Database Management System – cs422 DE

Assignment 3 – Week 3 & 4

This assignment is based on lecture 3 & 4 (chapter 6 & 7).

○ Submit your *own work* on time. No credit will be given if the assignment is submitted after the due date.

○ Note that the completed assignment should be submitted in .doc, .docx, .rtf or .pdf format only.

○ In MCQs, if you think that your answer needs explanation to get credit then please write it down.

○ You are encouraged to discuss these questions in the Sakai forum.

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1) The database schema is written in

(A) HLL (B) DML (C) DDL (D) DCL

ANS:

2) The language used in application programs to request data from the DBMS is referred to as

(A) DML (B) DDL (C) VDL (D) SDL

ANS:

3) **Count function in SQL returns the number of**

(A) values (B) distinct values (C) groups (D) columns

ANS:

4) 'AS' clause is used in SQL for

(A) Selection (B) Rename (C) Join (D) Projection

ANS:

5) Which is not a DDL statement ?

(A) Create (B) Alter (C) Delete (D) Drop

ANS:

6) **The statement in SQL which allows to change the definition of a table is**

(A) Alter (B) Update (C) Create (D) Select

ANS:

7) What restrictions apply to the use of the aggregate functions within the SELECT statement? How do nulls affect the aggregate functions?

ANS:

If an aggregate function against a column that contains nulls is executed, the function ignores the nulls.

An aggregate function can be used only in the SELECT list and in the HAVING clause.

8) List the order in which the WHERE, GROUP BY, and HAVING clauses are executed by the database in the following SQL statement.

```
SELECT section_id, COUNT(*), final_grade
FROM enrollment
WHERE TRUNC(enroll_date) > TO_DATE('2/16/2003', 'MM/DD/YYYY')
GROUP BY section_id, final_grade HAVING COUNT(*) > 5
```

ANS:

First the WHERE clause is executed, then the GROUP BY, and lastly the HAVING clause is applied.

9) Explain how the GROUP BY clause works. What is the difference between WHERE and HAVING clauses?

ANS:

The main difference between WHERE and HAVING clause comes when used together with GROUP BY clause, In that case WHERE is used to filter rows before grouping and HAVING is used to exclude records after grouping. This is the most important difference and if you remember this, it will help you write better SQL queries.

10) Can the ANY and ALL operators be used on the DATE data type? Write a simple query to prove your answer.

ANS:

Yes, Any and ALL can be used on the DATE

```
SELECT ProductName
FROM Products
WHERE expiryDate
= ANY (SELECT ProductID FROM OrderDetails WHERE YEAR(orderDate) > 2020 );
```

11) The following SQL lists staffs who work in branch at '163 Main St'.

```
SELECT staffNo, fName, lName, position
FROM Staff
WHERE branchNo =
      (SELECT branchNo
      FROM Branch
      WHERE street = '163 Main St');
```

Will there be any problem with this query if there is more than one branch at '163 Main St'? If yes, then explain the problem and right down the correct query.
ANS:

Yes, if there is more than one result will be error, we should use "branchNo in"

12) **What is Referential integrity constraint?**
ANS:

referential integrity constraints to ensure that the information contained in one or more columns of one table is consistent with the information contained in other columns of the same table and in other tables

13) What is the difference between primary key and unique key?
ANS:

You can only have one **primary key** per table, but multiple **unique keys**.

14) Solve the question 7.10 from the course text book (5th edition).
ANS:

```
CREATE DOMAIN HotelNumber AS CHAR(4);

    CREATE TABLE Hotel(
        hotelNo HotelNumber  NOT NULL,
        hotelName  VARCHAR(20) NOT NULL,
        city VARCHAR(50) NOT NULL,
        PRIMARY KEY (hotelNo));
```

15) Solve the question 7.12 from the course text book (5th edition).
ANS:

```
CREATE TABLE BookingOld( hotelNo  CHAR(4)   NOT NULL,
guestNo       CHAR(4)        NOT NULL,
dateFrom      DATETIME       NOT NULL,
```

```
dateTo          DATETIME        NULL,
roomNo                  VARCHAR(4)      NOT NULL);

INSERT INTO BookingOld( SELECT * FROM Booking  WHERE dateTo < DATE'2013-01-01');
DELETE FROM Booking  WHERE dateTo < DATE'2013-01-01';
```