summaries/outlines, appendices, etc.). The contents in appendices are considered as extra information you might want to know. Appendices should not be used as continuation from the main document. You may be able to stay well below this limit.
- (e) **Table of Contents.** Should not exceed one page, restricted to two levels of headlines.
- (f) **Format.** The style/format of the report can be as you find it appropriate and useful. You should use headings, sub-headings, bullet points, diagrams, and tables as appropriate. The file format of the report is only Microsoft Word.
- (g) **References.** References and citations should follow either the UNSW (Harvard) or the APA 7th citation style standard.
- (h) **Title and File Naming Convention:** Your submitted file should be in the format of **"INFS2608-ReportB-GroupID".docx**. (e.g., INFS2608-ReportB-H18A-1.docx where H18A-1 is your group). **Failure to use the correct file naming** will lead to a 5% penalty.
- (i) Text inserted as pictures will NOT be marked. For example, a table cannot be screenshotted as a picture. Only figures can be inserted as pictures.
- (j) The clarity and readability of your diagrams are very important.



8.6 Presentation

Final presentation: Your team will be presenting your database system to WPH Private Hospital. (i.e., you need to convince your audience that your solution meets the objectives):

- **Microsoft PowerPoint slides should be used,**
- **Face-to-face classes will do a face-to-face presentation in Week 10, and**
- **Online class will submit an online video presentation in Week 10.**

Overall, your team should present in your presentation:

First slide	<p>This slide should have your group number and names, with individual pictures if you like. It does not count towards your Main slides.</p> <ul style="list-style-type: none">▪ One minute is allocated for introduction and conclusion
Main slides	<ul style="list-style-type: none">▪ A maximum time of presentation is <i>2 minutes per group member</i>.▪ A maximum number of slides is <i>2 main PowerPoint (PP) slides per group member</i>.▪ Do not insert extra slides in between the presenters, otherwise it will count towards the limit. <p>For example, for a 4-member group, you have a maximum of 9 minutes (1 minute + (4 members * 2 minutes)) to present and a maximum of 8 main PP slides. However, you can present less than 9 minutes and have less than 8 main PP slides.</p> <ul style="list-style-type: none">▪ You can use animation such as Powtoon (Easily Create Videos Yourself Free Video Maker Powtoon) or any animation software or even Tik Tok to present your part of the presentation. If you were to use animation, you still have to put down the contents to the PowerPoint slides for completeness. The contents presented should be similar but does not necessarily have to be exactly the same.
Reference slide(s) [optional]	Include any references used in the presentation

- Audience: the management of WPH Private Hospital (some are non-technical audience, not familiar with databases), and technical specialists (who are familiar with databases).
- Purpose: To convince the management that you have delivered a *proof-of-concept* Project.

Requirements for Face-to-Face Presentation:

- The presentation must be based on your group work.
- Each group member person must come to class to present his/her work.
- If you want to use Microsoft PowerBI as part of your demonstration, then everything must be set up to run from the beginning. You might lose valuable time if you start to swap laptop and presentation slides. Alternatively, you just demonstrate using animation or just the results on a PP slide.
- Time limit will be enforced.
- No QnA section to keep it consistently with video presentation.

Requirements for Video Presentation:

- The slides AND the presenter's face (highly recommended) should be shown in the video.
- Team Leaders must submit your video on Moodle before the due date.
- The file name should be as follows: **"GroupID-Presentation".mp4** (e.g., W18A-08-Presentation.mp4) (You should only use **.mp4 video format**).
- ZIDs and names of all members should be included on the first slide of the presentation and video.
- **Include the name(s) of the group member(s) who wrote, and which group member presents on the corresponding slide.**
 - This slide wrote by: Vincent Pang and Silvia Lin
 - This slide presented by: Silvia Lin
- The video file is submitted to a different submission box. The video must be saved in *MP4 video format*.
- All group members must present. If an individual does not contribute to video presentation without a good reason, then his or her mark might be adjusted accordingly. It will be assessed as a group as well as an individual for the presentation.
- [Support for Oral Presentations | UNSW Current Students](#)
- Present in PowerPoint [Using PowerPoint | UNSW Current Students](#)

A possible structure but not limited for the video presentation could be:

- Clearly and briefly introduce your team, the presentation's structure, and key points.
- Clearly and concisely identify how the ERD and data warehouse were designed.
- Present and explain clearly the data from transaction data stage to a graph or table on PowerBI.

Clearly and concisely identify the benefits of your solution to the hospital.

