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Lab Assignment 7

1) Write a Java program that creates three threads: A, B, and C. Thread A should print "Hello," Thread B should print "World," and Thread C should wait for Threads A and B to finish and then print "Done."

Code: -

```java
//1) Write a Java program that creates three threads: A, B,
and C.
//Thread A should print "Hello," Thread B should print
"World," and
//Thread C should wait for Threads A and B to finish and then
print "Done."
package Assignment7;

class A extends Thread {
    public void run() { // calling run method of Thread class
        try { //try block to keep the codes which can cause
error

    System.out.println("==============START=============="); 
//print start
            System.out.println("Hello"); //print statement
        } catch (Exception e) { //catch block to catch the
error
            System.out.println(e); //print the exception
        }
    }
}

class B extends Thread { //class B extends pre-defined class
Thread
    public void run() { //run method
        try {
            System.out.println("World"); //print statement
            Thread.sleep(500000); //sleep method to make
the thread 3 to wait
        } catch (Exception e) { //catch block to catch the
error
            System.out.println(e); //print the exception
        }
    }
}

class C extends Thread { //class C extends thread class
```

```java
    public void run() { //calling run method of thread class
        try {
            System.out.println("Done");//print statement

    System.out.println("=============END==============");
//print End

        } catch (Exception e) { //catch block to catch the
error
            System.out.println(e); //print the exception
        }

        }
    }


public class RunThread { //created public class RunThread
    public static void main(String[] args) { //calling main
method
        A a = new A(); //created object
        a.start(); //calling start method of thread class
        B b = new B(); //created object of class B
        b.start(); //calling start method
        C c = new C(); //created object of class C
        c.start(); //calling start method

    }
}
```

Output: -
```
=============START==============
Hello
World
Done
=============END==============
```

2) Create three threads for Gmail, Instagram and Facebook. Execute threads in sequence first Gmail, next Facebook and at last Instagram. In output, they should be in this order only.

Note: Dry run 2-3 times.

Code: -
```java
//2)Create three threads for Gmail, Instagram and Facebook.
//Execute threads in sequence first Gmail, next Facebook and
at last Instagram.
//In output, they should be in this order only.
//
//Note: Dry run 2-3 times.
```

```java
package Assignment7;

class Gmail extends Thread { // created Thread Gmail
    public void run() { // calling run method
        for (int i = 1; i <= 3; i++) { // for loop to
execute the statements for 2-3 times
            try { // try block to keep the statement which
can cause error
                System.out.println("first Gmail"); //
print statement
            } catch (Exception e) { // catch block to catch
the exception
                System.out.println(e); // it will keep the
exception within itself
            }
        }
    }
}

class Instagram extends Thread { // created Thread Instagram
    public void run() { // calling run method
        for (int i = 1; i <= 3; i++) { // for loop to
execute the statements for 2-3 times
            try { // try block to keep the statement which
can cause error
                System.out.println("last Instagram"); //
print statement
            } catch (Exception e) { // catch block to catch
the exception
                System.out.println(e); // it will keep the
exception within itself
            }
        }
    }
}

class Facebook extends Thread { // created third Thread
Facebook
    public void run() { // calling run method
        for (int i = 1; i <= 3; i++) { // for loop to
execute the statements for 2-3 times
            try { // try block to keep the statement which
can cause error
                System.out.println("next Facebook");//
print statement
            } catch (Exception e) {// catch block to catch
the exception
                System.out.println(e); // it will keep the
exception within itself
            }
```

```java
            }
        }
}

public class File { // created a public class File

    public static void main(String[] args) { // calling main
method
        Gmail g = new Gmail(); // created the object of
class Gmail
        g.start(); // calling start method
        Facebook f = new Facebook(); // created the object
of class Facebook
        f.start(); // calling start method
        Instagram i = new Instagram(); // created the object
of class Instagram
        i.start(); // calling start method
    }

}
```

Output: -

```
first Gmail
first Gmail
first Gmail
next Facebook
next Facebook
next Facebook
last Instagram
last Instagram
last Instagram
```

3) Write a Java program that creates two threads to find and print even and odd numbers from 1 to 20.

Code: -

```java
//3) Write a Java program that creates two threads to find
//and print even and odd numbers from 1 to 20.
package Assignment7;

class Even extends Thread { // created a thread to print Even
numbers
    public void run() { // overriding run method of thread
class
        try { // try block to hold the codes which can cause
error
            for (int i = 1; i <= 20; i++) { // for loop to
print even numbers from 1 to 20
```

```java
                    if (i % 2 == 0) { // if statement for
giving the condition
                        System.out.println("Even numbers : "
+ i); // printing Even numbers
                    }
                }
        } catch (Exception e) { // catch block to catch to
Exception
            System.out.println(e); // print exception which
will occur
        }
    }
}

class Odd extends Thread { // created thread to print odd
numbers
    public void run() { // overriding run method of thread
class
        try { // try block to hold the codes which can cause
error
            for (int i = 1; i <= 20; i++) { // for loop to
print odd numbers from 1 to 20
                    if (i % 2 != 0) { // if statement for
giving the condition
                        System.out.println("Odd numbers : " +
i); // printing odd numbers
                    }
                }
        } catch (Exception e) { // catch block to catch to
Exception
            System.out.println(e); // print exception which
will occur
        }
    }
}

public class Even_Odd { // created public class

    public static void main(String[] args) { // calling main
method
            Even e = new Even(); // created object of Even class
            e.start(); // calling start method from the object
of class Even that is e
            Odd o = new Odd(); // created object of Odd class
            o.start(); // calling Start method from the object
of class odd that is o
    }

}
```

Output: -

```
Even numbers : 12
Even numbers : 14
Even numbers : 16
Even numbers : 18
Even numbers : 20
Odd numbers : 1
Odd numbers : 3
Odd numbers : 5
Odd numbers : 7
Odd numbers : 9
Odd numbers : 11
Odd numbers : 13
Odd numbers : 15
Odd numbers : 17
Odd numbers : 19
```