EXPERIMENT NO:04

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AIM:- To create a basic graphical user interface using Tkinter in Python, showcasing various widgets and interaction functionalities.

THEORY:-

This is a Python script utilizing the Tkinter library, a commonly used GUI (Graphical User Interface) toolkit. Here's a short theory explaining the key components:

Importing Tkinter:

import tkinter as tk: This imports the Tkinter library and aliases it as tk for convenience.

Creating the Root Window:

root = tk.Tk(): This creates the main window or root window for the GUI application.

Setting Window Attributes:

root.title("VANSH PILLAI 122A1117"): Sets the title of the window.
root.geometry("800x600"): Sets the initial size of the window.
root.configure(bg="lightgrey"): Sets the background color of the window.

Creating Widgets:

Labels, Buttons, Checkbuttons, Listbox, Radiobuttons, Entry, and Text widgets are created.

Each widget is configured with specific attributes such as text, command (callback function), font, colors, etc.

Widget Interaction:

Button click events are handled by associated callback functions.
Checkbuttons, Radiobuttons, and Listbox selection events are also handled by respective callback functions.
Entry and Text widgets are provided functionality to retrieve user input or text content.
Main Event Loop:

root.mainloop(): This starts the event loop, allowing the GUI application to handle user inputs and events.
The event loop continues running until the user closes the window, ensuring the GUI remains interactive.
Overall, the code sets up a simple GUI application with various widgets and interaction capabilities, demonstrating basic usage of Tkinter for creating graphical user interfaces in Python.