9. Rubrics

Criteria	High Distinction (HD)	Distinction (D)	Credit (C)	Pass (P)	Fail (F)	PLO
Requirement Analysis (10%)	Relevant stakeholders and contextual factors are clearly established and considered. Moreover, the scope, objectives, and appropriate discussion reflect a highly sophisticated analysis of the scenario and strong evidence of independent research.	Relevant stakeholders and contextual factors are appropriately considered. Moreover, the scope and objectives' issues are thoughtfully discussed and well justified. Some evidence of independent research, backed up by detailed analysis.	Relevant stakeholders are clearly identified, and contextual factors considered. Moreover, the scope and objectives' issues are reasonably discussed.	Adequate consideration of stakeholders and contextual factors is provided with a reasonable attempt to consider the project scope and objectives, while the discussion of scope and objectives is underdeveloped.	Considerations of stakeholders and contextual factors are missing or marginal, or the scope and objectives of the project are missing or insignificant.	PLO 1: Business knowledge PLO 2: Problem solving
ERD and DW Design (45%)	The ER modelling and Star Schema techniques are correctly demonstrated and is fully aligned with the case scenario (esp. no entity is missing or is significantly misspecified). All PKs, FKs, relationship, connectivities and cardinalities are accurately identified and noted in the ER and DW models. Assumptions (e.g., support your notations of cardinality and connectivity) are clearly given and justified. Both models are correct and completely reflect the assignment scenario and the ER model. The ER model is accurately/exceptionally visually structured (easy to read and comprehend) and normalised. The star schema in the DW model is visually structured (easy to read and comprehend). Readability: The two models are very well depicted and easy to read (clear fonts, colours, etc. are used for readability).	The ER modelling and Star Schema techniques are correctly demonstrated and are aligned with the case scenario (no more than one relation or entity is missing or is significantly misspecified). PKs, FKs, relationship, connectivities and cardinalities are accurately identified and noted with equal to or less than three minor errors/mistakes (e.g. missing two attributes in one of the tables). Assumptions (e.g., support your notations of cardinality and connectivity) are clearly provided. Both models are correct and mostly reflect the assignment scenario and the ER model. Both ER and DW models (no more than one table is missing or not matching the ER model or one dimension is missing). The ER model is clearly visually structured (easy to read and comprehend) and normalised. Readability: The model is very well depicted and easy to read (clear fonts, colours, etc. are used for readability).	The ER modelling and Star Schema techniques are demonstrated and reasonably aligned with the case scenario with missing/misspecified entities or relations. PKs, FKs, relationship, connectivities and cardinalities are identified and noted, with more than three minor errors/mistakes/inconsistencies. Assumptions (e.g., support your notations of cardinality and connectivity) are provided. Both models are generally correct and reflect the assignment scenario. Both ER and DW models are mostly visually structured. Readability: The model is very well depicted and easy to read (clear fonts, colours, etc. are used for readability).	The ER modelling and Star Schema techniques are mainly demonstrated with some alignment between ERD and Star Schema. The models are aligned with the case scenario with three or more missing/misspecified entities or relations. The relational model and Star Schema execution are adequate. Readability: The model can be read (fonts, colours, etc. are reasonable selected for readability).	Evidence of systematically wrong modelling technique: the ERD diagram and star schema are missing or completely inappropriate for the case scenario. The relational model and Star Schema execution are poorly done. Readability: The model can hardly be read (fonts, colours, etc. are not well selected for readability).	PLO 1: Business knowledge PLO 2: Problem solving
ERD and DW Implementation (SQL Statements) (10%)	The SQL statements for ERD and Star Schema are clearly stated and easily followed logically with constructive comments. All tables, PKs, FKs, relationship, connectivities and cardinalities are correctly identified and noted. Data definition and data insertion to implement the DB are fully provided.	The SQL statements for ERD and Star Schema are clearly stated and easily followed by some comments. All tables, PKs, FKs, relationship, connectivities and cardinalities are correctly identified and noted with minor errors. Data definition and data insertion to implement the DB are fully provided.	The SQL statements for ERD and Star Schema can be followed with some comments. Most of the tables, PKs, FKs, relationship, connectivities and cardinalities are correctly identified but with some minor errors. Data definition and data insertion to implement the DB are partially provided.	The SQL statements for ERD and Star Schema are difficult to follow with no or minimal comments. Some of the tables, PKs, FKs, relationship, connectivities and cardinalities are missing or incorrectly identified. Data definition and data insertion to implement the DB are partially provided.	The SQL statements for ERD and Star Schema are difficult to follow with no or minimal comments. Most of the tables, PKs, FKs, relationship, connectivities and cardinalities are missing or incorrectly identified. Data definition and data insertion to implement the DB are partially provided or missing.	PLO 2: Problem solving

