

Creating GUI Using Python/Tk

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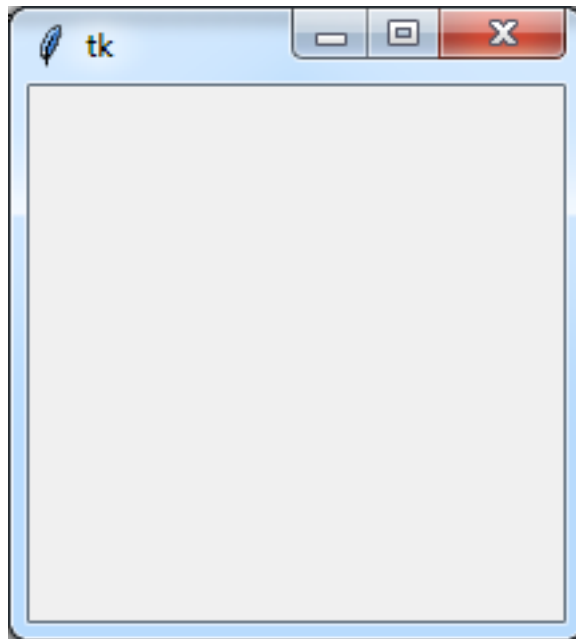
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This guide will show how to create GUI using Python Tk extension. Guide flow will be using a script example and showing the resulting GUI.

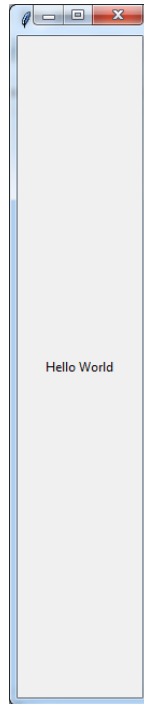
1 Plain GUI

```
import tkinter
DemoWindow = tkinter.Tk()
DemoWindow.mainloop()
```



2 Simple Text

```
import tkinter
DemoWindow = tkinter.Tk()
TextArea = tkinter.Label(DemoWindow, text="Hello World", padx
    =10, pady=300)
TextArea.pack()
DemoWindow.mainloop()
```



A widget is simply a piece of the graphical display. There are a numerous types of widgets:

- Buttons, Labels, Entry boxes are all examples of low-level widgets.
- Frames are a special type of widget that is capable of holding other widgets.
- A Toplevel widget corresponds to a window

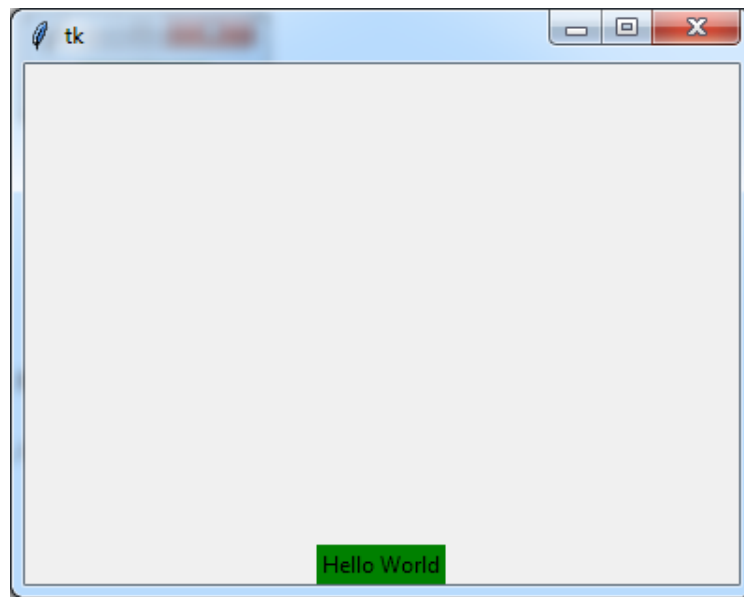
3 Add Background color to the text

```
import tkinter
DemoWindow = tkinter.Tk()
TextArea = tkinter.Label(DemoWindow, text="Hello World",
    background="green")
TextArea.pack()
DemoWindow.mainloop()
```



4 Change Position of the text

```
import tkinter
DemoWindow = tkinter.Tk()
TextArea = tkinter.Label(DemoWindow, text="Hello World",
    background="green")
TextArea.pack(side="bottom")
# other possible values: top, bottom, left, right
DemoWindow.mainloop()
```



