Project Description

COMP 3753 X1 (2019-2020) Database Management Systems

For this project, you will form teams of 2 to 4 students. Teams to be formed by October 15th. Introduce your team via the forum on Acorn. There will be project deliverables due at certain intervals (see below – Oct 25, Nov 15, Nov 29, Dec 5). You can communicate with the "client" via a forum in Acorn, "Project Communications". You can address questions to client there if you would like to clarify anything. Note that all teams can use this forum and see all communications. Your instructor or a TA will respond as the client.

The problem is as follows: Develop a relational database schema and related web API's for a retail store. The client has indicated they want to be able to track their customer's purchases and manage inventory. The client was asked what information they would like to get out of the system, and they identified the following reports:

- Sales Reports
    - by time period and
    - by customer

The client doesn't want us to do any actual application development. We'll provide the SQL script to create the database (and populate tables with any necessary data) and provide them with an API (RESTful web services using PHP). The API will provide CRUD (Create, Retrieve, Update and Delete) services for the following:

- Customers
- Orders
    - w/Items Ordered
- Inventory *(Items)*

The application will use the APIs to lookup a customer (search), retrieve the customer or create a new customer, and create an order (containing a list of items in the order) and mark its status (open, shipped, received, cancelled), as some examples. Of course, with the API CRUD functionality, the application will also allow for things like editing an order (adding and removing items, etc.), editing a customer's profile (demographic data), and managing inventory. Reports will also be retrieved via an API. APIs will be discussed in class, and an example will be provided (we will be creating a RESTful API in PHP).

Basically, to get started, you'll want to identify your entities, and then identify the attributes of each entity, as well as any primary keys or foreign keys (relationships). Write the SQL script (DDL) to create the database. Populate the database (using DML) so that there are at least 20 customers, 40 orders, and 100 items. For the API, use the RESTful PHP example and use a tool like Postman to make the HTTP requests to the API.

Deliverable 1: ER Diagram (UML Notation, showing all entities and relationships) – ~~Friday October 25th~~ Wednesday November 6th (UML ER Diagram format)

Deliverable 2: SQL Script to create all database objects – Friday November 15th

Deliverable 3: API (RESTful API in PHP) – Friday November 29th

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Deliverable 4: Demo – Friday December 5th