Criteria	High Distinction (HD)	Distinction (D)	Credit (C)	Pass (P)	Fail (F)	PLO
Power BI (Visualisation) (10%)	A very well thought out of how data are imported and used in PowerBI. Excellent with the use of charts for story telling (i.e., explain insights of data used on the charts).	A well thought out of how data are imported and used in PowerBI. Very good with the use of charts for story telling (i.e., explain insights of data used on the charts).	Some thought went into on how data imported and used in PowerBI. Good with the use of charts for story telling (i.e., explain insights of data used on the charts).	Minimum thought went into on how data are imported and used in PowerBI. Charts are used but not associated with story telling (i.e., explain insights of data used on the charts).	Not much thought went into on how data are imported and used in PowerBI. Charts are created but not associated in the story telling (i.e., explain insights of data used on the charts).	PLO 2: Problem Solving PLO 3: Business communication
Demonstrate the flow of data (10%)	An excellent demonstration of data input into a relational database, upload to data warehouse and download to PowerBI. Excellent explanation and experience are given to the flow of data from input through to output.	A very good demonstration of data input into a relational database, upload to data warehouse and download to PowerBI. Very good explanation and experience are given to the flow of data from input through to output.	A good demonstration of data input into a relational database, upload to data warehouse and download to PowerBI. Good explanation and experience are given to the flow of data from input through to output.	A limited demonstration of data input into a relational database, upload to data warehouse and download to PowerBI. Limited explanation and experience are given to the flow of data from	Very limited demonstration of data input into a relational database, upload to data warehouse and download to PowerBI. Very limited explanation and	PLO 3: Business communication PLO 4: Teamwork
Criterion 5 - Presentation Content (15%)	Excellent organisation of the presentation resulting in a clear and engaging narrative which highlighted the relevance of, and connections between all material presented. Central message clearly stated, strongly supported, memorable, and compelling. Excellent use of language, which is memorable, appropriate, compelling, and enhances the effectiveness of the presentation. Spoken language is clear concise and compelling, delivered in an engaging style and effectively conveying key message A well-developed and highly effective professional presentation delivered in an engaging manner. High level of understanding of the intended audience	Organisation of the presentation is thoughtful and easy to follow including clear introduction and conclusion, well sequenced material and smooth transitions. Central message is clear and consistent and compelling. The choice of language is thoughtful and appropriate, engages the audience and supports the effectiveness of the presentation. Spoken language is clear and concise, and uses effective tone, pacing and emphasis to clarify key message A well-developed and highly effective presentation delivered in a comprehensively professional manner, with a high level of understanding of the intended audience.	Organisation of the presentation is sound, material is logically sequenced and adequate transitions are included. Central message is clear and consistent. Language choices are appropriate for the audience, and support the effectiveness of the presentation. Spoken language is clearly projected and easily understood by listener and word choices are generally appropriate. Good supporting material such as examples, illustrations, quotations, visual, and aural presented relatively effectively and support the information presented.	Organisation of the presentation is clear and material is generally logically sequenced. Central message is mainly clear Language choices are broadly appropriate for the audience and generally support the effectiveness of the presentation. There may be some minor examples of ineffective language choices. Spoken language is generally clear but occasionally features poor/unclear word choices, lack of voice projection and/or variation in tone. Supporting material is appropriate for presentation but may not be presented in a way that adds clarity or helps expand on key messages	Presentation is not well organised and difficult to follow. Sequence is not logical and effective transitions are lacking. Presentation does not appear to have a central message. Language choices are inappropriate for the audience (may be too informal or use language that intended audience will not understand) and does not support the presentation. Spoken language is unclear and significantly compromises the effectiveness of communication, making the central message difficult to understand. Insufficient, inappropriate or	PLO 3: Business communication PLO 4: Teamwork
Note: Feedback from Part A will be marked as part of the above marking criteria.						

10. General Rules

11.1 Proper Academic Conduct

All assignments must follow UNSW's guidelines regarding proper academic conduct. The submission of materials that are non-original or have been submitted elsewhere will be considered plagiarism. Plagiarism is unacceptable. All instances of plagiarism or other academic misconduct will be pursued. Plagiarism may lead to you failing this course and may have negative consequences for your studies at UNSW. The Academic Integrity at UNSW can be found on [Academic Integrity & Plagiarism | UNSW Current Students](#). For group assignments: If your group suspects that a group member's work contains plagiarism then you should raise this with the group member concerned and have the problem rectified. If the problem is not rectified, notify the LIC who will call in a group meeting.

