

EX NO : 2

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Develop and compare CLI, GUI, and Voice User Interfaces (VUI) for the same task and assess user satisfaction using Python (Tkinter for GUI, Speech Recognition for VUI), Terminal

AIM:

The aim is to develop and compare Command Line Interface (CLI), Graphical User Interface (GUI), and Voice User Interface (VUI) for the same task, and assess user satisfaction using Python (with Tkinter for GUI and Speech Recognition for VUI) and Terminal.

PROCEDURE:

i) CLI (Command Line Interface)

CLI implementation where users can add, view, and remove tasks using the terminal.

```
tasks = []
```

```
def add_task(task):
```

```
    tasks.append(task)
```

```
    print(f"Task '{task}' added.")
```

```
def view_tasks():
```

```
    if tasks:
```

```
        print("Your tasks:")
```

```
        for idx, task in enumerate(tasks, 1):
```

```
            print(f"{idx}. {task}")
```

```
else:
```

```
    print("No tasks to show.")
```

```
def remove_task(task_number):
```

```
    if 0 < task_number <= len(tasks):
```

```
        removed_task = tasks.pop(task_number - 1)
```

```
        print(f"Task '{removed_task}' removed.")
```

```
    else:
```

```
        print("Invalid task number.")
```

```
def main():
```

```
    while True:
```

```
        print("\nOptions: 1.Add Task 2.View Tasks 3.Remove Task 4.Exit")
```

```
        choice = input("Enter your choice: ")
```

```
        if choice == '1.':
```

```
            task = input("Enter task: ")
```

```
            add_task(task)
```

```
        elif choice == '2.':
```

```
            view_tasks()
```

```
        elif choice == '3':
```

```
            task_number = int(input("Enter task number to remove: "))
```

```
            remove_task(task_number)
```

```
        elif choice == '4':
```

```
            print("Exiting...")
```

```
            break
```

```
else:
```

```
    print("Invalid choice. Please try again.")
```

```
if __name__ == "__main__":
```

```
    main()
```

OUTPUT:

```
Options: 1.Add Task 2.View Tasks 3.Remove Task 4.Exit
Enter your choice: 1
Enter task: Running
Task 'Running' added.
```

```
Options: 1.Add Task 2.View Tasks 3.Remove Task 4.Exit
Enter your choice: 1
Enter task: Cycling
Task 'Cycling' added.
```

```
Options: 1.Add Task 2.View Tasks 3.Remove Task 4.Exit
Enter your choice: 2
Your tasks:
1. Running
2. Cycling
```

```
Options: 1.Add Task 2.View Tasks 3.Remove Task 4.Exit
Enter your choice: 3
Enter task number to remove: 2
Task 'Cycling' removed.
```

```
Options: 1.Add Task 2.View Tasks 3.Remove Task 4.Exit
Enter your choice: 2
Your tasks:
1. Running
```

```
Options: 1.Add Task 2.View Tasks 3.Remove Task 4.Exit
Enter your choice: 4
Exiting...
```

ii) GUI (Graphical User Interface)

Tkinter to create a simple GUI for our To-Do List application.

```
import tkinter as tk
```

```
from tkinter import messagebox
```

```
tasks = []
```

```
def add_task():
```

```
    task = task_entry.get()
```

```
    if task:
```

```
        tasks.append(task)
```

```
        task_entry.delete(0, tk.END)
```

```
        update_task_list()
```

```
    else:
```

```
        messagebox.showwarning("Warning", "Task cannot be empty")
```

```
def update_task_list():
```

```
    task_list.delete(0, tk.END)
```

```
    for task in tasks:
```

```
        task_list.insert(tk.END, task)
```

```
def remove_task():
```

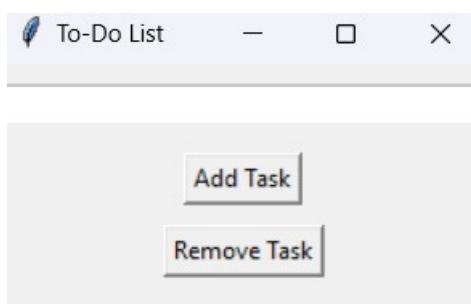
```
    selected_task_index = task_list.curselection()
```

