GUI-BASED CHAT-2

COMPUTER NETWORKING

Time: 60 mins

Introduction

In this class, the student/s will create a GUI feature for the chat screen window and send messages to multiple clients.

New Commands Introduced

self.window.withdraw()	Hide the window
self.login = Toplevel()	Places the screen to the top
self.window.deiconify()	Turns back the icon into chat window
self.login.destroy()	Terminates the mainloop process and destroys all the widgets inside the window.
self.text_comm.config(state = DISABLED)	Makes the button unresponsive by disabling the state
self.text_comm.config(cursor = "arrow"	Shows the cursor with current position of the user using an arrow
self.entry_msg .delete(0, END)	Clears all the content of the Entry box
self.text_comm.config(state = NORMAL)	Makes the button clickable
self.text_comm.insert(END, message+"\n\n")	Inserts the string and END specifies the index
self.text_comm.see(END)	Checks if a string is visible or not at a given index
self.show_message(self.msg)	Stores the message from the text input box to self.msg
scrollbar = Scrollbar(self.text_comm)	Add the Scrollbar widget

Vocabulary

- **Group chat** is a type of communication platform that allows members of a group, team or organization to quickly and easily exchange information in real-time through instant messaging.
- **States in Tkinter**

The Tkinter button has two states: normal and disabled. In the regular condition, we can push the button; but, in the disabled state, we cannot click the button.

- **A scroll bar** is a graphical user interface element used in computer applications and websites to enable scrolling through content that extends beyond the visible portion of a window or a container.

Learning Objectives

Student/s should be able to:

- ***Recall*** the use of widgets like label, entry_box and button to build the screen window.
- ***Explain*** the use of Tkinter to switch between login and chat window for the clients.
- ***Demonstrate*** the storing, sending and displaying the group chat messages.

Activities

1. **Class Narrative:** *(3 mins)*

    - Brief the student/s that they have created the chat login feature and now they will help the characters to extend the GUI to chat screen windows.

2. **Concept Introduction Activity:** *(4 mins)*

    - Let the student/s undertake the explore-activity to observe the username and chat message format.
    - Ask the students to compare and name the Tkinter widgets required to build the chat screen window.
    - Using the slides, explain that the student/s will learn:
        - to build a chat window
        - to send the message
        - to display the message

3. **Activity 1: Build a Chat Window** *(14 mins)*

    Teacher Activity: *(7 mins)*

    - Explain why the two screens cannot be created as instances of the same class.
    - Explain creation of a window for the chat screen and hide it to place the login screen with widgets to the top.
    - Explain how we can switch from the login window to the chat window and add widgets by defining a function.

    Student Activity: *(7 mins)*

    - Guide the student/s to add the chat screen window and place the login screen window on the top.

- Guide the student/s to remove the login window and its widgets, and later open the login window with its attributes and layouting.

4. **Activity 2: Send the Message** *(12 mins)*

   Teacher Activity: *(6 mins)* .

   - Explain that the Send button is not functional and introduce the concept of states to enable and disable the Send button while sending messages from the entry_box widget.
   - Explain how to send the message from the client and store it.

   Student Activity: *(6 mins)*

   - Guide the student/s to send the message and store it.

5. **Activity 3: Display the Message** *(12 mins)*

   Teacher Activity: *(6 mins)*

   - Explain to the students that we can send messages to the chat window by setting the state to NORMAL.
   - Explain how to display the list of latest messages and add a scrollbar to read older messages.
   - Demonstrate how to display the messages on the client's chat window and add the scrollbar functionality to it.

   Student Activity: *(6 mins)*

   - Guide the students to define a function to display messages and add a scrollbar.

6. **Introduce the Post class project:** *(2 min)*
   - Create a GUI for the Quiz app and accept an answer from the input box.
7. **Test and Summarize the class learnings:** *(5 mins)*
   - Check for understanding through quizzes and summarize learning after respective activities.
   - Summarize the overall class learning towards the end of the class.
8. **Additional activities:**
   - Encourage the student/s to add the functionality to clear the chat when the Clear button is clicked.
   - Encourage the student/s to display new messages in a pop up window.

9. **State the Next Class Objective:** *(1 min)*
    - In the next class, student/s will learn to create network based multiplayer games.

U.S. Standards:

CSTA: 2-AP-11, 2-AP-12, 2-AP-13, 2-AP-14, 2-AP-19

Links Table		
Activity	**Activity Name**	**Link**
Class Presentation	GUI-Based Chat-2	https://s3-whjr-curriculum-uploads.whjr.online/650f532b-a1fa-4cdf-b298-5f55cc2323a9.html
Explore Activity	GUI-Based Chat-2	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-SAS-BP
Teacher Activity 1	Build a Chat Window	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-TAS-BP
Teacher Reference: Teacher Activity 1 Solution	Build a Chat Window	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-TAS
Student Activity 1.1	Build a Chat Window	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-SAS-BP
Teacher Reference: Student Activity 1.1 Solution	Build a Chat Window	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-SAS
Student Activity 1.2	Build a Chat Window	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-SAS-BP
Teacher Reference: Student Activity 1.2 Solution	Build a Chat Window	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-SAS
Teacher Activity 2	Send the Message	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-TAS-BP
Teacher Reference: Teacher Activity 2 Solution	Send the Message	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-TAS
Student Activity 2	Send the Message	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-SAS-BP
Teacher Reference: Student Activity 2 Solution	Send the Message	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-SAS
Teacher Activity 3	Display the Message	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-TAS-BP
Teacher Reference: Teacher Activity 3 Solution	Display the Message	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-TAS
Student Activity 3	Display the Message	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-SAS-BP

Teacher Reference: Student Activity 3 Solution	Display the Message	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-SAS
Student's Additional Activity 1	Clear the Chat	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-SAS-BP
Teacher Reference: Student's Additional Activity 1 Solution	Clear the Chat	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-SAS
Student's Additional Activity 2	Notify on a New Message	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-SAS-BP
Teacher Reference: Student's Additional Activity 2 Solution	Notify on a New Message	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-SAS
Post Class Project	Build the GUI	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-PCP-BP
Teacher Reference: Post Class Project Solution	Build the GUI	https://github.com/Tynker-Computer-Networks/TNK-M14-C112-PCP