11.2 Assignment Submission

Assignments are to be submitted via Moodle on or before the day of the deadline. Late submissions of assignments are to be avoided, disrupt the course timelines and are a sign of poor time management. The late submission of assignments carries a penalty of 5% of the awarded marks for that assignment per day of lateness, including weekends and public holidays. Assignments submitted late or did not follow the submission instructions will miss marked components that are in their nature dependent on timely submission, especially peer review.

An extension of time to complete an assignment may be granted by submitting a Special Consideration in the case of illness or misadventure. For group assignments: **groups are expected to plan ahead and to be able to balance out a missing member without an extension.**

Even if an extension is granted, parts of the marks that are dependent on a timely submission and timely progression of the course (esp. marks for participation in the peer review process) cannot be achieved at all. The general UNSW guidelines for special considerations are available online.

11.3 Professional Group Work

The membership of groups is at your discretion. It is your responsibility to join a group, otherwise we will assign you to a group. If you do not join a group, you are still expected to complete the assignment in full and no allowance in marking standards is made for the fact that the assignment becomes a solo effort in this case.

Groups must plan, schedule, and conduct activities in due time. Groups must meet on a regular basis (at least twice per week) while the assignment is being undertaken and keep records (diaries, meeting minutes) of such meetings. The groups must ensure that all members are involved in the completion of the assignment. The work is to be divided equally among the group members.

All group members are expected to behave professionally and work diligently. Group members should contribute in a useful and constructive way to the teamwork. Deadlines should be kept, and work should be delivered at a professional standard. If problems emerge in your group, then these problems should in the first instance openly be discussed in the group (different members might have different views) and resolutions should be agreed on. If internal arrangements repeatedly fail to remedy the situation, then you should bring the issues to the attention of the LIC.

The LIC may call a meeting of the group in which each group member will be asked to describe in detail his or her input into the assignment and provide supporting documentation of this effort (e.g., posts and upload of files in private channel in Teams). If group members are found to be making inadequate effort or delivering poor quality, then they will be counselled to improve their effort. If sufficient improvement is not made despite group efforts and LIC interventions, then the mark of under-performing group member(s) may be moderated to reflect the relative lower input into the assignment. Note that the inability to resolve internal group conflicts without involving the LIC does not reflect well on the group's project management and teamwork skills.

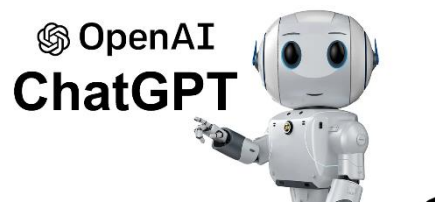
11.4 Special Consideration

Once special consideration has been approved, the group leader or another group member must update the planner near the deadline to reflect the tasks each group member has completed to-date and tasks to be completed. The tasks the member with the special consideration still have to complete. The planner should be visible for tutor/marker to check and download after the deadline.

The tutor/marker expects most of the tasks completed before the deadline. For example, 2 days before the deadline, it is expected 90% to 95% of the main tasks are completed.

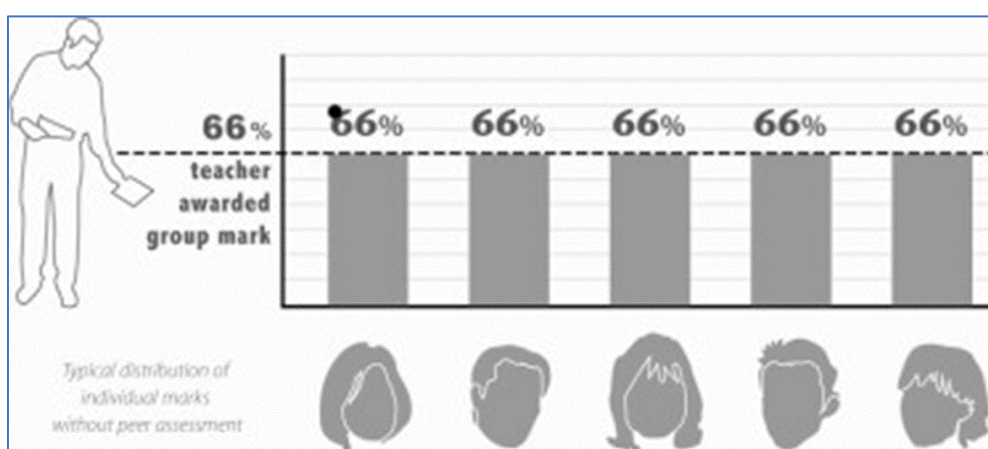
11.5 Use of Generative AI (e.g., ChatGPT or Chat in Microsoft Bing)

