Course Project Overview

This project is designed to touch all aspects of the fundamental concepts of database design and logical/physical data modeling covered in chapters 5 and 6. You are responsible for designing, developing, and demonstrating the functionality of a database created based on a set of business specifications that you create. Each student should submit a report that includes the logical and physical design of the database and demonstrates the database's ability to deliver meaningful reports.

This MS SQL project will introduce the various aspects of the SQL SELECT statement and the methods of retrieving data from the database tables. This project will also introduce the fundamentals of updating and deleting records. The project will utilize a set of tables that are represented by the ERD and are created and populated by the script file. Follow the instructions in the file, follow the instruction below to create your database, tables, and data (Also see Rubric).

Project Report (Answer Sheet) containing both the student-created SQL command(s) for each exercise, and the output showing the results obtained. **Be sure your name is on the file.**

Use the Database to answer each of the questions. Each question must begin on a new page and be sure to document the question as the title of each item at the top of each page *(see sample in page 24 of this document).* Also, using a 12-point font:

- include the
  - ***SQL statement***
  - ***a screen shot of each query***; each screen shots must include both the ***SQL statement & the results*** for each item below based on the data entered.
  - The screen shots must be large enough for the instructor to clearly read the results without a magnifying glass!
  - Your short ***explanation of the query and results.***

- All pages must be 8 1/2 by 11 inches in size, and must be numbered sequentially, beginning on the page following the cover page.
- The first page must be a cover page with your name centered on the page using 20-point, Times New Roman font, followed immediately by the project number, the date submitted, the words “CIS 3050-xx”, the section number, and the words “Fall 2023.”
- The second page must document the table of contents.
- The third page must contain a statement attesting to the student’s academic honesty and the student’s signature.
- Subsequent pages must be logically arranged to accommodate the required deliverables.

- ***Introduction.*** This is where you need to outline the underlying concepts needed to discuss the project. Introduction should provide a brief summary of your report. The reader should be able to pick up from the introduction what was found out and should act as a sampler of the contents of the report.
- ***Project description:*** A well written description of any project makes it possible for the indented audience (e.g. the sponsor, the executive, and the professor) to understand the concept and context of the proposed project and to realize whether to approve and finance the project or not.
- ***Results and discussion:*** Explain and present your queries, diagrams, results in a logical sequence, highlighting what is important and how the data you obtained have been analyzed to provide the results you discuss. Identify major challenges, and sources of error and explain how they were dealt with.
- ***Lessons learned*** from the project (at least 3 lessons)
- ***Conclusion.*** This is the section in which you need to put it all together. It differs from the abstract in that, it should be more informative, something that can easily be accomplished because you may devote more words to it. You should include a concise version of your discussion, highlighting what you found out, what problems you had, and what might be done in the future to remedy them. You should also indicate how the investigation could usefully be continued. Pages, diagrams, references and tables must all be numbered.
- ***Reference.*** Make sure to provide at least 3 references.

Caution: ***Read the instructions carefully!*** Each question is based on a single SQL statement, and the single SQL statement might contain sub-queries (additional SELECT statements) within the statement. **Complete each of the exercises below.**

1. Write a query that displays a list of all customers showing the customer's ***last name***, and ***phone number***. Sort the results by customer last name, then phone number.
2. Write a query that displays a list of all customers showing the customer's ***first name***, ***last name,*** phone number and fax. Sort the results by customer fax number in ascending order
3. Write a query that displays all the customers from San Francisco or Los Angeles in the "Customers" table.
4. Write a query that displays all the customers from the state of California and live in San Francisco or Fairfield.

5. Write a query that displays each customer name as a single field in the format "firstname lastname" with a heading of Customer, along with their phone number with a heading of Phone. Use the IN operator to only display customers in New York, New Jersey, or Washington D.C. Sort the results by phone number.

6. Write a query that will list all the cities that have customers with a heading of Cities. Only list each city once (no duplicates) and sort in descending alphabetical order.

7. Write a query that displays the title of each item along with the price (with a heading of Original) and a calculated field reflecting the price with a 15% discount (with a heading of Sale). Display the sale price with two decimal places using the ROUND function. Sort by price from highest to lowest.

8. Write a query that displays the number of orders.

9. Write a query that displays the customer city, first name, last name, and zip code from the customer's table. Use the LIKE operator to only display customers that reside in any zip code beginning with 9.

10. Write a query that displays the order id and order date for any orders placed from March 1, 2014 through April 30, 2014. Do this WITHOUT using the BETWEEN clauses. Format the date field as Month dd, yyyy and use a heading of "Ordered".

11. Write a query that displays the order id and order date for any orders placed during the month of May 2014. Do this using the BETWEEN clauses. Format the date field as mm/dd/yy and use a heading of "Ordered".

12. Write a query which displays the order id, customer id, and the number of days between the order date and the ship date (use the DATEDIFF function). Name this column "Days" and sort by highest to lowest number of days. Only display orders where this result is 15 days or more.

13. Write a query which displays the order id, customer id, employee id, and order date for all orders that have NOT been shipped, sorted by order date with the most recent order at the top.

