16 Feb Ass

March 8, 2023

[ ]:
```
Q1. What is a database? Differentiate between SQL and NoSQL databases.
```

[ ]:
```
ANS -
```

[ ]:
```
SQLite , a database included with python, create a single file for all data per␣
 ↪database. other database such as postgreSQL , MySQL,
and microsoft SQL serve have more complicated persistence schemes while␣
 ↪offering additional advanced schemes while offering additional
advanced features.
```

[ ]:
```
SQL is the programming language used to interface with relational databases.
 ↪(Relational databases model data as records in rows and tables
with logical links between them.) NO SQL is a class of DBMS that are␣
 ↪non-relational and generally do not use SQL.
     There are five practical differences between SQL and NoSQL:
       1. Language
       2. Scalability
       3. Properties
       4. Support and communities.
```

[ ]:
```

```

[ ]:
```

```

[ ]:
```
Q2. What is DDL? Explain why CREATE, DROP, ALTER, and TRUNCATE are used with an␣
 ↪example.
```

[ ]:
```
ANS -
```

[ ]:
```
Data Definition Language(DDL) is a subset of SQL and a part of DBMS (Database␣
 ↪Management System). DDL consist of Commands to
Commands like CREATE , ALTER , TRUNCATE , and DROP. These commands are used to␣
 ↪create or modify the table in SQL.
```

[ ]:
```
CREATE:
      They commands is used to create a new table in SQL the user has to give␣
 ↪information  like table name , column names ,
```

```
        and their datatypes.
```

[ ]:
```
CREATE TABLE table_name
(
    column_1 datatype,
    column_2 datatype,
    column_3 datatype,
    .....
);
```

[ ]:
```
ALTER:
       This commands is used to add, delete or change columns in the existing␣
 ↪table. the user needs to know the existing table
       name and can do add , delete or modify
```

[ ]:
```
ALTER TABLE table_name
ADD column_name datatype:
```

[ ]:
```
TRUNCATE:
        This commands is used to remove all rows from the table, but the␣
 ↪structure of the table still exists.
```

[ ]:
```
TRUNCATE TABLE table_name;
```

[ ]:
```
DROP:
     This command is used to remove an existing table along with its structure␣
 ↪from the Database.
```

[ ]:
```
DROP TABLE table_name;
```

[ ]:
```

```

[ ]:
```

```

[ ]:
```
Q3. What is DML? Explain INSERT, UPDATE, and DELETE with an example.
```

[ ]:
```
ANS - The Data Management Language(DML) statements are used to retrieve add ,␣
 ↪delete , and modify the data that is
    stored in the objects of the database. The keywords or statements that are␣
 ↪associated with the data manipulation language
    are : SELECT INSERT , UPDATE AND DELETE. These are thr primary statements␣
 ↪of data manipulation language and used widely.
```

[ ]:
```
The INSERT statement is used to insert a new row in the database that is adding␣
 ↪data to a table.
```

[ ]:
```
The SELECT statements is used to retrieve record from one or more tables.
```

[ ]:
```
The UPDATE statement is used to update the data or row in the table.
```

[ ]:
```
The MERGE statement is used to merge two rows or two tables in the database.
```

[ ]:
```
The DELETE statements is used to delete a row from the table in the database.
```

[ ]:
```

```

[ ]:
```

```

[ ]:
```
Q4. What is DQL? Explain SELECT with an example.
```

[ ]:
```
ANS -
```

[ ]:
```
Data query language is part of the base grouping of SQL sub-languages. These␣
 ↪sub-language are mainly categorized into
four categories : a data query language, a data definition language , a data␣
 ↪control language , and a data manipulation language.
```

[ ]:
```
A SELECT statement retrieves zero or more rows from one or more database tables␣
 ↪or database views. In most
applications, SELECT is the most commonly used data manipulation language(DML)␣
 ↪command. As  SQL is a declarative programming language,
SELECT queries specify a result set, but do not specify how to calculate it.
```

[ ]:
```

```

[ ]:
```

```

[ ]:
```
Q5. Explain Primary Key and Foreign Key.
```

[ ]:
```
ANS -
```

[ ]:
```
 A relational database is designed to enforce the uniqueness of the primary␣
 ↪keys by allowing only one row with a given primary key value in
    a table. foregin keys. a foregin key is a column or a set of columns in a␣
 ↪table whose values correspond to the value of the primary
    key in another table.
```

[ ]:
```
A Primary key is a column or a set of columns in a table whose values uniquely␣
 ↪identify a row in the table. A rational
database is designed to enforce the uniqueness of primary keys by allowing o␣
 ↪nly one rows with a given primaryh key
value in a table.
```

[ ]:
```
A  foregin key is a column or a set of columns in a table whose values␣
 ↪correspond to the values of the primary key in another
table. In order to add a row with a given foregin key value , there must exist␣
 ↪a row in the related table with the same primary
key value.
```

[ ]:

[ ]:
```
Q6. Write a python code to connect MySQL to python. Explain the cursor() and␣
 ↪execute() method.
```

[ ]:
```
ANS -
```

[ ]:
```
The MySQLCursor of mysql- connector-python (and similar libraries) is used to␣
 ↪execute statements to communicate with the MySQL database.
 Using the methods of it you can execute SQL statements , fetch data from the␣
 ↪result sets, call procedures.
    You can create Cursor object usiung the cursor() method of the connection␣
 ↪object / class.
```

[ ]:
```
import mysql.connector
#establishing the connection
conn = mysql.connector.connect(
    user = "root" ,
    password = "password" ,
    host = "223.0.0.4" ,
    database = "mydb" )

#creating a cursor object using the cursor() method
cursor = conn.cursor()
```

[ ]:

[ ]:

[ ]:
```
Q7. Give the order of execution of SQL clauses in an SQL query.
```

[ ]:
```
ANS -
```

[ ]:
```
SQL queries adhere to a specific oder when evaluating clauses , The order in␣
 ↪which the clauses in queries are executed
is as follows:
```

[ ]:
```
1. FROM/JOIN :
              The FROM and /or JOIN clauses are executed first to determine the␣
 ↪data of interest.
```

[ ]:
```
2. WHERE:
        The WHERE clause is executed to filter out records that do not meet␣
↪the constraints.
```

[ ]:
```
3. GROUP BY :
            The GROUP BY clauses is executed to group the data based on the␣
↪values in one or more columns.
```

[ ]:
```
4. HAVING :
       The HAVING caluses is executed to remove the created grouped records␣
↪that dont meet the constraints.
```

[ ]:
```
5. SELECT :
          The SELECT  clauses is executed to derive all desired columns and␣
↪expressions.
```

[ ]:
```
6. ORDER BY :
            The ORDER BY clause is executed to sort the derived values in␣
↪ascending or descending order.
```

[ ]:
```
7. LIMIT/OFFSET :
                Finally , hte LIMIT and/or OFFSET clauses are executed to keep␣
↪or skip a specified number of rows.
```

[ ]:

[ ]: