CSA0992 - PROGRAMMING IN JAVA [Test - 2]

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① Inter thread communications in Java :-

Inter thread communication is all about allowing synchronized threads to communicate with each other

Inter thread communication is a mechanism in which a thread is paused running in the critical section and another thread is allowed to enter in the same critical section to be executed.

It is implemented by following methods of object class

* wait()
* notify()
* notifyAll()

Example of inter thread communication:

```
class customer {
int amount = 10000;

synchronized void withdraw(int amount){
System.out.println ("going to withdraw");

if (this.amount < amount) {
System.out.println ("Less balance; waiting
  for deposit");
try{wait();} catch (Exception e) {}
}
this.amount -= amount;
System.out.println ("withdraw completed");
}
synchronized void deposit (int amount){
System.out.println ("going to deposit");
this.amount += amount;
System.out.println ("deposit completed");
notify();
}
}
class Test {
public static void main (String[] args)
{
final customer c = new customer();
new thread (){
public void run()
{c.withdraw (15000);}
}.start();
new thread (){
public void run (){c.deposit (10000);}
}.start();
}
}
```

② Java program to demonstrate all Thread states!

A thread is a path of Execution in a program that goes through the following states of a thread. The five states as follows

⇒ New
⇒ Runnable
⇒ Running
⇒ Blocked
⇒ Dead

Example:- [ThreadDemo.Java]

```
/* Thread 1 */
class Thread1 extends Thread
{
  public void run()
  {
   System.out.println ("Thread 1");
   System.out.println ("In Thread 1");
   for(int i=1; i<=5; i++)
   {
    System.out.println ("i="+i);
    try
    {
     Thread.sleep(1000);
    }
    catch(InterruptedException e)
    {
     e.printStackTrace();
    }
   }
   System.out.println ("Thread 1 completed");
  }
}
/* Thread 2 */
class Thread2 extends Thread
{
 public void run()
 {
  System.out.println ("Thread 2");
  System.out.println ("In Thread 2");
  for (int i=1; i<=5; i++)
  {
   System.out.println ("i="+i);
  }
  System.out.println ("Thread 2 completed");
 }
}
public class ThreadDemo
{
 public static void main (String[] args) {
  Thread1 t1 = new Thread1();
  Thread2 t2 = new Thread2();
  t1.start();
  t2.yield();
  try
  {
   t1.sleep(1000);
  }
  catch (InterruptedException e)
  {
   e.printStackTrace();
  }
  t2.start();
  System.out.println ("main, Thread End");
 }
}
```