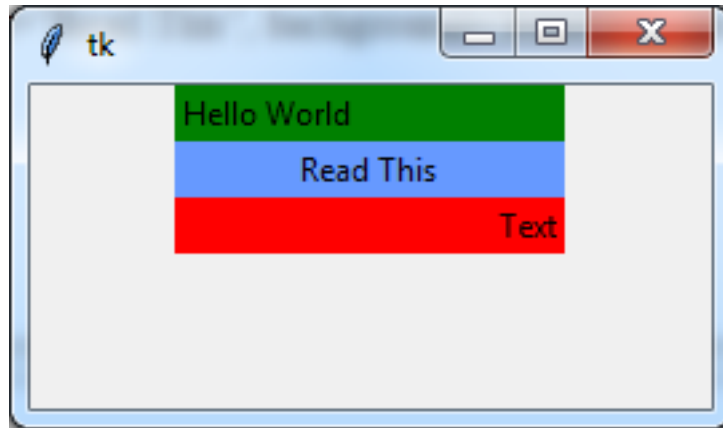
5 Text Anchor

```
import tkinter
DemoWindow = tkinter.Tk()

TextArea = tkinter.Label(DemoWindow, text="Hello World",
    background="green", anchor="w", width=20)
TextArea2 = tkinter.Label(DemoWindow, text="Read This",
    background="#6699ff", anchor="center", width=20)
TextArea3 = tkinter.Label(DemoWindow, text="Text", background="
    red", anchor="e", width=20)

TextArea.pack(side="top")
TextArea2.pack(side="top")
TextArea3.pack(side="top")
```

```
DemoWindow.mainloop()
```



You can anchor to any of the following directions:

- n - North (top center)
- ne - Northeast (top right)
- e - East (middle right)
- se - Southeast (bottom right)
- s - South (bottom center)
- sw - Southwest (bottom left)
- w - West (middle left)
- nw - Northwest (top left)
- center - centered in the middle

6 Fit in Window Size

```
import tkinter
```

```
DemoWindow = tkinter.Tk()
```

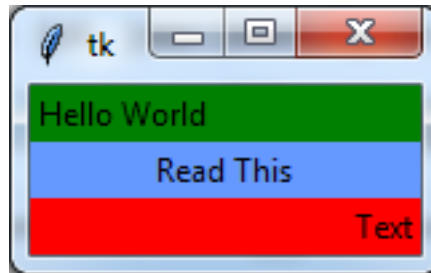
```
TextArea = tkinter.Label(DemoWindow, text="Hello World",  
                          background="green", anchor="w", width=20)
```

```
TextArea2 = tkinter.Label(DemoWindow, text="Read This",  
                           background="#6699ff", anchor="center", width=20)
```

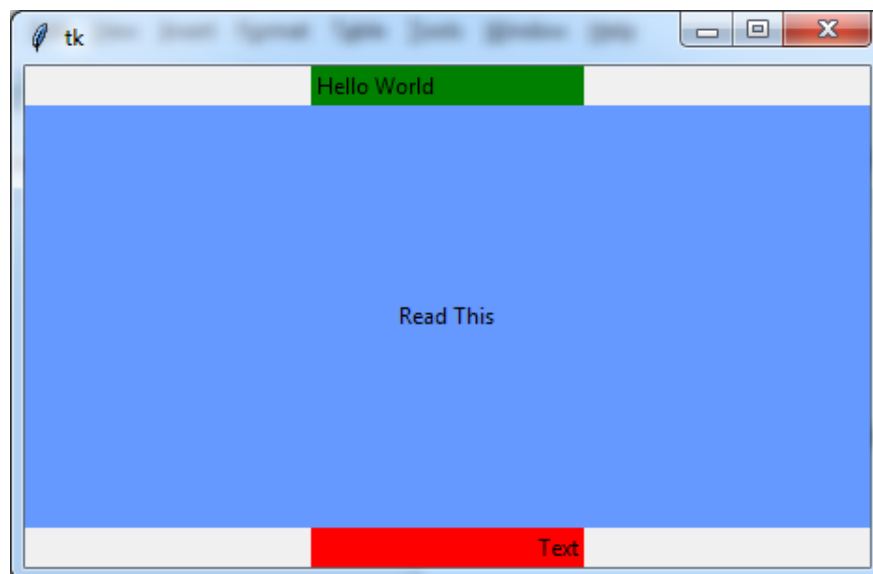
```
TextArea3 = tkinter.Label(DemoWindow, text="Text", background="red", anchor="e", width=20)

TextArea.pack(side="top")
TextArea2.pack(side="top", expand="yes", fill="both")
TextArea3.pack(side="top")

DemoWindow.mainloop()
```



