MultiThreading in Java

1. Create a program to understand when InterruptedException occurs.

User is given a question and he has 20 seconds to answer but user can interrupt it by answering before the stipulated time.

1. There are two threads one generates odd numbers between 2 and 30 and the other generates even numbers between 2 and 30.

The main thread creates and executes these two threads independently but has set of finishing statements.

“ Generated Odd Numbers”

“Generated even Numbers”

“End of the program”

Which are executed only after the two threads finish their execution.

Create an application for the above.

3 Create an application that allows the user to create login accounts and see details of all the accounts.

Accounts are stored in a Map<username,UserAccount>

UserAccount has the following information.

Username, password, email, modileNo,address

User is allowed to add an account only if that username does not exists.

Create three methods for the above:

addAccount(……………..)

display()

Take care of Concurrency issues and RaceConditions in the case.

Any client thread not be able to see the details,while another is adding the account.

4 There are two threads one thread is a producer thread that addStock and another updateStock is a consumer thread that reduces stock of an item when user purchases it.

addStock thread adds the stock as soon it gets a notification from updateStock when stock is 0.

Create an application implement the above.

(hint : using wait() and notify())

5

Create an application that has two threads one generates a random number between 1 and 10 and another calculates the factorial of that number.

Use the concept of interthread communication where a FactorialThread waits till the number is generated and notifies when done to generate another number.

6.

. Create a java application where a thread generates a single digit random number and

stores it in an array. another thread calculates sum of these numbers and prints it.

Test the above with a client program.

(use anonymous classes).

Define methods genRandomNumber() and calculateSum() in a class NumberGenerator.

7 Create a java application using threads to implement queue of messages.

create 2 threads a consumer and a producer thread where producer thread produces a message,

consumer consumes a message and notifies the producer thread to produce the next message and

vice versa (2 way thread communication)