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ITE315-Scripting(Lab 17)

Part 01

```
#!/usr/bin/python
```

```
import sqlite3
dbname = 'seqdata.db'
try:
    conn = sqlite3.connect(dbname)
except:
    print("Unable to open database")

query = 'SELECT * FROM Sequence'
try:
    rowSet = conn.execute(query)
    for row in rowSet:
        seqNum = row[0]
        sequence = row[1]
        print("Sequence %d:\t%s" % (seqNum, sequence))
except:
    print("Error: Unable to access the database")

conn.close()
```

(Didn't want to paste all 56 sequences)

```
Sequence 1:      GCTATATATATATATAGC
Sequence 2:      GCATTAATTAATTAATGC
Sequence 3:      GCGCATGCATGCATGCGC
Sequence 4:      GCCTAGCTAGCTAGCTGC
Sequence 5:      GCCGCGCGCGCGCGCGGC
Sequence 6:      GCGCCGGCCGGCCGGCGC
Sequence 7:      GCTACGTACGTACGTAGC
Sequence 8:      GCGATCGATCGATCGAGC
Sequence 9:      GCAAAAAAAAAAAAAAGC
Sequence 10:     GCCGAGCGAGCGAGCGGC
Sequence 11:     GCGAAGGAAGGAAGGAGC
Sequence 12:     GCGTAGGTAGGTAGGTGC
Sequence 13:     GCTGAGTGAGTGAGTGGC
Sequence 14:     GCAGCAAGCAAGCAAGGC
Sequence 15:     GCAAGAAAGAAAGAAAGC
Sequence 16:     GCGAGGGAGGGAGGGAGC
Sequence 17:     GCGGGGGGGGGGGGGGGGC
Sequence 18:     GCAGTAAGTAAGTAAGGC
Sequence 19:     GCGATGGATGGATGGAGC
Sequence 20:     GCTCTGTCTGTCTGTTCG
Sequence 21:     GCACAAACAAACAAACGC
Sequence 22:     GCAGAGAGAGAGAGAGGC
Sequence 23:     GCGCAGGCAGGCAGGCGC
Sequence 24:     GCTCAGTCAGTCAGTCGC
Sequence 25:     GCATCAATCAATCAATGC
Sequence 26:     GCGTCGGTCGGTCGGTGC
Sequence 27:     GCTGCGTGCGTGCGTGGC
```

## Part 02

```
#!/usr/bin/python

from tkinter import *
import tkinter.messagebox
import sqlite3

top = Tk()
frame = Frame(top)
frame.pack()
label = Label(frame, text="Sequence Mutator", relief=RAISED)
label.pack(side=TOP)

seqListBox = Listbox(frame)

def mutate():
    selectedSeq = seqListBox.curselection()
    if not selectedSeq:
        sequenceString = ''
    else:
        sequenceString = seqListBox.get(selectedSeq)
    print("String to mutate is: " + sequenceString)
    tkinter.messagebox.showinfo("Selected Sequence", sequenceString)

dbname = 'seqdata.db'
try:
    conn = sqlite3.connect(dbname)
except:
    print("Unable to open database")
    tkinter.messagebox.showinfo("Database error", "Unable to open database")

query = 'SELECT * FROM Sequence'

rowSet = conn.execute(query)
for row in rowSet:
    seqNum = row[0]
    sequence = row[1]
    lbcontent = "Sequence %d : %s" % (seqNum, sequence)
    seqListBox.insert(seqNum, sequence)
    print("Sequence %d:\t%s" % (seqNum, sequence))

seqListBox.pack(side=LEFT)

conn.close()

seqListBox.select_clear(0, "end")
seqListBox.selection_set(0)
seqListBox.see(0)
seqListBox.activate(0)
seqListBox.selection_anchor(0)

mutateButton = Button(frame, text="Mutate", fg="black", command=mutate)
mutateButton.pack(side=RIGHT)
top.mainloop()
```

String to mutate is: GCATTAATTAATTAATGC  
String to mutate is: GCGCATGCATGCATGCGC  
String to mutate is: GCCTAGCTAGCTAGCTGC  
String to mutate is: GCCGCGCGCGCGCGCGGC

The image shows a Tkinter application window titled "tk" with a "Sequence Mutator" label. It contains a list of DNA sequences. The sequence "GCCTAGCTAGCTAGCTGC" is highlighted in green, and a blue "Mutate" button is visible. Below this, another instance of the "Sequence Mutator" window is shown, with the sequence "GCCGCGCGCGCGCGCGGC" highlighted in green and its "Mutate" button. To the right, two "Selected Sequence" dialog boxes are displayed, each featuring a rocket icon and an "OK" button. The first dialog shows the selected sequence "GCCTAGCTAGCTAGCTGC", and the second shows "GCCGCGCGCGCGCGCGGC". The background shows a code editor with Python files "lab17.part1.py", "lab17.part2.py", and "assn05.py".

tk

Sequence Mutator

GCTATATATATATATAGC  
GCATTAATTAATTAATGC  
GCGCATGCATGCATGCGC  
**GCCTAGCTAGCTAGCTGC**  
GCCGCGCGCGCGCGCGGC  
GCGCCGGCCGGCCGGCGC  
GCTACGTACGTACGTAGC  
GCGATCGATCGATCGAGC  
GCAAAAAAAAAAAAAAGC  
GCCGAGCGAGCGAGCGGC

Mutate

Selected Sequence

GCCTAGCTAGCTAGCTGC

OK

tk

Sequence Mutator

GCTATATATATATATAGC  
GCATTAATTAATTAATGC  
GCGCATGCATGCATGCGC  
GCCTAGCTAGCTAGCTGC  
**GCCGCGCGCGCGCGCGGC**  
GCGCCGGCCGGCCGGCGC  
GCTACGTACGTACGTAGC  
GCGATCGATCGATCGAGC  
GCAAAAAAAAAAAAAAGC  
GCCGAGCGAGCGAGCGGC

Mutate

Selected Sequence

GCCGCGCGCGCGCGCGGC

OK