SEM 1, SESSION 2021/2022
WIA2001/WIB2001 DATABASE
GROUP PROJECT (30%)

1. EACH GROUP MUST CONSISTS OF **5 MEMBERS** (of mixed races and gender). **Groups which do not adhere to this specification will be penalized, and MARKS WILL BE DEDUCTED.**

2. EACH GROUP MUST:

2.1 Choose an organization as a model (real world model) . Groups who uses internet-based company, must collect requirements from the owners of the site in a FACE-TO-FACE interview. Otherwise, MARKS WILL BE DEDUCTED for not following this specification.

i. For example: MPH bookshop in Mid-Valley Megamall or Klinik Murthi near University Towers.
ii. Problems: For security purpose some organizations might not like your presence, so find other organizations.
iii. Do not go into detail to see their systems or databases, just understand their workflow and data flow, that's ALL!
iv. Finally, get the organizations signature/official cop to certify your presence there. Put it in your report as appendix. You may also include photos of your members with the organization as well.
v. Act professionally, make appointments, don't be a disturbance to the organizations.

2.2 Design the Database (Project 1: 10%) – Presentation and Report submission on Week 7

Students are required to design one database system for the organization (real world organization) chosen. In order for the students to accomplish the given task, they have to follow a carefully define plan. This plan reflects the notion that a database's successful design, its implementation, and its applications development require the successful completion of the following steps:

1) Write a detailed and accurate description of business operations and objectives
2) Develop an extensive and precisely written business rules based on the description of business operations
3) List out some of the requirements from the user
4) Define the entities, attributes, relationships, cardinalities and constraints for each module define in step 3. Use the business rules develop in step 2 as the source for your component definitions

5) Create ERD segments to model the modules you define in step 4. Remember that each of the ERD's entities will be implemented through a database table.
6) Perform the appropriate normalization checks.
7) If necessary, modify the ERD segments you developed in step 5 to reflect the normalization findings in step 6.
8) Report for **Project 1** should comprise complete descriptions of step (1) until step (7)

2.3 Develop the Database (Project 2: 20%) – Presentation and Report Submission on Week 13

1) Develop a database based on Assignment 1 using Oracle or MS Access.
2) Use SQL for query purposes based on user requirements (reports that user wants to generate). Write SQL statements to handle data manipulation (Add, Edit, Delete, Search.) within the application domain.
3) Test the database system thoroughly.
4) Specify the problems/difficulties in the process of developing the database system
5) Report for **Project 2** should comprise complete descriptions of step (1) until step (4). Specify the tools used and the steps taken for database testing (using appropriate SQL).

Assessment :

- The final grade of the group project will depend on :
  - Difficulty and scope of the application domain you have chosen to work on
  - Teamwork put in by members in making the project a success
  - Quality of your solution approach, design and implementation
  - Problem your group tackled, your solution approach, and your learning outcome at the end of the course, and the demonstration of your system (including successful functions run), if applicable
  - Overall presentation (includes fluency in English, performance, confidence, etc.)

- Grade of the group project may not necessarily be the same for each member of the team

  - Report Format:
    - Font: Arial 11
    - Justify (Alignment)
    - Make sure include **ALL** the group members name and matrix no.
    - Report should consists of all the steps in section 2.2.

1. Each student is required to complete the **Peer Work Group Evaluation Forms** as attached below and submit it together with your report.

Peer Work Group Evaluation Forms (To be treated as private and confidential, and to be submitted SEPARATELY to the lecturer)

Course: Semester: Session:
Lecturer:
Assignment: **Lab Practice/Group Project/Presentation**

Evaluator (Student's Name):_____
Date:_____

Group Members:

	Matrix Number	Name
1		
2		
3		
4		

Directions: In the space below, honestly evaluate the work of other students in your group by answering **yes** or **no** and by using a scale from 1 to 3, **1 being poor, 2 being average, 3 being above average. Please circle your answer.**

		Group Member 1	Group Member 2	**Group Member 3**	**Group Member 4**	**Group Member 5**	**Group Member 6**
1	Did this group member complete his/her assigned tasks for the group	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No
2	How would you rate the quality of this person's work	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
3	How would you rate the timeliness of the completion of the work?	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
4	How would you rate the accuracy of the work	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
5	Overall, how would you rank this group member's performance in the group?	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
6	Would you want to work with this person again? Explain why in the space below.	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No

An Example ONLY

- Introduction
  - A Database design for an entertainment and rental company called MAX rents out DVDs to its members. (detailed and accurate description of business operations)

- Business Rules
  - The business rules are collected from the manager and the three staff of the company. (Elaborate)

- System objectives and scope:
  - The first branch of MAX was established in 2000 in Damansara but the company now has grown and has many branches throughout the Selangor and Kuala Lumpur states. The company's success is due to the first-class service it provides to its members and the wide and varied stock of DVD available for rent.
  - MAX currently has about 2000 staff working in 50 branches. When a member of staff joins the company, the MAX staff registration form is used.
  - Each branch has a Manager and several Supervisors. The manager is responsible for the day-to-day running of a given branch and each Supervisor is responsible for supervising a group of staff.
  - Each branch of MAX has a stock of DVDs for hire. Each DVD is uniquely identified using a catalog number. However, in most cases, there are several copies of each DVD at a branch, and the individual copies are identified using the DVD number.
  - Before renting a DVD, a customer must first join as a member of MAX.When a customer joins, he or she is requested to complete MAX member registration form. MAX currently has about 100,000 members. A customer may choose to register at more than one branch; however, a new member registration form must be filled out on each occasion.
  - Once registered, a member is free to rent DVDs, up to a maximum of 10 at any one time. When a member chooses to rent one or more DVS, the MAX rental form is completed.
  - As MAX has grown, so have the difficulties in managing the increasing amount of data used and generated by the company. To ensure the continued success of the company, the Director of MAX has urgently requested that a database system be built to help solve the increasing problems of data management

- User requirements
  - **Maintaining data and record(by Staff)**
    - To maintain (enter, update, and delete) data on branches.
    - To maintain (enter, update, and delete) data on staff.
    - ….

  - **Searching data and records(by Staff)**
    - To perform searches on branches.
    - To perform searches on staff.
    - …
  - **Tracking data and record(by Staff)**
    - To track the status of DVD rentals.
    - To track the status of DVD orders.
    - …
  - **Generating reports(by Staff)**
    - To report on members.
    - To report on DVD rentals.
    - …
- Entities and attributes
  - From the above business rules, the following entities and attributes are identified (Elaborate)

- ER Diagram
  - The following is the ER Diagram from the collected requirements (Draw the conceptual ERD)

- Normalization process

- Implementable ERD – this should be the ER which can be directly mapped to tables in the database

- Conclusions **(End of Report 1)**

- **Continue with Report 2**
  - Make any necessary corrections in Report 1 based on the feedback given to you during the presentation 1.

- Sample SQL statements

- Screenshots of tables from the developed system

- Discussion
  - Discuss the problems your group faced and lessons learnt from the whole experience

NOTE

Presentation 1 : 5 minutes per group. Present only the company's activities and ERD

Presentation 2 : 5 minutes per group. Present only the system – show a few tables and a maximum of FOUR of the best SQL statements