then when we resize window



7 Change Text Font

```
import tkinter

DemoWindow = tkinter.Tk()

TextArea = tkinter.Label(DemoWindow, text="Hello World",
    background="green", font=('Helvetica', 32))
```

```
TextArea2 = tkinter.Label(DemoWindow, text="Read This",
                           background="#6699ff", font=('Times', 48, 'bold italic'))

TextArea.pack(side="top")
TextArea2.pack(side="top", expand="yes", fill="both")
DemoWindow.mainloop()
```



8 Add Button

```
import tkinter
DemoWindow = tkinter.Tk()

def WelcomeMsg():
    print('Welcome User')

TextArea = tkinter.Label(DemoWindow, text="Hello World",
                          background="green", font=('Helvetica', 18))
TextArea2 = tkinter.Label(DemoWindow, text="Read This",
                           background="#6699ff", font=('Times', 18, 'bold italic'))
Button01 = tkinter.Button(DemoWindow, text="Button", command=
                           WelcomeMsg)

TextArea.pack(side="top")
TextArea2.pack(side="top")
Button01.pack()

DemoWindow.mainloop()
```




9 Add Frames

```
import tkinter
DemoWindow = tkinter.Tk()

def WelcomeMsg():
    print('Welcome User')

TextArea = tkinter.Label(DemoWindow, text="Hello World",
    background="green", font=('Helvetica', 18))
TextArea2 = tkinter.Label(DemoWindow, text="Read This",
    background="#6699ff", font=('Times', 18, 'bold italic'))
Button01= tkinter.Button(DemoWindow, text="Button", command=
    WelcomeMsg)
Frame01 = tkinter.Frame(DemoWindow, background="yellow", height
    =20, width=20)
Frame02 = tkinter.Frame(DemoWindow, background="orange", height
    =20, width=40)

TextArea.pack()
TextArea2.pack()
Button01.pack()
Frame01.pack(expand="yes", fill="x")
Frame02.pack(expand="yes", fill="y")

DemoWindow.mainloop()
```



10 Assign Widgets into the Frames

```
import tkinter
DemoWindow = tkinter.Tk()

def WelcomeMsg():
    print('Welcome User')

Frame01 = tkinter.Frame(DemoWindow, background="yellow", height
    =20, width=20)
Frame02 = tkinter.Frame(DemoWindow, background="orange", height
    =20, width=40)
TextArea = tkinter.Label(Frame01, text="Hello World", background
    ="green", font=('Helvetica', 18))
TextArea2 = tkinter.Label(Frame01, text="Read This", background=
    "#6699ff", font=('Times', 18, 'bold italic'))
Button01= tkinter.Button(Frame02, text="Button", command=
    WelcomeMsg)

TextArea.pack()
TextArea2.pack()
Button01.pack()
```

```
Frame01.pack(expand="yes", fill="both")
Frame02.pack(expand="yes", fill="both")

DemoWindow.mainloop()
```



11 Change Frame Style

```
import tkinter
DemoWindow = tkinter.Tk()

def WelcomeMsg():
    print('Welcome User')

Frame01 = tkinter.Frame(DemoWindow, background="yellow", height
    =20, width=20)
Frame02 = tkinter.Frame(DemoWindow, background="orange", height
    =20, width=40)
Frame03 = tkinter.Frame(DemoWindow, background="white", height
    =100, width=150, relief="ridge", borderwidth=5)
TextArea = tkinter.Label(Frame01, text="Hello World", background
    ="green", font=('Helvetica', 18))
TextArea2 = tkinter.Label(Frame01, text="Read This", background=
    "#6699ff", font=('Times', 18, 'bold italic'))
```

