1. Objectives

This assignment is to assess a student's ability to:

- Write business rules for a given organization's environment.
- Implement the appropriate techniques and methodologies applicable to the database development life cycle.
- Critically analyse the requirements for a good database design and design a good database pertaining to the given scenario.
- Develop the designed database using Structure Query Language (SQL) in the ORACLE database server.
- Present the complete assignment report in a well organised, clear and concise manner.

2. Assessment

The learning outcomes assessed are:

CLO2: Demonstrate the appropriate Structured Query Language (SQL) statement to query and manipulate data from a database. (P4, PLO3)

CLO3: Design a normalized database system for a business scenario using relational database management software. (C4, PLO2).

Contribution of marks to coursework:

- The assignment deliverables* contributes 60% to the coursework component as shown below:

Tasks	**CLO**	**Marks**
Develop Business Rules	3	10
Develop Entity-Relationship Diagram (ERD) using Online Drawing Tools such as LucidChart or Draw.io.	3	10
Develop the database schema – 3NF	3	10
Create database tables using ORACLE	2	20
Create records	2	10
Create queries	2	30
Final Report & presentation	2	10
Total		**100**

** Note: Tutor has the right to adjust the marks based on the % contribution by each team member.* Refer to the Assignment Rubrics for details.

3. Group Formation

Students will be asked to form a team of **3-5** members from the same tutorial group by the tutor. Every member in the group is expected to **contribute and participate actively in the entire process of completing the assignment**. Sharing of ideas through additional reading, research and assistance in the completion of assignments among team members are required.

Students will be individually assessed.

IMPORTANT: *The award of marks will take into consideration the scope (i.e. complexity, correctness, clarity and completeness) of the tasks successfully completed by the student* and *deliver work on schedule.* ***Please read all other three (3) files (02 Sample Report Format 202505, 03 Sample_Final_Assignment_ Report, 04 Sample_Query) in the assignment folder***.

4. Group Assignment Brief Scenario and Breakdown of Tasks and Deliverables Timeline

Scenario Case: University Event Registration System at TAR UMT

Following the news published in the University, Student can Selecting **ONE** University Events

At the beginning of every semester, **TAR UMT** offers various university events for all new and current students. These events are organized by different departments, student bodies, and clubs to encourage students to participate in academic, social, and personal development activities. The university uses a simple **Event Registration System** to manage these activities.

Every student can log into the system and register. **Each event consists of one or more specific activities** (such as workshops, seminars, competitions, or talks) that are part of the event they are interested in joining. For each event, the system shows basic details such as event name, event type, date, time, and location. Some events are free, while a few special workshops may require a small fee. The system allows students to make payments online. On the day of the event, students will check-in using their student ID or QR code. After attending the event, the system will collect feedback from students to help improve future events.

The university offers **7 familiar events** throughout the semester:

1. TAR UMT Orientation Week
2. Career & Internship Fair
3. Carnival Sports & Recreation
4. Leadership Camp
5. Cultural Night
6. Mental Health Awareness Day
7. Blood Donation Day

Example Activities of each Event

- *Orientation Week* may include Campus Tour, Ice-Breaker Games, and Academic Briefing.
- *Carnival Sports* may include Futsal Tournament, Tug of War, and Fun Run.

As a database designer, you are asked to develop a University Event Registration System at TAR UMT. The objective of this University Event Registration System at TAR UMT is to keep the business running properly and that visitors have a pleasant time and are attracted by coming back again.

Introduction: University Event Registration System at TAR UMT

The *University Event Registration System at TAR UMT is* a centralized digital platform designed to simplify the planning, coordination, management, and evaluation of various university events. This system helps administrators, faculty, students, and external participants to organize, register, monitor, and evaluate events effectively while ensuring smooth communication and data management. The system reduces manual paperwork, prevents scheduling conflicts, manages resource allocation, and generates analytical reports for continuous improvement.

