Academy of Computer Science and Software Engineering

Informatics 2A: Database Design

Practical Assignment: P06 (Due: 15 March @ 10:00:00)

Assignment

You have been tasked with developing a database system for a local mechanic shop to help them streamline their service invoices and record essential information related to each service invoice. The database should enable the shop to track invoices and the parts and quantity used in service 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.

- Invoice:
  - Date
  - Payment Status
- Client:
  - Name
  - Surname
  - Email
  - Contact number
- Car
  - Vin
  - Brand
  - Model
  - Year
  - Vehicle registration number
- Part
  - Part ID
  - Name
  - Price

	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.No email submission will be allowed.
- Failure to follow these instructions will result in a zero being awarded for this practical.

	Marksheet	
A	**Given the information above, draw an ER Diagram showing the following:** • Entities, • Attributes, • All key attributes, • All relationships between the entities. ***This should be drawn on the assessment paper you were provided***	(20)
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 clients that have invoices for a car between 16 June and 21 April of 2023.	**(3)**
E	Provide a list of Client names and emails for all the Clients that have an invoice with a part call "super turbo" on it.	**(6)**
F	List the number of parts each client has paid for.	**(6)**
G	What is the average value of "Unpaid" invoices?	**(7)**
H	Which client owns the mechanic shop the most money?	**(5)**
	Total	75