

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: 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: DML

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:

Aggregate functions can only be used with HAVING AND SELECT STATEMENTS clauses. If SELECT is used, GROUP BY cannot be used to group data together. Data in the SELECT list should not include any reference to a column unless there is an argument to an aggregate function in that specific column.

- 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:

- a. WHERE
- b. GROUP BY
- c. HAVING

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

ANS:

Group BY clause used to group the rows that have the same values i.e., column has same values in different rows. GROUP BY clause is used with the SELECT statement.

WHERE clause is used mostly to filter the records from a table that is based on a specified condition.

HAVING clause is used to filter the record from the groups based on the specified 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

```
SELECT ALL DrugName
FROM Drugs
WHERE expiryDate= Any(SELECT DrugID
FROM OrderDetails
WHERE YEAR(orderDate)>2021)
```

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. WHERE clause followed by an equal operator expects only one argument on the right - hand side of the argument. If more than one branches exist, the query will throw an exception.

```
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:

In two relational database tables, there must always exist a valid relationship between them & that valid relationship confirms that a foreign key exists in a table, and it should always reference a corresponding value or attribute in the other table or be null.

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

ANS:

Primary Key is basically used to uniquely identify a row in a table. Primary key will not accept NULL values. One primary key column in a table.

Unique key is used to prevent duplicate values in a column. Unique keys can accept NULL values. More than one unique key in a table.

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,
    email 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'2007-01-01');  
DELETE FROM Booking WHERE dateTo < DATE'2007-01-01';
```

MUM-DBMS