Experiment - 4

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Subject Name: Project Based Learning in Java
Subject Code: 23CSH-304

Aim: To develop a ticket booking system with synchronized threads to ensure no double booking of seats. Use thread priorities to simulate VIP bookings being processed first.

Objective: To understand multithreading,thread synchronization, and thread priorities in Java.

Input Used: Thread, synchronized method, setPriority(), ticket counter simulation.

Procedure:

1. Create a TicketBooking class with synchronized bookTicket() method.
2. Use a Thread class to simulate customers (normal and VIP).
3. Create threads with different priorities.
4. Start threads and observe how VIPs are handled first due to higher priority.
5. Ensure no 2 threads can book the same seat using synchronization.

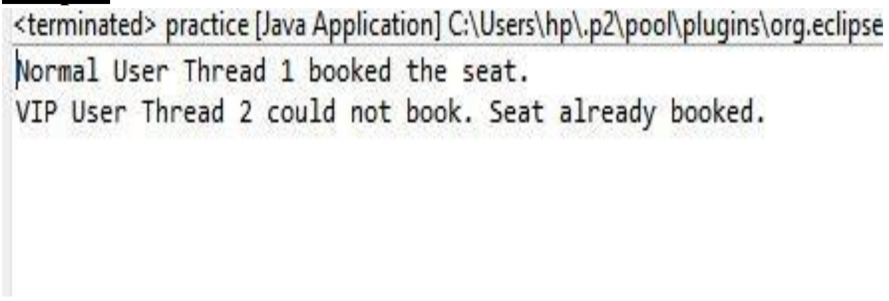
Sample Input -
Thread 1: Normal User - Booking Seat 1
Thread 2: VIP User - Booking Seat 1

Sample Output -
VIP Thread booked Seat 1
Normal Thread could not book. Seat already booked.

Code -

```
package intro_day1;
class TicketBooking {
private boolean isBooked = false;

public synchronized void bookTicket(String userType, String threadName) {
if (!isBooked) {
System.out.println(userType + " " + threadName + " booked the seat.");
isBooked = true;
} else {
System.out.println(userType + " " + threadName + " could not book. Seat already
booked.");
}
}
}

class Customer extends Thread {
private TicketBooking bookingSystem;
private String userType;

public Customer(TicketBooking bookingSystem, String userType) {
this.bookingSystem = bookingSystem;
this.userType = userType;
}

public void run() {
bookingSystem.bookTicket(userType, Thread.currentThread().getName());
}
}

public class practice {
public static void main(String[] args) {
TicketBooking booking = new TicketBooking();

Customer normalUser = new Customer(booking, "Normal User");
normalUser.setName("Thread 1");

Customer vipUser = new Customer(booking, "VIP User");
vipUser.setName("Thread 2");

normalUser.setPriority(Thread.MIN_PRIORITY);
vipUser.setPriority(Thread.MAX_PRIORITY);

normalUser.start();
vipUser.start();
}
}
```

<u>Output</u> -



```
<terminated> practice [Java Application] C:\Users\hp\.p2\pool\plugins\org.eclipse
Normal User Thread 1 booked the seat.
VIP User Thread 2 could not book. Seat already booked.
```