

Assignment No. 1

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Thread Management in Java :

Java is a multi-threaded programming language which means we can develop multi-threaded programs using Java. A multi-threaded program contains two or more parts that can run concurrently and each part can handle a different task at the same time making optimal use of the available resources specially when your computer has multiple CPUs.

Handling threads : Each thread created/executed by a Java program is represented in the Java language through an instance of the class “Thread”. A thread executes the code that has received on instantiation time through an instance of the class “Runnable”. A thread starts executing itself after the invocation of its method start().

Creation of thread : A thread goes through various stages in its life cycle. For example, a thread is born, starts, runs, and then dies. There are two methods of creating a thread :

1. **Create a thread by implementing runnable interface :**

Step 1: Implement a run() method provided by a Runnable interface. This method provides an entry point for the thread.

public void run()

Step 2: Instantiate a Thread object using the following constructor

Thread(Runnable threadobj, String threadname);

Where, threadObj is an instance of a class that implements the Runnable interface and threadName is the name given to the new thread.

Step 3: Once a Thread object is created, you can start it by calling start() method, which executes a call to run() method.

void start();

2. **Create a thread by extending a thread class :**

Step 1: Override run() method available in Thread class. This method provides an entry point for the thread.

public void run()

Step 2: Once Thread object is created, you can start it by calling start() method, which executes a call to run() method.

void start();

Thread Running : The run() method of thread class is called if the thread was constructed using a separate Runnable object otherwise this method does nothing and returns. When the run() method calls, the code specified in the run() method is executed. You can call the run() method multiple times. It does not return any value.

Two ways to call run method :

1. **Call the run() method using the start() method :**

```
RunExp1 r1= new RunExp1();  
Thread t1 = new Thread(r1);  
t1.start();
```

2. **Call the run() method using the run() method itself :**

```
RunExp2 t1= new RunExp2();  
t1.run();
```