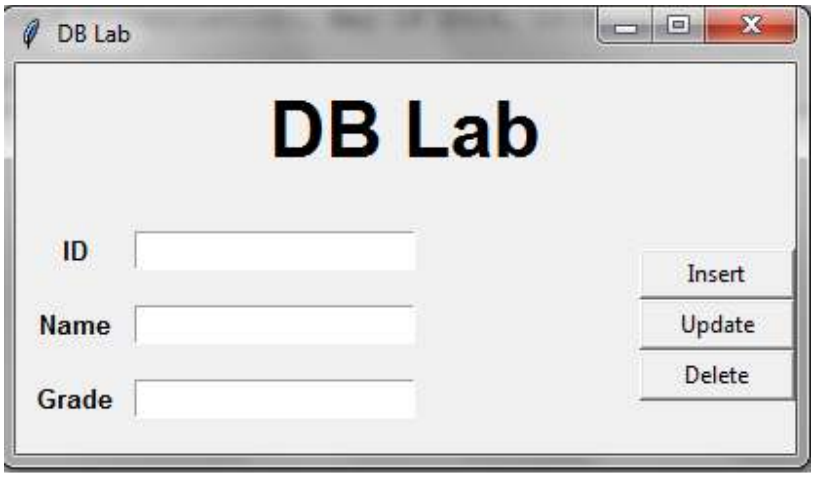
Introduction

A database is a collection of information that is organized so that it can easily be accessed, managed, and updated. In this lab, we will create a python GUI that can handle database queries.

Objectives

- Introduce the student to sqlite3, the self-contained, embedded, full-featured, public-domain, SQL database engine.
  - SQLite is the most used database engine in the world.
- Construct a PC program that can insert and update data to a sqlite database.



Requirements

- Python 3.x (https://www.python.org/downloads)
- DB browser (https://github.com/sqlitebrowser/sqlitebrowser/releases)

Procedure

1- Install python
2- Create a frame

```
#import tkinter
from tkinter  import *

root =Tk()
```

```
root.geometry("400x200+200+100")
root.title("DB Lab")


Tops = Frame(root, width=300 , height =100)
Tops.pack(side = TOP)

f1 = Frame(root, width=300 ,height = 200)
f1.pack(side = LEFT )

f2 = Frame(root, width=200 ,height = 200)
f2.pack(side = RIGHT)

lbl = Label(Tops, font =('arial',30,'bold'), text ="DB Lab",  bd
=10 , anchor = 'w')
lbl.grid(row=0,column = 0)

lbl1 = Label(f1, font =('arial',10,'bold'), text ="ID",  bd =10 ,
anchor = 'w')
lbl1.grid(row=0,column = 0)
lbl2 = Label(f1, font =('arial',10,'bold'), text ="Name",  bd =10 ,
anchor = 'w')
lbl2.grid(row=1,column = 0)
lbl3 = Label(f1, font =('arial',10,'bold'), text ="Grade",  bd =10 ,
anchor = 'w')
lbl3.grid(row=2,column = 0)

txt1 = Entry(f1,font =('arial',10,'bold'))
txt1.grid(row=0, column = 1)

txt2 = Entry(f1,font =('arial',10,'bold'))
txt2.grid(row=1, column = 1)

txt3 = Entry(f1,font =('arial',10,'bold'))
txt3.grid(row=2, column = 1)

b1=Button(f2,command=callback1,text="Insert",width =
10).grid(row=0)
b2=Button(f2,command=callback2,text="Update",width =
10).grid(row=1)
```

```
b3=Button(f2,command=callback3,text="Delete",width =
10).grid(row=2)
root.mainloop()
```

3- Create the database

```
import sqlite3
c = conn.cursor()
c.execute("CREATE TABLE IF NOT EXISTS t(id INT
PRIMARY KEY,Name  TEXT,grade REAL)")
```

4- Write insert code

```
 def callback1():
 try:
      c.execute("INSERT INTO t
VALUES("+txt1.get()+",'"+txt2.get()+"','"+txt3.get()+"')")
      conn.commit()
except:
      print("INSERT INTO t
VALUES("+txt1.get()+",'"+txt2.get()+"','"+txt3.get()+"')")
      print("Failed to insert")
```

5- Write update code

```
def callback2():
   try:
      c.execute("UPDATE t SET grade = "+txt3.get()+" WHERE
id = "+txt1.get()+"")
      conn.commit()
   except:
      print("UPDATE t SET grade = "+txt3.get()+" WHERE id =
"+txt1.get()+"")
      print("Failed to update")
```

6- Write delete code

```
def callback3():
    try:
        c.execute("DELETE FROM t WHERE id ="+ txt1.get()+"")
        conn.commit()
    except:
        print("DELETE FROM t WHERE id ="+ txt1.get()+"")
        print("Failed to delete")
```

7- Close the database

```
c.close()
conn.close()
```

Task

Create the following GUI for a database named inventory that has Name, available, Cost, Total_cost as columns and add a select query based on the name and shown on a table in the bottom of the GUI.