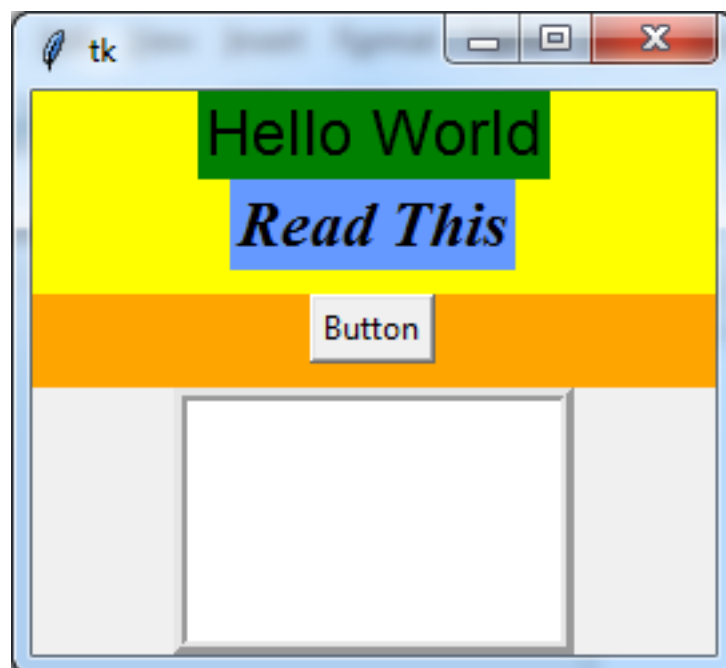
```

Button01= tkinter.Button(Frame02, text="Button", command=
    WelcomeMsg)

TextArea.pack()
TextArea2.pack()
Button01.pack()
Frame01.pack(expand="yes", fill="both")
Frame02.pack(expand="yes", fill="both")
Frame03.pack()

DemoWindow.mainloop()

```



Possible relief styles



source <http://infohost.nmt.edu/>

12 Add Scrollbar

```

import tkinter
DemoWindow = tkinter.Tk()

def WelcomeMsg():

```

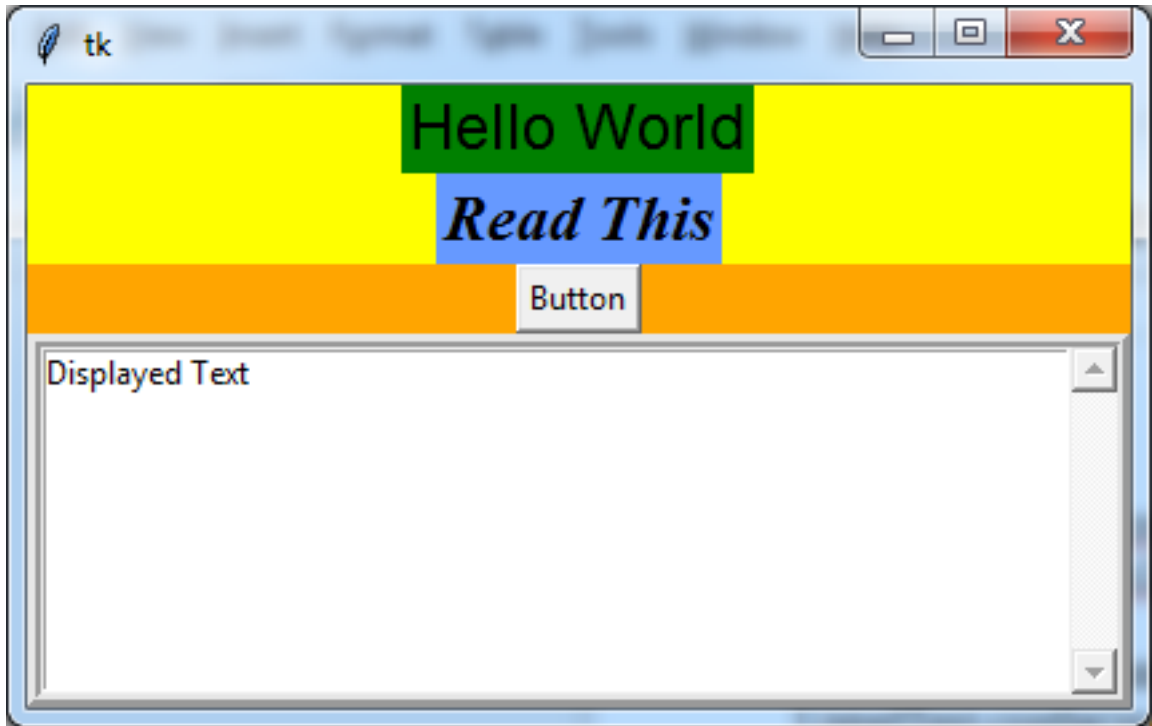
```
print( 'Welcome User ' )

Frame01 = tkinter.Frame(DemoWindow, background="yellow", height
    =20, width=20)
Frame02 = tkinter.Frame(DemoWindow, background="orange", height
    =20, width=40)
Frame03 = tkinter.Frame(DemoWindow, background="white", height
    =100, width=150, relief="ridge", borderwidth=5)
TextArea = tkinter.Label(Frame01, text="Hello World", background
    ="green", font=( 'Helvetica ', 18))
TextArea2 = tkinter.Label(Frame01, text="Read This", background=
    "#6699ff", font=( 'Times ', 18, 'bold italic '))
Button01= tkinter.Button(Frame02, text="Button", command=
    WelcomeMsg)

ScrlBar = tkinter.Scrollbar(Frame03)
ListedText = tkinter.Listbox(Frame03, relief="sunken")
ScrlBar.config(command=ListedText.yview)
ListedText.config(yscrollcommand=ScrlBar.set)
ListedText.insert(0, "Displayed Text")

TextArea.pack()
TextArea2.pack()
Button01.pack()
Frame01.pack(expand="yes", fill="both")
Frame02.pack(expand="yes", fill="both")
Frame03.pack(expand="yes", fill="both")
ScrlBar.pack(side="right", fill="y")
ListedText.pack(side="left", expand="yes", fill="both")

DemoWindow.mainloop()
```