Current Situation: Students at our university often struggle to find and register for events hosted by various clubs. Clubs currently use a mix of Google Forms, social media posts, and word-of-mouth to announce events and collect registrations. This leads to disorganization, missed registrations, and difficulty tracking attendance.

Our Goal: To develop a simple system that allows university clubs to post their events and enable students to easily browse and register for these events online. The system should also help clubs manage registrations and track attendance.

Task 1: Develop Business Rules (10 marks) List down at least **TEN (10)** potential Business Rules that are relevant to the above scenario. You may add in business processes, relationships, principles, business operations that you deemed suitable.	4 to 5
Task 2: Develop Entity-Relationship Diagram (ERD) (10 marks) Draw a conceptual Entity-Relationship Diagram (ERD) using the Crow's Foot symbols for the system based on the above rules.	6
Task 3: Develop the database schema – 3NF (10 marks) Write out the database schema after normalizing the design to Third Normal Form (3NF) relations. You should have a suitable number of attributes for each of the entities. *Note: Underline all primary keys and use * to indicate foreign keys.* A sample format is shown below: Customer (CustNo, CustName, CustAddress, CustContact) Order (OrderNo, OrderDate, OrderAmount, CustNo*) OrderDetails (OrderNo*, ProductNo*, Quantity, SellingPrice) Product (ProductNo, ProductDesc, UnitPrice)	7
Task 4: Create database tables in Oracle (20 marks) Write the appropriate Structure Query Language (SQL) statements to create tables based on the entities identified above. Choose appropriate data types, default values and check constraints. Ensure that you enforce the Entity Integrity Rule and the Referential Integrity Rule.	7
Task 5: Create records (10 marks) Write the appropriate **INSERT statements** to populate your database. As the basis of a simple guide, you may enter at least 10 records for each base (parent) table, and at least 30 records for each transaction (child) table. These records should represent transactional data kept and generated for the past 6 months or a year. The main intention is to be able to present useful reports for analysis and decision making to enhance business activities in the future. Website to generate random records: https://www.mockaroo.com/	8

For Task 4 & 5, You are advised to insert sufficient data records for each table that you have created in the Oracle database server. Transaction tables would have more records than base tables. For example, if there are 10 customers, average of 2 orders per customer per month with average of 2 items ordered per order. Furthermore, you should create sample data that has a different date/month/year to simulate a real-world environment.	9 to 10
Task 6: Create Queries (30 marks) ● Produce queries to extract meaningful information for decision making. **Single table queries are not allowed**. Use a script to create your queries. ● Create **THREE (3)** multi-table queries utilizing different aggregate functions to extract useful meaningful information from the database. 3 multi-table queries per team member. For each of the 3 queries, state the **purpose** of the query and provide the **results** of the queries (screenshot). You should **format the output** of the queries to be meaningful and presentable. ● Make use of the **ACCEPT- PROMPT** and **variable substitution** to make your query as flexible as possible. ● Apply report formatting features. ● Explain the **need and the importance of the queries** and reports created for the company. ● Only SELECT statements. ● Idea of queries cannot be duplicated among the same group members. ● Each queries mark allocation: ✓ 1 mark for ACCEPT- PROMPT ✓ 2 marks for COLUMN formatting ✓ 2 marks for TTITLE / BREAK /COMPUTE formatting ✓ 5 marks for SELECT statement (based on difficulty /complexity / usefulness)	9 to 10
Task 7: Final Assignment Report (10 marks): Compile the work done and prepare a well-presented report for submission. ✓ 6 marks: 3 queries with output ✓ 4 marks for individual extra efforts (at least 2 extra efforts).	
Presentation in the lab ● Run a single script file from Task 4 and 5 to create the database. ● Run the scripts from Task 6. ● Each group should take 30 minutes for the presentation and Q & A. ** All the above tasks handled by each student in the team must be clearly indicated.*	10 to 11