- As this assessment task involves some planning or creative processes, you are permitted to use software to generate initial ideas. However, you must develop or edit those ideas to such a significant extent that what is submitted is your own work, i.e., only occasional AI generated words or phrases may form part of your final submission. It is a good idea to keep copies of the initial prompts to show your lecturer if there is any uncertainty about the originality of your work.
- If you use ChatGPT (or any other Generative AI chatbot websites) for assistance (**per the guidelines stated above**), you have to make it clear in the assumption how you use the generated output from ChatGPT. Without clearly stating how the output is used will be regarded as serious academic misconduct and subject to the standard penalties.
- If the outputs of generative AI such as ChatGPT form a part of your submission, it will be regarded as serious academic misconduct and subject to the standard penalties, which may include OOF, suspension and exclusion.



11. Self and Peer Assessments

In general, equal contribution of group members is expected. At the end of the assignment period, you will perform a self and peer assessment to evaluate the contribution of all group members (including yourself) to the group project. The purpose of the self and peer assessment is to critically reflect on the group work, **to prevent “free-riding” and to redistribute marks between group members in cases where free-riding or unequal contributions occur.** Thus, you are strongly recommended to do self and peer assessments via Moodle, a link is created to UNSW Review website. Most of the times, the contributions are evenly distributed as shown below:



The self and peer review assessment will allow you to rate your group members' contribution.

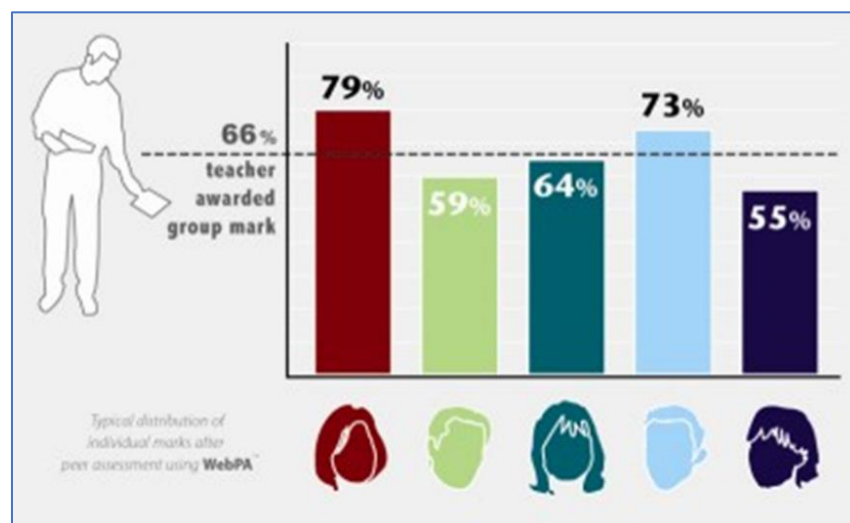
- ☐ **Rate your group members** and your own contribution to the group assignment on a scale out of 5:
 - 5 = Significantly above expectations (very strong contribution in terms of quality and quantity, leadership of the project)
 - 4 = Slightly above expectation (strong contribution in terms of quantity and quality)
 - 3 = Meeting expectations (did his/her fair share)
 - 2 = Slightly below expectations (did some work, but could have been more and/or of better quality)
 - 1 = Did not participate at all / free riding or significantly below expectations (did very little work and/or of poor quality)

- ☐ **Equal contribution is expected.**

- In your group private channel in Microsoft Teams, you can record all your communication such as meetings. All the posts and uploading of files will all be date time stamp.
- **Please note that simply doing the final proof-reading or making a cup of tea does not count as equal contribution.**

❑ Unequal contribution

- However, occasionally, you might have a “free rider” (i.e., student who does not do any work but has his or her name on the front cover) or people who just want to do the minimum, then you might the contributions as shown below:



- **Unequal contribution might lead to redistribution of the marks of the group assignment.**
- Contract agreement will be used as the binding agreement between group members to check for the plan and tasks.
- Conflicting/inconsistent/unfair peer contribution review will lead to the group being assessed by the LiC. LiC will then examine the communication between the members including posts, date time stamp of the posts, meeting minutes, files and so on in Microsoft Teams.
- In the case that a dispute emerges, the group needs to discuss with the LiC at the earliest possible time.
- Claims of unequal contributions, especially if contradicting the evaluation of others, will need to be substantiated with evidence (e.g., upload of files and posts in the private channel in Teams).
- The LiC will make a final judgement in the case that a dispute emerges.