13 Button Interaction

```
import tkinter
DemoWindow = tkinter.Tk()

global LineInTurn LineInTurn=0
Frame01 = tkinter.Frame(DemoWindow, background="yellow", height
    =20, width=20)
Frame02 = tkinter.Frame(DemoWindow, background="orange", height
    =20, width=40)
Frame03 = tkinter.Frame(DemoWindow, background="white", height
    =100, width=150, relief="ridge", borderwidth=5)
TextArea = tkinter.Label(Frame01, text="Hello World", background
    ="green", font=('Helvetica', 18))
TextArea2 = tkinter.Label(Frame01, text="Read This", background=
    "#6699ff", font=('Times', 18, 'bold italic'))
ScrlBar = tkinter.Scrollbar(Frame03)
ListedText = tkinter.Listbox(Frame03, relief="sunken")
ScrlBar.config(command=ListedText.yview)
ListedText.config(yscrollcommand=ScrlBar.set)
ListedText.insert(0, "Displayed Text")

def WelcomeMsg():
```

```

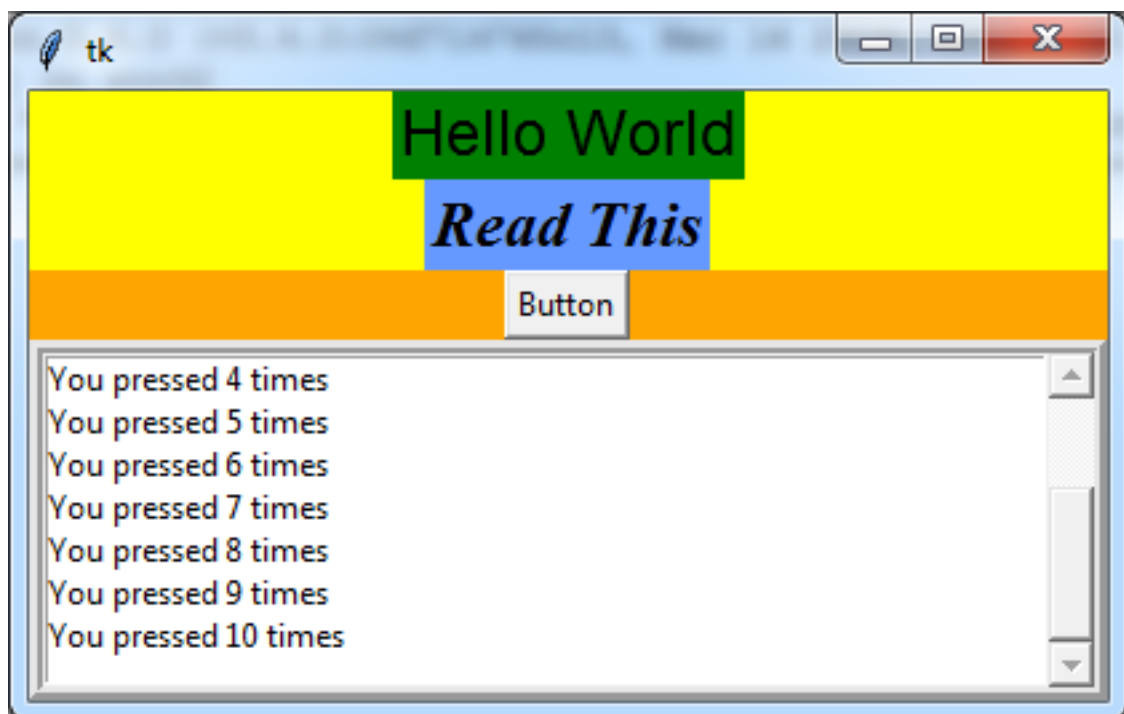
global LineInTurn
LineInTurn = LineInTurn+1
ListedText.insert(LineInTurn, ('You pressed {} times'.format
    (LineInTurn)))

Button01= tkinter.Button(Frame02, text="Button", command=
    WelcomeMsg)

TextArea.pack()
TextArea2.pack()
Button01.pack()
Frame01.pack(expand="yes", fill="both")
Frame02.pack(expand="yes", fill="both")
Frame03.pack(expand="yes", fill="both")
ScrlBar.pack(side="right", fill="y")
ListedText.pack(side="left", expand="yes", fill="both")

DemoWindow.mainloop()

