

Lecture 10: August 7

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10.1 GUI

10.1.1 SQLite3 Database

```
1 import sqlite3
2 class database:
3     def __init__(self, **kwargs):
4         self.filename = kwargs.get('filename')
5         self.table = kwargs.get('table')
6         self._db = sqlite3.connect(self.filename)
7         self._db.row_factory = sqlite3.Row
8     def close(self):
9         self._db.close()
10    def sql_do(self, sql, *params):
11        self._db.execute(sql, params)
12        self._db.commit()
13    def retrieve(self, key):
14        cursor = self._db.execute('select * from {table} where name={key}'
15                                  .format(self.table), (key,))
16        rec = cursor.fetchone()
17        if(rec):
18            return dict(rec)
19    def __iter__(self):
20        cursor = self._db.execute('select * from {table} order by name'
21                                  .format(self.table))
22        for row in cursor:
23            yield(row)
24    def insert(self, row):
25        self._db.execute('insert into {table} (id, name, email) values (?, ?, ?)'
26                          .format(self.table), (row['id'], row['name'], row['email']))
27        self._db.commit()
28
29    def delete(self, key):
30        self._db.execute('delete from {table} where id={key}'
31                          .format(self.table), (key,))
32        self._db.commit()
33    def update(self, row):
34        self._db.execute('update {table} set name=?, email=? where id={key}'
35                          .format(self.table), (row['name'], row['email'], row['id']))
36        self._db.commit()
```

```

37     def disp_rows(self):
38         cursor = self._db.execute('select *_from_{ }_order_by_name'
39             .format(self.table))
40         for row in cursor:
41             print('{}:_{ }_t_{ }'.format(row['id'],row['name'],row['email']))
42 def main():
43     db = database(filename='students.db', table='students')
44     db.disp_rows()
45     #db.delete(6)
46     r = db.retrieve('Bob')
47     if(r):
48         print(r)
49     else:
50         print("Not_found")
51     #d = dict(id=2,name='Bob2', email='bob2@bob2.gov')
52     #db.update(d)
53     r = db.retrieve('Bob2')
54     if(r):
55         print(r)
56     else:
57         print("Not_found")
58     #d = dict(id=6,name='Ethan', email='ethan@ethan.gov')
59     #db.insert(d)
60     #for i in db:
61     #    print(dict(i))
62     db.close()
63 if __name__ == "__main__": main()

```

10.1.2 GUI

```

1 from tkinter import *
2 from database import database
3 class App:
4     def __init__(self,root):
5         self.create_panel(root)
6         self.db = database(filename='students.db',table='students')
7     def search(self):
8         rec = self.db.retrieve(self.e.get())
9         self.entry_id.delete(0,END)
10        self.entry_name.delete(0,END)
11        self.entry_email.delete(0,END)
12        if(rec):
13            id = rec['id']
14            self.entry_id.insert(0,str(id))
15            self.entry_name.insert(0,rec['name'])
16            self.entry_email.insert(0,rec['email'])
17        else:
18            self.entry_id.insert(0,"NOT_FOUND")
19    def create_panel(self,root):

```

```
20     main_panel = PanedWindow(root , orient=VERTICAL)
21     top = PanedWindow(main_panel , orient=HORIZONTAL)
22     top.pack( fill=BOTH,expand=1)
23     lbl_name = Label(top , text="Name:" )
24     lbl_name.grid (row=0,column=0)
25     self.e = Entry(top , width=35)
26     self.e.grid (row=0,column=1)
27     self.btn_search= Button(top , text=" Search" ,command=self.search , width=10)
28     self.btn_search.grid (row=0,column=2)
29     #bottom panel
30     bottom = PanedWindow(main_panel , orient=HORIZONTAL)
31     bottom.pack( fill=BOTH,expand=1)
32     lbl_id =Label(bottom , text="ID:" )
33     lbl_id.pack(side=LEFT)
34     self.entry_id = Entry(bottom , width=50)
35     self.entry_id.pack(side=RIGHT)
36     lbl_name =Label(bottom , text="Name:" )
37     lbl_name.pack(side=LEFT)
38     self.entry_name = Entry(bottom , width=50)
39     self.entry_name.pack(side=RIGHT)
40     lbl_email =Label(bottom , text="Email:" )
41     lbl_email.pack(side=LEFT)
42     self.entry_email = Entry(bottom , width=50)
43     self.entry_email.pack(side=RIGHT)
44     lbl_id.grid (row=0,column=0)
45     self.entry_id.grid (row=0,column=1)
46     lbl_name.grid (row=1,column=0)
47     self.entry_name.grid (row=1,column=1)
48     lbl_email.grid (row=2,column=0)
49     self.entry_email.grid (row=2,column=1)
50     #lbl_name =Label(bottom , text="Name:" )
51     main_panel.add(top)
52     main_panel.add(bottom)
53     main_panel.pack( fill=BOTH,expand=1)
54 def main():
55     root = Tk()
56     root.geometry( '480x320' )
57     app = App(root)
58     root.mainloop()
59 main()
```

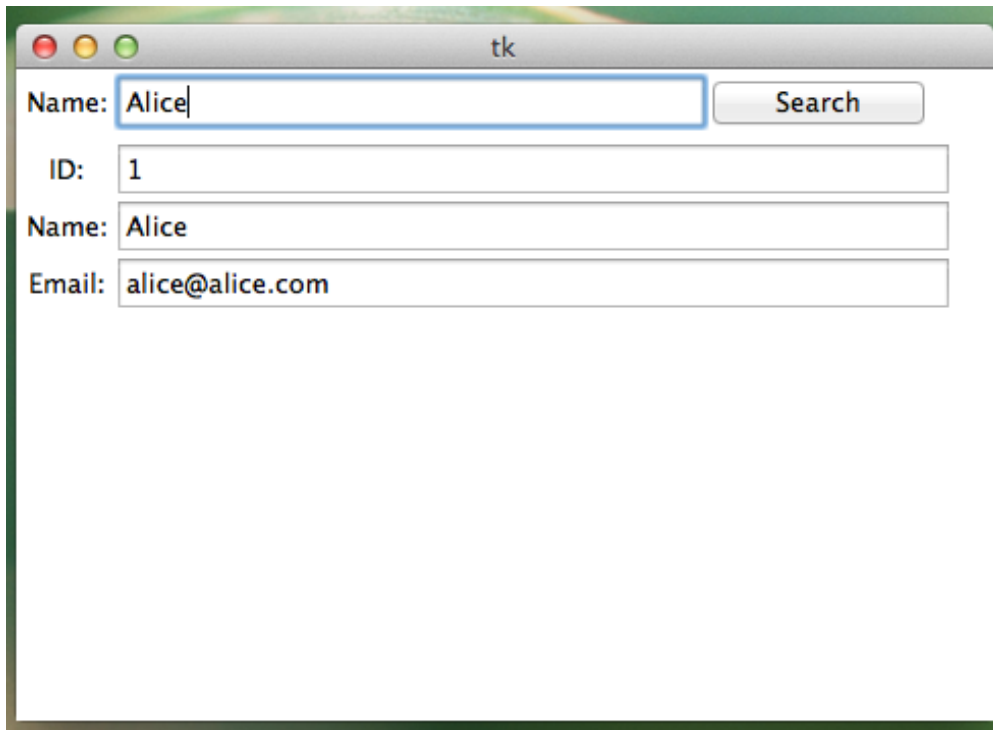


Figure 10.1: tkinter GUI Example