Database Management System – cs422 DE

Assignment 3 – Week 3 & 4

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1) The database schema is written in

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

ANS: C

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: A

3) Count function in SQL returns the number of

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

ANS: A

4) 'AS' clause is used in SQL for

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

ANS: B

5) Which is not a DDL statement ?

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

ANS: C

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

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

ANS: A

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

ANS: SUM and AVG are only for numeric fields only while COUNT, MIN and MAX are for both numeric and non-numeric fields.

COUNT counts all the rows of the table regardless of whatever it is null or duplicates while other aggregate functions eliminate null first then operate only remaining non-null values.

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: WHERE, GROUP BY, HAVING

9) Explain how the GROUP BY clause works. What is the difference between WHERE and HAVING clauses?
ANS: GROUPBY works for grouping the rows based on the specific column.
WHERE is for filtering the rows subject to some condition while HAVING is for filtering the groups subject to some condition.

10) Can the ANY and ALL operators be used on the DATE data type? Write a simple query to prove your answer.
ANS: Yes
Getting the information of employees who got order on their birth month.

```
SELECT *
FROM Employees e
WHERE Month(BirthDate) = ANY(SELECT Month(OrderDate) FROM Orders o
                             WHERE e.EmployeeID = o.EmployeeID);
```

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, there will be the problem because that subquery will return more than one results. So, we will get the exception. To make it correct, we can use 'IN' instead of '=' because 'IN' wants one or more than one values to check while '=' wants only one value to check.

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

12) What is Referential integrity constraint?
ANS: Referential integrity constraints is that if a table has a foreign key, that key must refer to the existing row of another table.

13) What is the difference between primary key and unique key?
ANS: A table can have only one primary key while it can have many unique keys and a primary key must

not accept null while a unique key can accept null.

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

ANS:

```
CREATE TABLE Hotel(
  Id INT NOT NULL,
  Name VARCHAR NOT NULL,
  Address VARCHAR NOT NULL,
  Zip VARCHAR NOT NULL,
  PRIMARY KEY (Id));
```

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

ANS:

```
CREATE TABLE BookingArchive (
  Id INT NOT NULL,
  RoomId INT NOT NULL,
  GuestId INT NOT NULL,
  DateFrom DATETIME NOT NULL,
  DateTo DATETIME NOT NULL,
  PRIMARY KEY (Id));

INSERT INTO BookingArchive (Id, RoomId, GuestId, DateFrom, DateTo)
SELECT * FROM Booking WHERE DateTo < '2007-01-01';

DELETE FROM BookingArchive WHERE DateTo < '2007-01-01';
```