```



14 Add Treeview

```

import tkinter
from tkinter import ttk

```

```
DemoWindow = tkinter.Tk()
global LineInTurn LineInTurn=0
Frame01 = tkinter.Frame(DemoWindow, background="yellow", height
    =20, width=20)
Frame02 = tkinter.Frame(DemoWindow, background="orange", height
    =20, width=40)
Frame03 = tkinter.Frame(DemoWindow, background="white", height
    =100, width=150, relief="ridge", borderwidth=5)
TextArea = tkinter.Label(Frame01, text="Hello World", background
    ="green", font=('Helvetica', 18))
TextArea2 = tkinter.Label(Frame01, text="Read This", background=
    "#6699ff", font=('Times', 18, 'bold italic'))

def DisplayResults():
    ScrlBar = ttk.Scrollbar(Frame03)
    ResultTree = ttk.Treeview(Frame03)
    ScrlBar.config(command=ResultTree.yview)
    ResultTree.configure(columns=("one", "two"))
    ResultTree.column('#0', width=40)
    ResultTree.column("one", width=200)
    ResultTree.column("two", width=200)
    ResultTree.heading('#0', text="No")
    ResultTree.heading("one", text="Column 01")
    ResultTree.heading("two", text="Column 02")
    ResultTree.pack(side="left", expand="yes", fill="both")
    ScrlBar.pack(side="right", fill="y")

Button01= tkinter.Button(Frame02, text="Button", command=
    DisplayResults)

TextArea.pack()
TextArea2.pack()
Button01.pack()
Frame01.pack(expand="yes", fill="both")
Frame02.pack(expand="yes", fill="both")
Frame03.pack(expand="yes", fill="both")

DemoWindow.mainloop()
```