5. Assignment Schedule

Deliverables	Week	Digital Submission	Link:
Task 1, 2	4, 5	Week 11 Google Classroom	**Group leader to submit the team assignment work.**
Task 3, 4	6		
Task 5	7		
Task 6 (Create a subfolder for each member name)	8, 9 & 10		

6. Submission Deadlines

Item	Week	Deadline
Digital (softcopy) report submission	11	By 05/09/2025, Friday before 11.59pm.
Demo (USING Oracle) *Each group ONE script file only	12 to 13	During practical classes: Run a single script file from Task 4 and 5 to create the database.

Note: *Digital* (softcopy) *submission – to be submitted by the Team Leader to the Practical Group's Google Classroom Assignment Submission features.*

7. The Final Assignment Report Format

The final assignment report for all Parts should contain the following items:

(a) Cover sheet (Form 1)
(b) Plagiarism statement with student signatures (Form 2)
(c) Assessment Rubric (Form 3)
(d) Task Allocations (Form 4)
(e) Table of Contents (page number)
(f) Body of answers (Task 1 to Task 6)
(g) Individual extra effort section (Task 7)
(h) Individual reference section (Students are required to use APA Referencing System format)
(i) Appendices (if any)

The report must be type-written using **MS-Word**. You are recommended to format your report according to the following specification:

Media	Softcopy to be submitted to the *course's Google Drive*.
Font Size	**SQL code: 9pt** **Written description: 11pt**
Font Style	Use ***Times New Roman*** for body text. Main headings and sub-headings should be clearly stated using suitable font styles (e.g. Arial).
Line Spacing	Typed material should be ***1 line spaced***.
File & folder Naming Convention	Meaningful table name, ERD, etc. Digital Submission (SQL codes, report, ERD, etc) to Google Drive: Folder naming format: ProgrammeSemGroup (TeamName) Example: RSF1S1G1(Team 1) File naming format: ProgrammeSemGroup (TeamName)-StudentFullNamesWithAlphabeticalOrder Example: RSF1S1G1(Team 1)-**C**atTanLiMei-**H**engTzeSeong-**N**gSiewYongAlice-**W**ongKunMing

	Put all files in a folder and zip it for submission.
Headers and Footers	Appropriate footers and headers should be used to enhance clarity and presentation.
Page Numbering	Ensure that all pages (except cover page) are numbered.
Paper Size	Use ***A4*** paper (Use only one side of the paper)

8. Late Submission

All assignments should be submitted by the stated due date as Section 6.
Late submission of the assignment will be handled according to the Guideline for Late Submission of Coursework available at **TAR UMT's Intranet Examinations and Credit Accumulation Undergraduate Guideline.**

PART B : LATE SUBMISSION OF COURSEWORK INFORMATION

Please check/tick one of the information below :

	Late submission of 1 - 3 days after deadline of submission: minus 10 marks
	Late submission of 4 - 7 days after deadline of submission: minus 20 marks
	Late submission of > 7 days after deadline of submission: 0 mark

In certain circumstances, a student may be allowed to submit the assignment late with valid reason. S/he must inform the respective tutor **at least one week before** the assignment is due. The tutor will evaluate whether the circumstance warrants submitting the assignment late, but **no guarantee** that the students will not be penalized.

9. Academic Integrity and Plagiarism

There must be originality in your work, i.e. do not copy or refer to other students. You may only work with your team members where the functionalities that you are handling depend on your team members' parts to produce the solution of this assignment. You must not share with nor refer to any part of the assignment of anyone else except your team member(s) and your tutor.

Before submitting your assignment, please make sure that you have complied with the **TAR UMT Plagiarism Policy**. Any cheating, attempt to cheat, plagiarism, collusion and any other attempts to gain an unfair advantage in assessment will cause the students concerned to be penalized.

IMPORTANT: Students found to be dishonest are liable to disciplinary action.