14. The Marketing Department has requested a new report of shipped orders for which the order was placed on either a Saturday or a Sunday. Write a query which displays the order id, order date, shipped date, along with a calculated column labeled "Order_Day" showing the day of the week the order was placed (use the DAYNAME function). Only display orders that have shipped and were placed on a Saturday or Sunday. Sort by order date with most recent orders at the top.

15. Write a query to display the customer's last name, phone number, and fax number but only display those customers that have a fax number.

16. Create a statement to insert a new record into the items table with the following values:

item_id:	11
title:	The Ode to Your ERD
Artist_id:	15
unit_price:	13.45

Show your INSERT statement along with the results of the following SELECT query to verify that the insert worked correctly.

```
select * from items where item_id > 8;
```

17. Create a statement to update the record inserted in the previous step to change the unit price of this item to 13.25.

item_id:	11
title:	The Ode To My ERD
artist:	15
unit_price:	9.85

Show your UPDATE statement along with the results of the following SELECT query to verify that the insert worked correctly.

```
select * from items where item_id > 7;
```

18. Create a statement to delete the entire record that was inserted and then updated in the previous steps.

Show your DELETE statement along with the results of the following SELECT query to verify that the insert worked correctly.

```
select * from items where item_id > 7;
```

19. Using the SUBSTRING and CONCAT functions, write a query to display each customer name as a single field in the format “Jones, Tom” with a heading of Customer along with the customer_phone field in a nicely formatted calculated column named Phone. For example, a record containing the customer_phone value 9095595443 would be output with parentheses, spaces, and hyphens, like this: (909) 559-5443. Sort by last name.

20. Create a statement to insert a new record with your values: your customer id, first name, last name, address, city, state, zip code and fax number.

Customer id:	26
Your First Name	Your first Name
Your Last Name	Your last Name
Your Address	
Your City	
Your State	
Your Zip Code	
Your Phone	
Your fax	

Note: Use your real name and (9821 Main St, Los Angeles, CA 90001) as your address:

Show your INSERT statement along with the results of the following SELECT query to verify that the insert worked correctly.

*select * from Customer_T where Customer ID = 26*;

21. Creates a view that selects every title in the "item" table with a price higher than the average price:

22. Explain the cardinality from the employees to employees table.

23. Explain the following statement

```
SELECT pv.ProductID, v.BusinessEntityID, v.Name
FROM Purchasing.ProductVendor AS pv
INNER JOIN Purchasing.Vendor AS v
    ON (pv.BusinessEntityID = v.BusinessEntityID)
WHERE StandardPrice > $10
    AND Name LIKE N'F%';
```

24. Explain the following statement

```
SELECT pv.ProductID, v.BusinessEntityID, v.Name
FROM Purchasing.ProductVendor AS pv, Purchasing.Vendor AS v
WHERE pv.BusinessEntityID=v.BusinessEntityID
    AND StandardPrice > $10
    AND Name LIKE N'F%';
```

25. Compare 23 with 24

Submission of project

Be sure to follow all of the instructions included with the course syllabus regarding submitting projects. Late work will not be accepted. In addition to the hard copy and the flash drive, you should upload another softcopy to blackboard.

Remember that you're not writing the report for yourself. You're probably writing for clients, management and technical managers, so you need to know how familiar they are with the concepts and terminologies that your team uses.

Project report is due on Tuesday 10/31/2023

Project 2 Rubric

Project 2 Rubric	*Pts*
Cover Page	**5**
table of contents	**5**
student's academic honesty	**5**
Introduction	**5**
Project description	**5**
Query 1-Query. Screen shots (query and results, explanations)	**4**
Query 2-Query. Screen shots (query and results, explanations)	**4**
Query 3-Query. Screen shots (query and results, explanations)	**4**
Query 4-Query. Screen shots (query and results, explanations)	**4**
Query 5-Query. Screen shots (query and results, explanations)	**4**
Query 6-Query. Screen shots (query and results, explanations)	**4**
Query 7-Query. Screen shots (query and results, explanations)	**4**
Query 8-Query. Screen shots (query and results, explanations)	**4**
Query 9-Query. Screen shots (query and results, explanations)	**4**
Query 10-Query. Screen shots (query and results, explanations)	**4**
Query 11-Query. Screen shots (query and results, explanations)	**4**
Query 12-Query. Screen shots (query and results, explanations)	**4**
Query 13-Query. Screen shots (query and results, explanations)	**4**
Query 14-Query. Screen shots (query and results, explanations)	**4**
Query 15-Query. Screen shots (query and results, explanations)	**4**
Query 16-Query. Screen shots (query and results, explanations)	**4**
Query 17-Query. Screen shots (query and results, explanations)	**4**
Query 18-Query. Screen shots (query and results, explanations)	**4**
Query 19-Query. Screen shots (query and results, explanations)	**4**
Query 20-Query. Screen shots (query and results, explanations)	**4**
Query 21-Query. Screen shots (query and results, explanations)	**4**
Query 22- Explain	**4**
Query 23. Explain	**4**
Query 24. Explain	**4**
Query 24. Explain	**4**
Report Analysis, Results and discussion	**5**
Lessons Learned (at least 3 lessons)	**5**
Conclusion	**5**
References (at least 3 references)	**5**
Report Clarity, writing, readability, formatting and organizing	***5***
TOTAL	***150***