COMP 5120/6120 Database Systems I
FALL 2011

Term Project: Populating and Querying Databases with SQL
Due: 11:59pm, Dec. 6, 2011

1 Project Description

In this project, you are required to implement a SQL input interface to

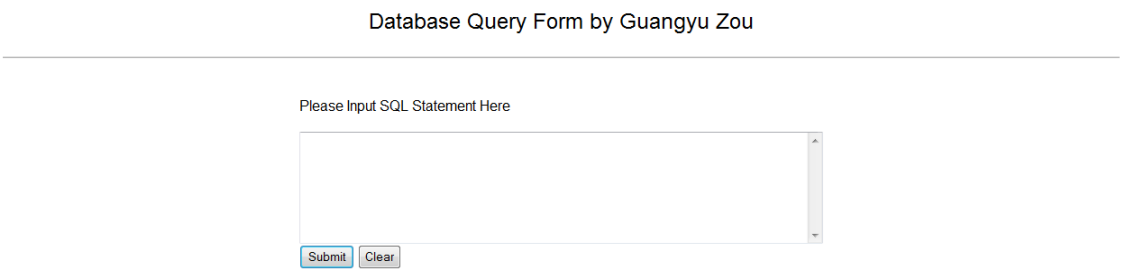
1) create and populate tables,
2) write correct SQL statements for the given queries, and
3) execute the corresponding SQL statements to return the query results on the interface with MySQL database.

2 Applying for Your Accounts to access PHP and MySQL

Send an application to OIT to have your PHP and MySQL accounts established at *mallard.duc.auburn.edu*. You are supposed to be given a server name, username, password and the name of your database. All the information is needed for using PHP to connect to your database.

3 Interface Implementation (30 points)

You have to implement an interface by using PHP + HTML. A simple example is as shown in the following figure, which includes a text box to accept a SQL statement and then submit it to the MySQL database.



Interface Requirements:

1) Your interface should not accept SQL DROP statements.
2) For any other SQL statements, your interface should not only accept it, but also return the execution result. For example, a select statement will return the query results (including the attribute name for each column) and the number of rows retrieved. A create/delete/update/insert statement will display "Table Created/Updated", "X Row(s) Inserted" or "X Row(s) Deleted" messages on your interface, where X is the number of rows affected.
3) An error message should be displayed if an incorrect SQL statement was submitted.
4) You should also have a title for this interface, indicating your name.

4 Populating the Database (20 points)

After implementing your query interface, you must populate your database by submitting SQL statements through the text box on your interface.

Establish the given database under your account space. It can be used for a typical online bookstore, which has employees and provides the ordering service for registered customers. The online bookstore acquires the desired books from suppliers such as Amazon.com, and then ships the books to customers by shippers such as UPS. You should populate the database with all the following given data sets to obtain the 20 points. Please notice the primary key of each table.

The schema of the database is illustrated as below. It involves eight tables totally.

Suppliers (SupplierID, CompanyName, ContactLastName, ContactFirstName, Phone)

Books (BookID, Title, Unit_Price, Author, Unit_in_Stock, SupplierID, SubjectsID)

Subjects (SubjectID, CategoryName)

OrderDetails (BookID, OrderID, Quantity)

Customers (CustomerID, LastName, FirstName, Phone)

Orders (OrderID, CustomerID, EmployeeID, OrderDate, ShippedDate, ShipperID)

Employees (EmployeeID, LastName, FirstName)

Shippers (ShipperID, ShpperName)

Suppliers

SupplierID	CompanyName	ContactLastName	ContactFirstName	Phone
1	Amazon	Hamilton	Laurell	1111111111
2	Ebay	Koontz	Dean	2222222222
3	Booksamillion	Roberts	Nora	3333333333
4	University	Carter	Stephen	4444444444

Books

BookID	Title	Unit_Price	Author	Unit_in_Stock	SupplierID	SubjectID
1	The Quickie	15.94	James	5	3	1
2	Blaze	13.24	Richard	2	3	1
3	The Navigator	14.01	Clive	10	2	1
4	Birmingham	19.99	Tim	12	3	2
5	North Carolina Ghosts	7.95	Lynne	5	2	2
6	Why I still live in Louisiana	5.95	Ellen	30	1	3
7	The World Is Flat	30	Thomas	17	3	4