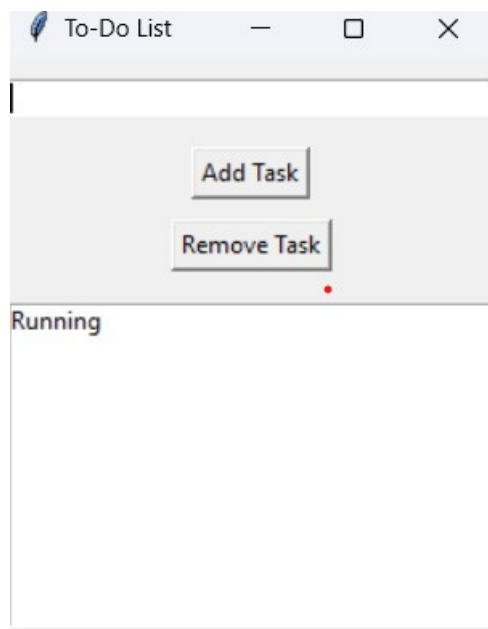
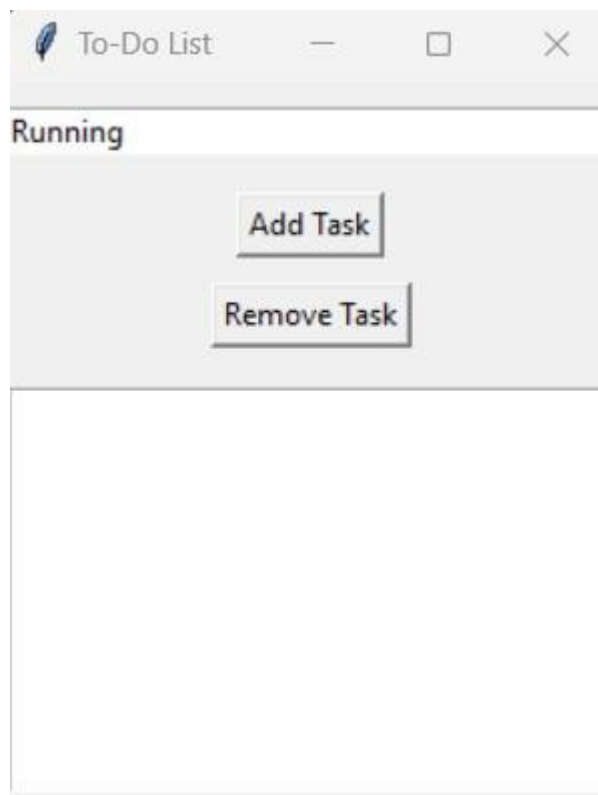
```
        if selected_task_index:
            task_list.delete(selected_task_index)
            tasks.pop(selected_task_index[0])
app = tk.Tk()
app.title("To-Do List")
task_entry = tk.Entry(app, width=40)
task_entry.pack(pady=10)
add_button = tk.Button(app, text="Add Task", command=add_task)
add_button.pack(pady=5)

remove_button = tk.Button(app, text="Remove Task", command=remove_task)
remove_button.pack(pady=5)

task_list = tk.Listbox(app, width=40, height=10)
task_list.pack(pady=10)
app.mainloop()
```

OUTPUT:





iii) VUI (Voice User Interface)

```
import speech_recognition as sr
```

```
import pyttsx3
```

```
tasks = []
```

```
recognizer = sr.Recognizer()
```

```
engine = pyttsx3.init()
```

```
def add_task(task):
```

```
    tasks.append(task)
```

```
    engine.say(f"Task {task} added")
```

```
    engine.runAndWait()
```

```
def view_tasks():
```

```
    if tasks:
```

```
        engine.say("Your tasks are")
```

```
        for task in tasks:
```

```
            engine.say(task)
```

```
    else:
```

```
        engine.say("No tasks to show")
```

```
    engine.runAndWait()
```

```
def remove_task(task_number):
```

```
if 0 < task_number <= len(tasks):
    removed_task = tasks.pop(task_number - 1)
    engine.say(f"Task {removed_task} removed")
else:
    engine.say("Invalid task number")
engine.runAndWait()

def recognize_speech():
    with sr.Microphone() as source:
        print("Listening...")
        audio = recognizer.listen(source)
        try:
            command = recognizer.recognize_google(audio)
            return command
        except sr.UnknownValueError:
            engine.say("Sorry, I did not understand that")
            engine.runAndWait()
            return None
```

```
def main():
    while True:
        engine.say("Options: add task, view tasks, remove task, or exit")
        engine.runAndWait()

        command = recognize_speech()
        if not command:
```



```
continue
```

```
if "add task" in command:
```

```
    engine.say("What is the task?")
```

```
    engine.runAndWait()
```

```
    task = recognize_speech()
```

```
    if task:
```

```
        add_task(task)
```

```
elif "view tasks" in command:
```

```
    view_tasks()
```

```
elif "remove task" in command:
```

```
    engine.say("Which task number to remove?")
```

```
    engine.runAndWait()
```

```
    task_number = recognize_speech()
```

```
    if task_number:
```

```
        remove_task(int(task_number))
```

```
elif "exit" in command:
```

```
    engine.say("Exiting...")
```

```
    engine.runAndWait()
```

```
    break
```

```
else:
```

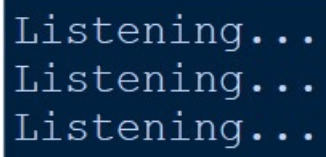
```
    engine.say("Invalid option. Please try again.")
```

```
    engine.runAndWait()
```

```
if __name__ == "__main__":
```

```
    main()
```

OUTPUT:

A dark blue rectangular box containing three lines of light blue text, each reading "Listening...".

```
Listening...  
Listening...  
Listening...
```

RESULT:

Hence , Comparison for command line interface ,graphical user interface,voice user interface for same task has been studied successfully.