University Of Engineering and Technology, Lahore
Computer Engineering Department

Course Name: Database Systems	**Course Code: CS363L**
Assignment Type: Lab	**Dated: 17-01-2022**
Semester: 6th	**Session: 2019**
Lab/Project/Assignment #: Lab 9	**CLOs to be covered: CLO2, CLO3**
Lab Title: Introduction to DBMS and databases	**Teacher Name: Ms. Darakhshan**

Lab Evaluation:

CLO2	Construct DDL queries to manage relations, constraints, triggers and indexes.					
Levels (Marks)	**Level1**	**Level2**	**Level3**	**Level4**	**Level5**	**Level6**
Cognitive (5)						
					Total	**/5**
CLO3	Derive physical model from conceptual design methods					
Levels (Marks)	**Level1**	**Level2**	**Level3**	**Level4**	**Level5**	**Level6**
Cognitive (5)						
					Total	**/5**

Rubrics for Current Lab:

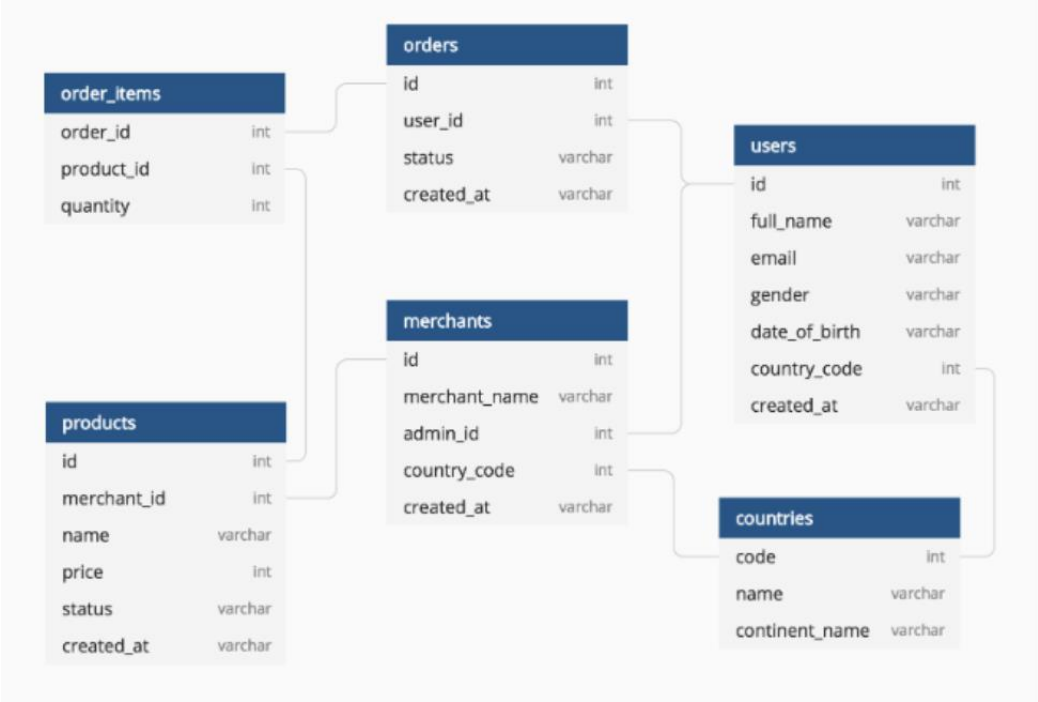
Scale	**Marks**	**Level**	**Rubric**
Excellent	**5**	L1	Triggers added with DDL + Rubric IV requirements.
Very Good	**4**	L2	Constraints added with DDL + Rubric III requirements.
Good	**3**	L3	Database Schema Created using DDL + Rubric II requirements
Basic	**2**	L4	Attributes, Datatypes and Constraints are properly identified + Rubric I requirements
Barely Acceptable	**1**	L5	All implicit/explicit requirements are clearly identified and written
Not Acceptable	**0**	L6	Lab missed or solved none of the problems

LAB DETAILS:

Lab Goals/Objectives:

- Data Definition Language (CREATE, UPDATE, DELETE, INSERT, SET, ALTER)
- Constraints and Triggers

Theory/Relevant Material:



Client Requirements:

- Merchants from India are banned.
- Customer cannot order less than 50 items of same product.
- Email address of any user should be valid
- Valid product statuses: **A:** Available (at least 50 items available), **NA:** (if less than 50 items of same product are available, then product cannot be sold)
- Only continent name in country table can be left empty while data entry.

Tutorial:

Adding Constraints:

Given below is an example for adding constraints to a table in SQL. Below is a constraint which checks that the user whose data is being inserted into user_profile table, is not an admin. There will only be one admin.

Users Table:

id	Name	Rank
1	John	User
2	David	User
3	Dave	Admin

User Profile Table:

Id	Employee_code	User_id
1	200323	1
2	200324	3

```
CREATE FUNCTION dbo.isNotAdmin (@code int)
RETURNS VARCHAR(5)
AS
BEGIN
    IF @code <> (SELECT id FROM users WHERE rank = 'Admin')
        return 'False'
    return 'True'
END;
GO



CREATE TABLE user_profile (
id int PRIMARY KEY,
employee_code int NOT NULL,
user_id CONSTRAINT isNotAdmin CHECK (dbo.isNotAdmin(user_id) = 'True') int NOT NULL,
);
```

Adding Triggers:

Given below is an example for adding triggers to a table in SQL.
When an employee's salary is increased beyond 75,000 his rank is upgraded from Associate to Senior.

```
CREATE TRIGGER dbo.rankTrigger ON  dbo.employees
AFTER INSERT AS
BEGIN
DECLARE @salary  INT;
DECLARE @_rank  NVARCHAR(3);

DECLARE @salary_cursor as CURSOR;

SET @salary_cursor = CURSOR FOR

SELECT salary,_rank
 FROM employees;

OPEN @salary_cursor;
FETCH NEXT FROM @salary_cursor INTO @salary , @_rank;

WHILE @@FETCH_STATUS = 0
BEGIN
        IF(@salary > 75000)
                UPDATE employees
                SET _rank = 'SENIOR'
        ELSE
                UPDATE employees
                SET _rank = 'ASSOCIATE'
                PRINT ('else')
 PRINT cast(@salary as VARCHAR (50)) + ' ' + @_rank;
 FETCH NEXT FROM @salary_cursor INTO @salary , @_rank;
END

CLOSE @salary_cursor;
DEALLOCATE @salary_cursor;
END
```

Lab Tasks:

- Create tables using Data Definition Language. You will not use SQL Server Management Studio interface for creating schema scripts. You must write commands.
- Identify all the constraints.

Homework Questions:

- Add all constraints using SQL (Primary key, Foreign keys and any other).
- Identify triggers.
- Add triggers to your schema.
- Add at least 20 dummy rows using INSERTs.
- Client has changed its requirement and now merchants from India are allowed. ALTER your constraint accordingly.

Submission Instructions:

Name your query files as DBLab9_2019_CE_X.sql, add supporting SQL scripts of your homework and submit on google classroom by Sunday, 6th April, 2022 9 P.M