15 Add Data to Treeview

```
import tkinter
from tkinter import ttk

DemoWindow = tkinter.Tk()

global LineInTurn LineInTurn=0

Frame01 = tkinter.Frame(DemoWindow, background="yellow", height
    =20, width=20)
Frame02 = tkinter.Frame(DemoWindow, background="orange", height
    =20, width=40)
Frame03 = tkinter.Frame(DemoWindow, background="white", height
    =100, width=150, relief="ridge", borderwidth=5)
TextArea = tkinter.Label(Frame01, text="Hello World", background
    ="green", font=('Helvetica', 18))
TextArea2 = tkinter.Label(Frame01, text="Read This", background=
    "#6699ff", font=('Times', 18, 'bold italic'))

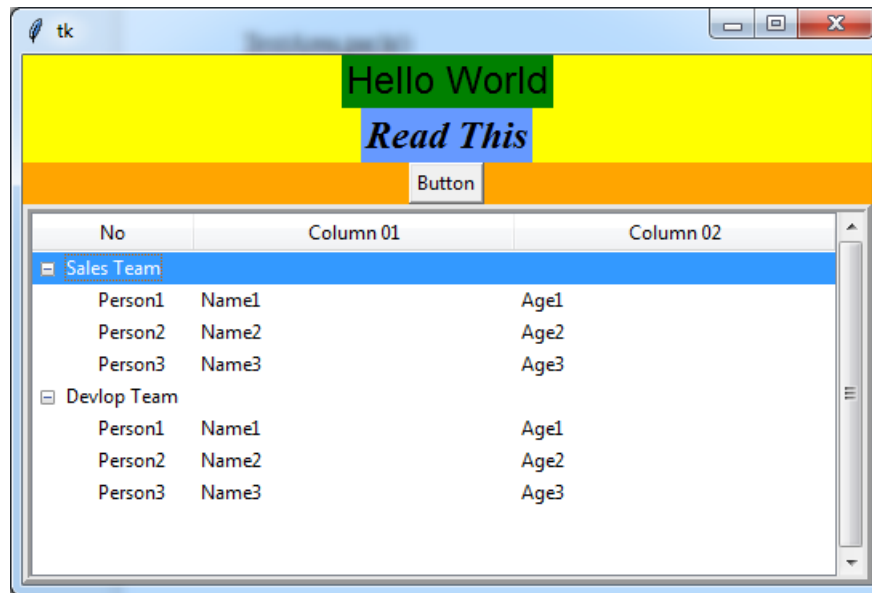
def DisplayResults():
    ScrBar = ttk.Scrollbar(Frame03)
    ResultTree = ttk.Treeview(Frame03)
    ScrBar.config(command=ResultTree.yview)
    ResultTree.config(columns=("one", "two"))
    ResultTree.column('#0', width=100)
```

```
ResultTree.column("one", width=200)
ResultTree.column("two", width=200)
ResultTree.heading('#0', text="No")
ResultTree.heading("one", text="Column 01")
ResultTree.heading("two", text="Column 02")
ResultTree.pack(side="left", expand="yes", fill="both")
ScrlBar.pack(side="right", fill="y")
SalesGroup=ResultTree.insert("", 0, text="Sales Team")
DevGroup=ResultTree.insert("", 1, text="Devlop Team")
ResultTree.insert(SalesGroup, "end", text="Person1", values=
    ("Name1", "Age1"))
ResultTree.insert(SalesGroup, "end", text="Person2", values=
    ("Name2", "Age2"))
ResultTree.insert(SalesGroup, "end", text="Person3", values=
    ("Name3", "Age3"))
ResultTree.insert(DevGroup, "end", text="Person1", values=(
    "Name1", "Age1"))
ResultTree.insert(DevGroup, "end", text="Person2", values=(
    "Name2", "Age2"))
ResultTree.insert(DevGroup, "end", text="Person3", values=(
    "Name3", "Age3"))

Button01= tkinter.Button(Frame02, text="Button", command=
    DisplayResults)

TextArea.pack()
TextArea2.pack()
Button01.pack()
Frame01.pack(expand="yes", fill="both")
Frame02.pack(expand="yes", fill="both")
Frame03.pack(expand="yes", fill="both")

DemoWindow.mainloop()
```



