START

IMPORT tkinter as tk
IMPORT messagebox from tkinter

CLASS TodoApp:
    FUNCTION __init__(self, root):
        SET self.root = root
        SET title of self.root to "To-Do List App (Stack/Queue)"
        SET geometry of self.root to "400x500"
        SET self.mode = tk.StringVar with initial value "Stack"
        SET self.tasks = an empty list

        CREATE a Label with text "To-Do List App", font ("Arial", 18, "bold"), and pack with pady=10

        CREATE a Label with text "Mode:" and pack

        CREATE an OptionMenu with self.root, self.mode, options "Stack", "Queue", and pack

        CREATE an Entry widget with width 30, set to self.entry, and pack with pady=10

        CREATE a Button with text "Add Task", command self.add_task, and pack with pady=5
        CREATE a Button with text "Remove Task", command self.remove_task, and pack with pady=5
        CREATE a Button with text "Clear All", command self.clear_tasks, and pack with pady=5

        CREATE a Listbox widget with width 45, height 10, set to self.task_display, and pack with pady=10

        CREATE a Label with text "Mode: Stack (LIFO)", foreground "gray", set to self.status, and pack with pady=5

        CREATE a Button with text "Exit", foreground "white", background "red", command self.confirm_exit, and pack with pady=10

        CALL self.mode.trace_add("write", self.update_mode)

    FUNCTION add_task(self):
        SET task = get text from self.entry, remove leading/trailing whitespace
        IF task is not empty THEN
            APPEND task to self.tasks
            CALL self.update_display()
            DELETE all text in self.entry

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        ELSE
            DISPLAY a warning message box with title "Input Error" and message "Please enter a
task."
        END IF

    FUNCTION remove_task(self):
        IF self.tasks is not empty THEN
            IF self.mode.get() is "Stack" THEN
                SET removed = remove and return the last element from self.tasks
            ELSE IF self.mode.get() is "Queue" THEN
                SET removed = remove and return the first element from self.tasks
            END IF
            CALL self.update_display()
            DISPLAY an information message box with title "Task Removed" and message
"Removed: {removed}"
        ELSE
            DISPLAY an information message box with title "No Tasks" and message "There are no
tasks to remove."
        END IF

    FUNCTION clear_tasks(self):
        CLEAR all elements from self.tasks
        CALL self.update_display()

    FUNCTION update_display(self):
        DELETE all items in self.task_display
        FOR each index and task in self.tasks:
            INSERT into self.task_display the string "{index+1}. {task}" at the end
        END FOR

    FUNCTION update_mode(self, *args):
        SET mode = get value of self.mode
        IF mode is "Stack" THEN
            SET text of self.status to "Mode: Stack (LIFO)"
        ELSE IF mode is "Queue" THEN
            SET text of self.status to "Mode: Queue (FIFO)"
        END IF

    FUNCTION confirm_exit(self):
        SET answer = DISPLAY a yes/no question message box with title "Exit Confirmation" and
message "Are you sure you want to exit?"
        IF answer is true THEN
            DESTROY self.root
        END IF
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END CLASS

IF __name__ == "__main__":
    CREATE a main window, root = tk.Tk()
    CREATE an instance of TodoApp, app = TodoApp(root)
    START the Tkinter event loop, root.mainloop()

END
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