FACULTY OF SCIENCE

ACADEMY OF COMPUTER SCIENCE & SOFTWARE ENGINEERING

MODULE	IFM2A10/IFM02A2 INFORMATICS 2A
CAMPUS	APK
SEMESTER TEST 3	
DATE:	24 MAY 2023

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INTERNAL MODERATOR MR R MALULEKA

TEST DURATION: 120 minutes **MARKS** 75

PLEASE TAKE CAREFUL NOTE OF THE FOLLOWING INSTRUCTIONS:

1. Answer **ALL** questions/Queries. You will have **one hour** after the assessment to upload your answers to **Eve (https://eve.uj.ac.za).** Answers must be uploaded to the correct practical slot for IFM2A's **Semester Test 3**.
2. A **backup** of your answers should be uploaded at https://www.dropbox.com/request/bSALZKUQIr4Rs7Z6RE9K use your **UJ student e-mail address when uploading**.
3. Tools required during this assessment:
   Writing answers: SSMS or notepad if SSMS is not on your device
4. **Clearly** number the questions/queries.
5. Answers must pertain to the material covered during the course of the module.
6. This question paper consists of 4 (including this cover page) pages.
7. Don't panic; read your questions carefully, and good luck!

You have been tasked with developing a database system for a local mechanic shop to help them streamline their service calendar and record essential information related to each service. The database should enable the shop to track service dates, record service costs, and gather customer ratings for each completed service. Your assignment is to design and implement this database system using appropriate database concepts and principles. Clients can own multiple cars which is something that you will have to keep in mind. The following information must be recorded in the database

- Service:
  - Date
  - Total
  - Rating
- Client:
  - Name
  - Surname
  - Email
  - Contact number
- Mechanic
  - Staff ID
  - Name
  - Surname
  - Email
  - Contact number
- Car
  - Vin
  - Brand
  - Model
  - Year
  - Vehicle registration number

Conceptual Design		**M1**	**M2**	
A	**Given the information above, draw an ER Diagram showing the following:** • Entities, • Attributes, • All key attributes, • All relationships between the entities. ***<u>This should be drawn on the assessment paper you were provided</u>***			**(20)**

SQL Implementation Instructions

Instructions:

- The following question must be answered by implementing SQL statements.
- You have two(2) option to use to save your queries
  - Option 1: A single .SQL file
    - With a single .SQL file you will have to make sure to label each question clearly eg. /*Query B*/
  - Option 2: Multiple .SQL files
    - With multiple .SQL files you will have to make sure to name each file the question you are working on eg. QueryB.SQL
- Save and name all queries according to their question number. For example:
  - Question B as "**QueryB**," Question C as "**QueryC**," etc.
- If needed, one question may be answered using more than one query, provided that the last query achieves the result intended by the question.
- You may enter enough data directly into the database to help you **test** your queries.

SQL Implementation		**M1**	**M2**	
B	Create all necessary tables. Name the tables and all their attributes appropriately.			**(20)**
C	Using SQL, insert TWO records into each of the tables created to demonstrate that you have created them correctly.			**(8)**
D	List all the mechanics that worked on a car between 12 June and 22 June of 2022			**(3)**
E	Provide a list of Customer names and emails for all the Clients that own a Ford Fiesta 2014			**(5)**
F	List the unique number of clients each mechanic has services a car for.			**(6)**
G	How many mechanics have received an average rating equal to or higher than 5?			**(7)**
H	Which mechanic received the highest average service rating?			**(6)**
	TOTAL			**[75]**

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HJC VAN DER WESTHUIZEN		**Date:**