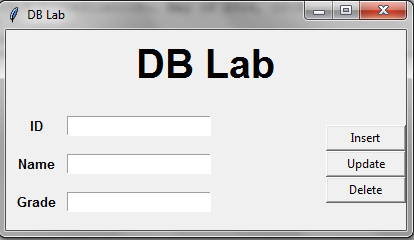
**Introduction**

A database is a collection of [information](http://searchsqlserver.techtarget.com/definition/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](https://www.sqlite.org/selfcontained.html), [embedded](https://www.sqlite.org/serverless.html), [full-featured](https://www.sqlite.org/fullsql.html), [public-domain](https://www.sqlite.org/copyright.html), SQL database engine.
* SQLite is the [most used](https://www.sqlite.org/mostdeployed.html) 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**

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| **#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()** |

1. **Create the database**

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

1. **Write insert code**

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| **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")** |

1. **Write update code**

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| **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")** |

1. **Write delete code**

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| **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")** |

1. **Close the database**

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| **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.**