16 Window with multiple Tabs

```
import tkinter
from tkinter import ttk

DemoWindow = tkinter.Tk()

global LineInTurn LineInTurn=0

TabbedWindow = ttk.Notebook(DemoWindow)
FirstTab = ttk.Frame(TabbedWindow, height=200, width=200)
SecondTab = ttk.Frame(TabbedWindow, height=200, width=200)
TabbedWindow.add(FirstTab, text='one')
TabbedWindow.add(SecondTab, text='two')
Frame01 = tkinter.Frame(FirstTab, background="yellow", height=20, width=20)
Frame02 = tkinter.Frame(FirstTab, background="orange", height=20, width=40)
Frame03 = tkinter.Frame(FirstTab, background="white", height=100, width=150, relief="ridge", borderwidth=5)
TextArea = tkinter.Label(Frame01, text="Hello World", background="green", font=('Helvetica', 18))
TextArea2 = tkinter.Label(Frame01, text="Read This", background="#6699ff", font=('Times', 18, 'bold italic'))
```

```

CanvasOnj = tkinter.Canvas(SecondTab, height=10, width=20,
    relief="sunken")
CanvasOnj.pack(expand="yes", fill="both")
CanvasOnj.create_text(20, 30, anchor='w', font="Courier", text="
    Text is added as an example")

def DisplayResults():
    ScrlBar = ttk.Scrollbar(Frame03)
    ResultTree = ttk.Treeview(Frame03)
    ScrlBar.config(command=ResultTree.yview)
    ResultTree.configure(columns=("one", "two"))
    ResultTree.column('#0', width=100)
    ResultTree.column("one", width=200)
    ResultTree.column("two", width=200)
    ResultTree.heading('#0', text="No")
    ResultTree.heading("one", text="Column 01")
    ResultTree.heading("two", text="Column 02")
    ResultTree.pack(side="left", expand="yes", fill="both")
    ScrlBar.pack(side="right", fill="y")
    SalesGroup=ResultTree.insert("", 0, text="Sales Team")
    DevGroup=ResultTree.insert("", 1, text="Devlop Team")
    ResultTree.insert(SalesGroup, "end", text="Person1", values
        =("Name1", "Age1"))
    ResultTree.insert(SalesGroup, "end", text="Person2", values
        =("Name2", "Age2"))
    ResultTree.insert(SalesGroup, "end", text="Person3", values
        =("Name3", "Age3"))
    ResultTree.insert(DevGroup, "end", text="Person1", values=("
        Name1", "Age1"))
    ResultTree.insert(DevGroup, "end", text="Person2", values=("
        Name2", "Age2"))
    ResultTree.insert(DevGroup, "end", text="Person3", values=("
        Name3", "Age3"))

Button01= tkinter.Button(Frame02, text="Button", command=
    DisplayResults)

TabbedWindow.pack()
TextArea.pack()
TextArea2.pack()
Button01.pack()
Frame01.pack(expand="yes", fill="both")

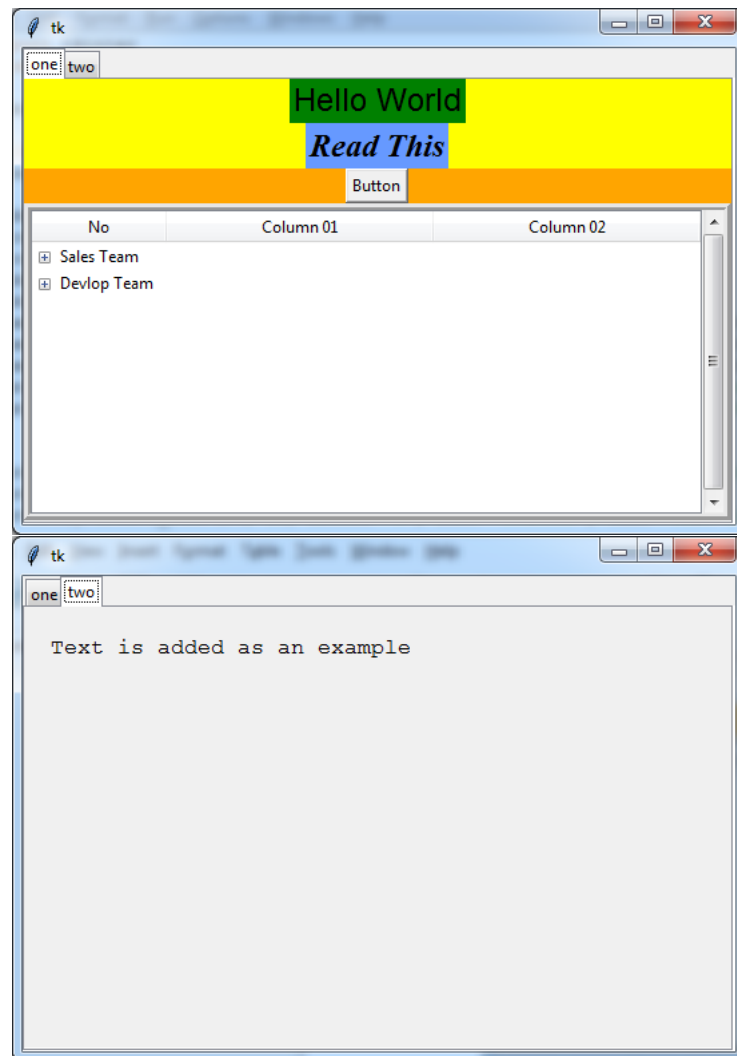
```

```

Frame02.pack(expand="yes", fill="both")
Frame03.pack(expand="yes", fill="both")

DemoWindow.mainloop()

```



17 References

- <http://userpages.umbc.edu/~dhood2/courses/cmsc433/spring2010/?section=Notes&topic=Python>
- <http://knowpapa.com/ttk-treeview/>
- <http://infohost.nmt.edu/tcc/help/pubs/tkinter/web/relief.html>
- <http://pyinmyeye.blogspot.de/2012/07/tkinter-tree-demo.html>
- <http://www.tkdcs.com/tutorial/widgets.html>

All reference were taken on 01.05.2017