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/*Implement a real-time event processing system using a Queue data structure. The
system should support the following features:
• Add an Event: When a new event occurs, it should be added to the event queue.
• Process the Next Event: The system should process and remove the event that has
  been in the queue the longest.
• Display Pending Events: Show all the events currently waiting to be processed.
• Cancel an Event: An event can be canceled if it has not been processed. */

# Real-Time Event Processing System using Queue
event_queue = []   # Create an empty list (FIFO order)
def add_event(event):
    event_queue.append(event)  # Add the given event to the end of the queue
    print(f"Event '{event}' added to the queue.")


def process_next_event():
    if event_queue:  # Check if there are any events in the queue
        event = event_queue.pop(0)  #Remove & return the oldest event (fifo)
        print(f"Processed event: '{event}'")
    else:
        print("No events to process.")


def display_pending_events():
    if event_queue:  # Check if there are pending events in the queue
        print("Pending Events:")
        for idx, event in enumerate(event_queue, 1):  #index starting from 1
            print(f"{idx}. {event}")  # Print event number and its name
    else:
        print("No pending events.")  # Message if there are no pending events


def cancel_event(event_name):
    if event_name in event_queue:  # Check if the given event is in the queue
        event_queue.remove(event_name)  # Remove the event from the queue
        print(f"Event '{event_name}' has been canceled.")
    else:
        print(f"Event '{event_name}' not found or already processed.")
```

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def menu():
    while True:
        print("\n--- EVENT MENU ---")
        print("1. Add Event")
        print("2. Process Next Event")
        print("3. Display Pending Events")
        print("4. Cancel an Event")
        print("5. Exit")

        choice = input("Enter your choice: ")
        if choice == '1':
            event = input("Enter event name: ")
            add_event(event)

        elif choice == '2':
            process_next_event()

        elif choice == '3':
            display_pending_events()
        elif choice == '4':
            event_name = input("Enter event name to cancel: ")
            cancel_event(event_name)

        elif choice == '5':
            print("Exiting Event Processing System.")
            break

        else:
            print("Invalid choice. Please enter a number between 1 and 5.")

menu()
```

Output:

```
--- EVENT MENU ---
1. Add Event
2. Process Next Event
3. Display Pending Events
4. Cancel an Event
5. Exit

Enter your choice: 1
Enter event name: User Login
Event 'User Login' added to the queue.
--- EVENT MENU ---
1. Add Event
2. Process Next Event
3. Display Pending Events
4. Cancel an Event
5. Exit
-----------------------------------------------------------------------------
Enter your choice: 1
Enter event name: File Upload
Event 'File Upload' added to the queue.
--- EVENT MENU ---
Enter your choice: 1
Enter event name: Payment Received
Event 'Payment Received' added to the queue.

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--- EVENT MENU ---
Enter your choice: 3
Pending Events (3):
1. User Login
2. File Upload
3. Payment Received

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--- EVENT MENU ---
Enter your choice: 4
Enter event name to cancel: File Upload
Event 'File Upload' has been canceled.
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--- EVENT MENU ---
Enter your choice: 3
Pending Events (2):
1. User Login
2. Payment Received

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--- EVENT MENU ---
Enter your choice: 2
Processed event: 'User Login'

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--- EVENT MENU ---
Enter your choice: 2
Processed event: 'Payment Received'

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--- EVENT MENU ---
Enter your choice: 2
No events to process.

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--- EVENT MENU ---
Enter your choice: 5
Exiting Event Processing System.
```