PROGRAM:-

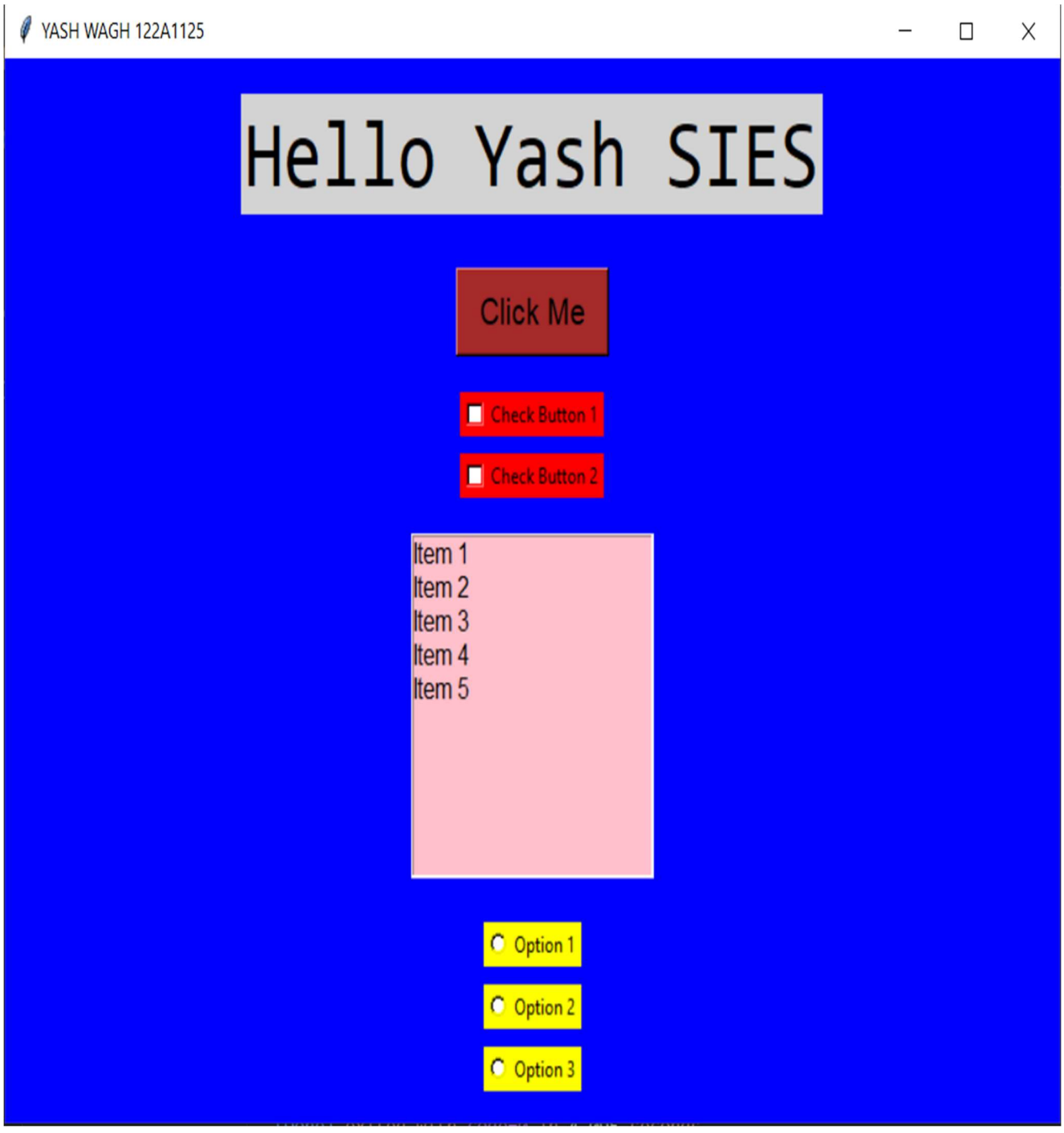
```
import tkinter as tk

root = tk.Tk()
root.title("YASH WAGH 122A1125")
root.geometry("800x600")
root.configure(bg="blue")

label = tk.Label(root, text="Hello Yash SIES",
font=("Consolas", 40), bg="lightgrey", fg="black")
label.pack(pady=20)

def button_click():
    print('Button clicked')

button = tk.Button(root, text="Click Me",
command=button_click, padx=10, pady=5,
                   bg="brown", fg="black",
font=("Arial", 16))
```

```
button.pack(pady=10)

def checkbutton_clicked():
    if var.get() == 0:
        print("Checkbutton is selected")
    else:
        print("Checkbutton is deselected")

var = tk.IntVar()

checkbutton1 = tk.Checkbutton(root, text="Check
Button 1", variable=var, command=checkbutton_clicked,
bg="red", fg="black")
checkbutton1.pack(pady=10)

checkbutton2 = tk.Checkbutton(root, text="Check
Button 2", variable=var, command=checkbutton_clicked,
bg="red", fg="black")
checkbutton2.pack()

def on_select(event):
    selected_items = [listbox.get(idx) for idx in
listbox.curselection()]
    print("Selected items:", selected_items)

listbox = tk.Listbox(root, selectmode=tk.MULTIPLE,
bg="pink", fg="black",
                     selectbackground="yellow",
selectforeground="white", font=("Arial", 12))
listbox.pack(pady=20, padx=50)

for item in ["Item 1", "Item 2", "Item 3", "Item 4",
"Item 5"]:
    listbox.insert(tk.END, item)
```

```
listbox.bind("<<ListboxSelect>>", on_select)

def radio_button_selected():
    selected_option = var.get()
    if selected_option == 1:
        print("Option 1 selected")
    elif selected_option == 2:
        print("Option 2 selected")
    elif selected_option == 3:
        print("Option 3 selected")

var = tk.IntVar()

option1 = tk.Radiobutton(root, text="Option 1",
variable=var, value=1,
                         command=radio_button_select
ed, bg="yellow", fg="black")
option1.pack(pady=5)

option2 = tk.Radiobutton(root, text="Option 2",
variable=var, value=2,
                         command=radio_button_select
ed, bg="yellow", fg="black")
option2.pack(pady=5)

option3 = tk.Radiobutton(root, text="Option 3",
variable=var, value=3,
                         command=radio_button_select
ed, bg="yellow", fg="black")
option3.pack(pady=5)

def get_entry_text():
    text = entry.get()
```

```
    print("Entry Text:", text)

entry = tk.Entry(root, font=("Arial", 14),
bg="yellow", fg="black")
entry.pack(pady=10)

button = tk.Button(root, text="Get Entry Text",
command=get_entry_text, bg="yellow", fg="black",
font=("Arial", 14))
button.pack(pady=5)

def get_text():
    text = text_widget.get(1.0, tk.END)
    print("Text:", text)

text_widget = tk.Text(root, height=10, width=40,
font=("Arial", 12), bg="yellow", fg="black")
text_widget.pack(pady=10)
initial_text = "This is a Text Widget.\nYou can enter
and edit text here."
text_widget.insert(tk.END, initial_text)
button= tk.Button(root, text="Get Text",
command=get_text, bg="yellow", fg="black",
font=("Arial", 14))
button.pack(pady=5)
root.mainloop()
```

OUTPUT:-


YASH WAGH 122A1125
Hello Yash SIES
Click Me
Check Button 1
Check Button 2
Item 1
Item 2
Item 3
Item 4
Item 5
Option 1
Option 2
Option 3

```
[Running] python -u "c:\Users\HP\Desktop\python\GUI.py"
Button clicked
Checkbutton is selected
Checkbutton is selected
Selected items: ['Item 1']
Selected items: ['Item 1', 'Item 2']
Selected items: ['Item 1', 'Item 2', 'Item 3']
Selected items: ['Item 1', 'Item 2', 'Item 3', 'Item 4']
Selected items: ['Item 1', 'Item 2', 'Item 3', 'Item 4', 'Item 5']
Option 1 selected
Option 2 selected
Option 3 selected
```

CONCLUSION:- The script demonstrates the practical implementation of Tkinter library in Python for building interactive graphical user interfaces, serving as a foundation for further GUI development.