**DATABASE MANAGEMENT SYSTEM (2252-INSY-3304-003)**

**Semester Project – Spring 2025 || Instructor: *Atieno Amadi***

**THE FRISCO ART GALLERY**

***The Frisco Art Gallery*** (FPAG) stocks and sells high quality artwork for home and office use. Its sales representatives (Consultants) use a specified form format to take orders from its customers. Customer Account Numbers on the form are unique. A Customer has only one Billing Address. The Billing Address is filled in the form when a new customer account is created or when there is a change of address for an existing customer. The Delivery Address is the place where the artwork is to be delivered. The Delivery Address is filled in the Order Form when the customer decides to use FPAG’s delivery service. All artwork in one order is delivered to the same Delivery Address. FPAG offers free delivery service for orders with a total value exceeding $10,000. For smaller orders, FPAG charges a nominal fee of $500. The customer is not charged the nominal delivery fee if s/he declines use of FPAG’s delivery service for orders less than $10,000.

FPAG owns several special Vehicles for delivering Customer Orders. Each vehicle has a Vehicle Number, License Plate Number, License Expiration Date, and Inspection Expiration Date. Each Vehicle is assigned to a Driver, who is an Employee of FPAG. Every Friday of the week the FPAG Operations Manager plans the following week’s Delivery. Orders are broken down into delivery units called Shipments so that each Shipment may fit into one Vehicle. A large Order that cannot fit into a single Vehicle may be broken down into multiple Shipments, whereas a small order may be delivered as a single Shipment. Shipments are assigned to Vehicles that are available for the next week’s delivery service. A Vehicle may carry more than one Shipment. All items included in a Shipment are delivered by one Vehicle. Each type of Artwork is identified by an Item Code. The Price of each Artwork Type and the quantity in stock are also tracked.

FPAG employs several Employees. Each Employee has a Social Security Number, Name, Address, and Phone. A Driver, a type of Employee, has a Driver’s License Number and License Expiration Date, in addition to other Employee information. Consultants are also a type of Employee. All Employees are Salaried. Consultants earn Commission in addition to Salaries.

**FPAG wants to create an Information System to manage its operations. FPAG’s management team has outsourced this project to your team.**

**REQUIREMENTS**

**PART II**: **Due: April 29, 2025**  **{85%}**

1. Graded and Revised Part I {5%}
2. Create two ER diagrams for the information system using Crow’s Foot notation. One diagram should show all entities and relationships including many-to-many relationships. The second diagram should include all the entities in the first diagram, in addition to bridge entities that replace the many-to-many relationships (where they exist). Do not list attributes on the ERDs. {15%}
3. Create a relational schema for your database in fourth normal form. Describe your schema using the format shown below. Note that primary keys are in upper case letters and are underlined, while foreign keys are also underlined but are in lower case letters. You may follow a suitable convention to identify an attribute that is both a primary key and a foreign key. Clearly indicate the convention that you have follow for such attributes. {20%}

RELATION\_NAME (**PRIMARY\_KEY\_ATTRIBUTE(S),** non-key attribute(s)).

***For example:*** The relational schema for a relation STUDENT with primary key STUDENT\_ID, and attributes Name, Address, and Phone and foreign key Major, would be:

STUDENT **(STUDENT\_ID),** Student\_Name, Address, Phone, Major

1. Create a data dictionary for your database using the format described on Table 3.6 in ***Coronel and Morris*** 13th Ed. (pp.88). Make reasonable assumptions about data types and sizes for different attributes. You must specify the relational schema name in the data dictionary. {5%}
2. Create tables in **Oracle** to implement the FPAG database. ~~This must be done in your UTA Oracle account so that the instructor can verify your implementation.~~ Be sure to enter at least five (5) rows of data in each table. To document this part in your report, use the DESCRIBE command to list the relational schema for each table, followed by the SELECT command to list its content. ~~Grant SELECT to “~~**~~amadian”~~** ~~on all tables.~~  {20%}
3. Execute the following SQL queries to your database and display the results: {20%}
4. List all customer names, addresses, and phone numbers.
5. Pick an order and get all information about that order included in the order form. You do not need to compute the totals and the delivery fee. This may be split into two queries: one for the header and the other for the order lines.
6. What is the phone number of the Consultant who took the order in query #2 above?
7. Pick a driver and list all customers whose orders have been delivered by her/him.
8. What is the total value (quantity *times* unit price) of all items in stock that have unit prices exceeding $450?

**REPORTING REQUIREMENTS**

Each group (of 3 students) is required to turn in a report for this part (II) of the project. The report must have a coversheet listing the Course Number and the Section Number for this course, and the names of all group members, in ascending order, by last name. Place the items in the order in which they are listed in the assignment. Upload one single file for each group through Canvas by the due date of April 29th.

1. *Groups of three (3) students will be formed through ‘People’ on Canvas)*
2. *List the name, daytime phone number, and email address of one contact person on the final report*
   * *Handwritten reports or diagrams are NOT acceptable*
3. *Use copy/paste function to document the results of parts* ***e*** *and* ***f****, as you did in the SQL Homework*
4. *If you need to keep copies of your final report, please make copies before you turn in the report (as the final report that you will submit to the instructor will* ***not*** *be returned to the group)*
5. *Each student is required to turn in a completed peer evaluation form (see attached template) that is due at the same time as the group project* 
   * *Upload this document on Canvas by the due date*

**PROJECT RATIONALE**

This group project is designed to provide the student with hands-on, practical experience in database design, implementation, and management. It is also intended to provide the student with the practical experience of working in teams. For these reasons, it is expected that each student will be deeply involved in the entire database development process, from start to finish. It is anticipated that the skills the student garners from these experiences, backed by their theoretical underpinnings, will go a long way towards establishment of a career in the lucrative field of database systems for the student.

**PEER EVALUATION FORM**

Please evaluate each of your team members on the following tasks provided below, using a 10-point scale, where a score of 10 indicates ***best*** performance, while a score of 1 indicates ***worst*** perfomance. In addition to evaluating your team members, evaluate yourself on the same parameters (underline or highlight your name).

**Item#** **Task**

1. Performed assigned tasks satisfactorily/correctly
2. Performed assigned tasks on a timely manner

3 Was able to work independently on assigned tasks

4 Readily accepted responsibility for the project

5 Provided positive, creative input

6 Interacted well with other members of the team

7 Total points assigned (Please calclate and enter in the table below)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Member Name** | **ID#** | **1** | **2** | **3** | **4** | **5** | **6** | **7** |  |
| 1 |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  |  |  |  |  |  |
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