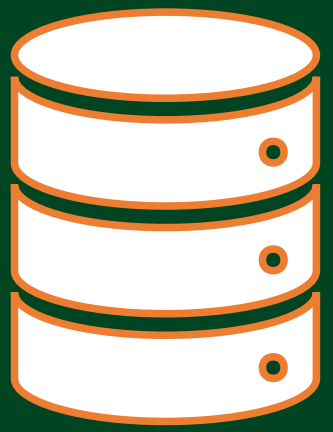
COMPUTER PROGRAMMING 1

Lecture

Prepared by: Ms. Jhona D. Vallestero

DATABASE CONNECTION

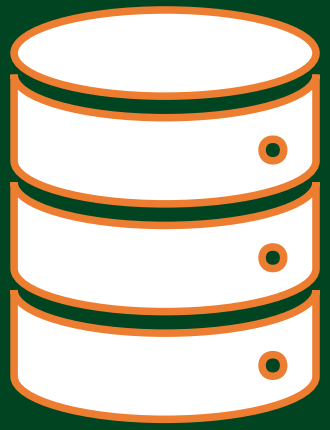
COMPUTER PROGRAMMING 1



DATABASE

A database is an organized collection of structured information, or data, typically stored electronically in a computer system. Data within the most common types of databases in operation today is typically modeled in rows and columns in a series of tables to make processing and data querying efficient. The data can then be easily accessed, managed, modified, updated, controlled, and organized.

SQLite



- Is a programming language used by nearly all relational databases to query, manipulate, and define data, and to provide access control.
- is a software library that implements a self-contained, serverless, zero-configuration, transactional SQL database engine. SQLite accesses its storage files directly.

How to install SQLite?

1

Open the download page :

https://www.sqlite.org/download.html

Precompiled Binaries for Windows

sqlite-dll-win32-x86-3290000.zip (474.63 KiB)	32-bit DLL (x86) for SQLite version 3.29.0. (sha1: 00435a36f5e6059287cde2cebb2882669cdba3a5)
sqlite-dll-win64-x64-3290000.zip (788.61 KiB)	64-bit DLL (x64) for SQLite version 3.29.0. (sha1: c88204328d6ee3ff49ca0d58cbbee05243172c3a)
sqlite-tools-win32-x86-3290000.zip (1.71 MiB)	A bundle of command-line tools for managing SQLite database files, including the command-line shell program, the sqldiff.exe program, and the sqlite3_analyzer.exe program. (sha1: f009ff42b8c22886675005e3e57c94d62bca12b3)

How to install SQLite?

2. Create a new folder e.g., C:\sqlite

3. Extract the content of the file that you downloaded to the C:\sqlite folder.

How to install SQLite?

4

Open the command line window

and navigate to the **C:\sqlite** folder:

```
C:\cd c:\sqlite
C:\sqlite>
```

How to install SQLite?

5

Then type the **sqlite3** and press enter,

you should see the following:

```
C:\sqlite>sqlite3
SQLite version 3.29.0 2019-07-10 17:32:03
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open FILENAME" to reopen on a persistent database.
sqlite>
```

How to install SQLite?

6 Install SQLite GUI Tool: DB Browser for SQLite:

Downloads - DB Browser for SQLite (sqlitebrowser.org)

Creating Database in DB Browser SQLite

1. Open the ‘DB Browser SQLite’
2. Click ‘New Database’, make sure that your python file, ui and database are in the same folder.
3. A window will appear: Enter the name of the table, and add column names then click ‘Ok’.
4. Click ‘Browse Data’ to see the table you created

Basic SQLite Command

SELECT - query data from a single table using SELECT statement.

*SELECT * FROM studentDatabase*

INSERT - insert rows into a table

INSERT INTO studentDatabase (id,name,year) VALUES ('{}','{}','{}')

UPDATE - update existing rows in a table.

UPDATE studentDatabase SET name = ?, year = ? WHERE id = ?

DELETE - delete rows from a table

DELETE FROM studentDatabase WHERE id = ?

Connecting the database SQLite in Python File / Program

```
import sqlite3

def exe(para,data):
    conn = sqlite3.connect('StudentData.db')
    if data == None:
        cursor = conn.execute(para)
    else:
        cursor = conn.execute(para,data)
    rows = cursor.fetchall()
    conn.commit()
    cursor.close()
    return rows
```

Connecting the database SQLite in Python File / Program

```
def get_info(self,act):
    if act == 'SUBMIT':
        query = """INSERT INTO studentDatabase
                                (id,name,year)
                                VALUES ('{}','{}','{}'); """.format(
                                self.txtStudentID.text().upper(),self.txtName.text().title(),self.cbYear.currentText())
        exe(query,None)
    else:
        query = """UPDATE studentDatabase SET name = ?, year = ? WHERE id = ?"""
        data = (self.txtName.text().title(),self.cbYear.currentText(),self.txtID.text().upper())
        exe(query,data)
    self.txtName.clear()
    self.txtStudentID.clear()
    self.txtID.clear()
    self.table_setup()
```

REFERENCES

- https://www.oracle.com/ph/database/what-is-database/
- https://www.tutorialspoint.com/sqlite/sqlite_overview.htm
- https://www.sqlitetutorial.net/?fbclid=IwAR3oURJ4Ru8HXFAZ3ifSXuzfbK-h_ZDBetsuyfuAepuZvQ6BFKGvUMT_pzI