Subjects

SubjectID	CategoryName
1	Fiction
2	History
3	Travel
4	Technology

Employees

EmployeeID	LastName	FirstName
1	Larson	Erik
2	Steely	John

Shippers

ShipperID	ShpperName
1	UPS
2	USPS
3	FedEx

Customers

CustomerID	LastName	FirstName	Phone
1	Lee	James	334-001-001
2	Smith	John	334-002-002
3	See	Lisa	334-003-003
4	Collins	Jackie	334-004-004

Orders

OrderID	CustomerID	EmployeeID	OrderDate	ShippedDate	ShipperID
1	1	1	08/01/11	08/03/11	1
2	1	2	08/04/11	NULL	NULL
3	2	1	08/01/11	08/03/11	2
4	4	2	08/04/11	08/05/11	1

OrderDetails

BookID	OrderID	Quantity
1	1	2
4	1	1
6	2	2
7	2	3
5	3	1
3	4	1
4	4	1
6	4	2
7	4	1

5 Execution of SQL queries (50 points)

First, you need to write the SQL statements for the following queries. Then, you submit each of them through your interface to get the correct result.

1) Show me the names of customers who ordered the books including "The Navigator" and "Birmingham".
2) Show me the names of customers who ordered the books of fiction but not of history.
3) Show me the name of each category and the cheapest price of the books in that category.
4) Show me the total price each customer paid and their names. List the result in the descending price.
5) Show me the book names and their corresponding quantities for open orders (the orders which have not been shipped) at midnight 08/04/11.
6) Show me the name of shipper who shipped the minimum number of books on 08/03/10 and the names of books.

7) Show me the name of supplier that has the second most number of books ordered.
8) Show me the subjects of all the books John Steely was responsible for.
9) Show me the unique subjects of all the books John Smith and Jackie Collins ordered.
10) Show me the suppliers' names of all the ordered books and total quantities of each supplier. List the result in the ascending quantity.
11) Show me the names of customers who have ordered all categories of books.
12) Show me all the books order by the customer who has ordered at least one book written by Thomas.
13) Show me the customer's name who ordered books with total price greater than average total price ordered by all customers.
14) Show me the names of books with price > 14.00, for each subject with at least two such books.
15) Show me the total prices (in euro using factor of 0.73) of books handled by each employee.
16) Show me the names of customers who have ordered the greatest number of books and the names of ordered books. List the result in the manner of descending names of books.
17) Show me the total price of books supplied by Amazon and Ebay, which include the books in stock and those ordered.
18) Show me the names of customers who have ordered multiple (>1) books and the total number of books. List the result in the descending quantity.
19) Show me the contact name of suppliers who supply only books with unit price larger than $7, but at least one book with unit price less than $10.
20) Show me the supplier name who supplies the max total price of books than include books in stock and those having been ordered.

6 Materials to Hand In

1. The URL to access your interface at *mallard.duc.auburn.edu* (PHP based interface). Please test before you send the URL to the TA to make sure that your query interface can be run from *mallard.duc.auburn.edu*, can accept arbitrary SQL statements (but the Drop statement), and can return the corresponding results. Grading will be based on whether the TA can submit your SQL statements through your interface and get the correct query results

from your database at *mallard.duc.auburn.edu*. The URL should be in a .txt file.

2. Your code for implementing the interface. Please follow the interface design requirements.

3. The SQL statements to create and populate your tables. They should be in a separate .txt file.

4. The SQL statements and the corresponding retrieval results for all the given queries. They should be in a separate .txt file.

5. All the materials above should be in a .zip file named as youruserID.zip. For example, the TA's .zip file should be gzz0001.zip. **Please note that you will be punished 5 points for incorrect naming**.

6. Send your .zip file to gzz0001@auburn.edu with the title – **Comp 5120/6120 Term Project,** by the deadline.

7 Submission Deadline:

Deadline is 11:59pm, Dec. 6, 2011

NO late submissions will be accepted. So, if you do not answer all the queries by the deadline, just send what you have done to achieve a grade.