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RAJALAKSHMI
ENGINEERING COLLEGE

CS23A34
USER INTERFACE AND DESIGN LAB

Laboratory Observation Notebook

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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.

(i) COMMAND LINE INTERFACE (CLI):

PROCEDURE:

Step 1: Install Python (if not installed). Ensure you have Python installed on your system. You can check by running: `python --version`.

Step 2: Open Python IDLE. Open a new file “cli.py”.

Step 3: Type the Python script for Command Line Interface.

Step 4: Save and Run the file.

Step 5: Manage the required task.

CODE:

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

```
tasks = 3

def add_task(task):
    tasks.append(task)
    print(f"Task '{task}' added.")

def viewtasks():
    if tasks:
        print("Your tasks:")
        for idx, task in enumerate(tasks, 1):
            print(f"(idx). {task}")
    else:
        print("No tasks to show.")

def removeptask(taskpnumber):
    if 0 < taskpnumber <= len(tasks):
        removedptask = tasks.pop(taskpnumber - 1)
        print(f"Task '{removedptask}' 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: ")
            addtask(task)
        elif choice == '2.':
            viewtasks()
        elif choice == '3.':
            taskpnumber = int(input("Enter task number to remove: "))
            removeptask(taskpnumber)
        elif choice == '4.':
            print("Exiting...")
            break
    else:
```

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

```
if __name__ == "__main__":
    main()
```

OUTPUT:

```

RESTART: C:/Dcerc/HDC0E220E2/DexEsop/CLI.py

Options: 1.Add Task 2.View Tasks 3.Remove Task 4.Exit
Enter your choice: 1
znoer oa*t: DI

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

Op/cxOrcs: 1.Add Tase 2.Viiew Taska 3.Rczooove Teok ¥.Ex xc
Ent ez \vouz cho1 ca: 2
Yoke caois :
1.UZ

Options: 1.Add T.aSk 2.VeCw Ta:skS 3.RemovC T:mSk 9.EnIt
Ems* your choice: 3

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

ations: 1.Add Task 2.Vzrv TaoEs 3.Remove Task 4.Exit
Enter your choice: f
Enitino...
```

(ii) GRAPHICAL USER INTERFACE (GUI):

PROCEDURE:

Step 1: Install Required Libraries(Tkinter).

Step 2: Open Python IDLE. Open a new file “gui.py”.

Step 3: Type the Python script for Graphical User Interface.

Step 4: Save and Run the file.

Step 5: Manage the required task.

CODE:

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

```
import tkinter as tk
from tkinter import messagebox
tasks = []

def addptask():
    task = taskpentry.get()
    if task:
        tasks.append(task)
        taskpentry.delete(0, tk.END)
        updateptaskplist()
    else:
        messagebox.showwarning("Warning", "Task cannot be empty")

def updateqttask_list():
    taskqlist.delete(0, tk.END)
    for task in tasks:
        taskqlist.insert(tk.END, task)

def remove_task():
    selected_taskqindex = taskqlist.curselection()
    if selected_taskqindex:
        taskqlist.delete(selected_taskqindex)
        tasks.pop(selected_taskqindex[0])
```

```

app = tk.Tk()
app.title("To-Do List")

task_entry = tk.Entry(app, width=40)
task_entry.pack(pady=10)

addbutton = tk.Button(app, text="Add Task", command=add_task)
addbutton.pack(pady=5)

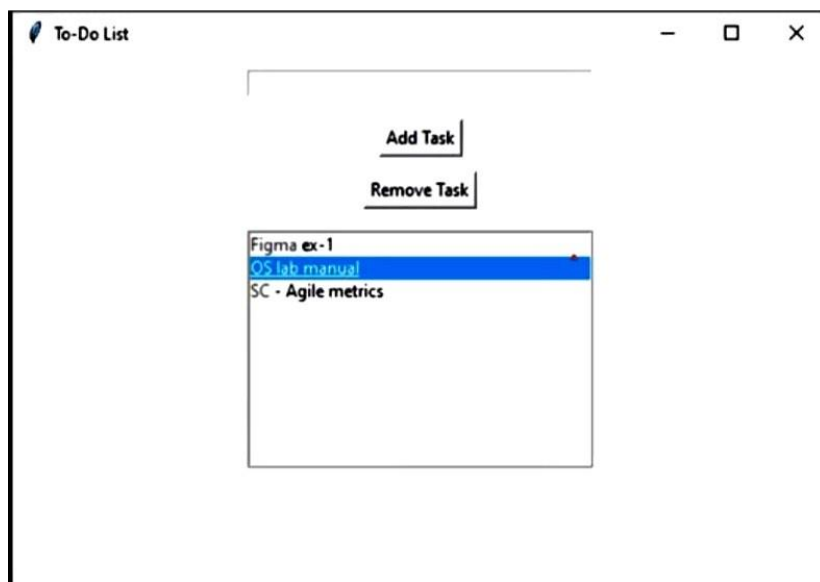
remove_button = tk.Button(app, text="Remove Task", command=remove_task)
remove_button.pack(pady=5)

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

app.mainloop()

```

OUTPUT:



(ii) VOICE USER INTERFACE (VUI):

PROCEDURE:

Step 1: Install Required Libraries(speech_recognition).

Step 2: Open Python **IDLE**. Open a new file “vui.py”.

Step 3: Type the Python script for Voice User Interface.

Step 4: Save and Run the file.

Step 5: Manage the required task.

CODE:

speechrecognition library for voice input and the pyttsx3 library for text-to-speech output.
Make sure you have these libraries installed (pip install SpeechRecognition pyttsx3).

```
import speech_recognition as sr
import pyttsx3
tasks = []
recognizer = sr.Recognizer()
engine = pyttsx3.init()

def addtask(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 removeptask(taskpnumber):
    if 0 < taskpnumber <= len(tasks):
```

```

        removed_task = tasks.pop(tasknumber - 1)
        engine.say(P"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 enamel == "main":
    main()
```

OUTPUT:

```
Listening...
Task Finish homework added.
Listening...
Task Call mom added.
Listening...
Task Complete project added.
Listening...
Task Walk the dog added.
Listening...
Your tasks are: Buy groceries, Finish homework, Call mom, Complete project, Walk
the dog.
Listening...
Task Call mom removed.
Listening...
Task Naik the dog removed.
Listening...
Your tazko are: Buy groceries, Finish homework, Complete project.
Listening...
Exiting...
```

RESULT:

Thus the implementation and comparison of CLI, GUI, and VUI-based To-Do List applications using Python IDLE was successfully executed.