

# Concurrency

## Creating a Thread

# How to create a thread?

- there are three ways to create a thread
  1. extend Thread class
  2. implement Runnable interface
  3. implement Callable interface (requires ExecutorService)

```
// extending Thread
```

```
public class MyClass extends Thread {
```

```
    @Override
```

```
    public void run() {
```

```
        System.out.println("Thread '" + getName() + "' is being executed.");
```

```
    }
```

```
    public static void main(String[] args) {
```

```
        new MyClass().start();
```

we have implemented run(), but we run start()

```
        System.out.println(
```

```
            "Thread '" + Thread.currentThread().getName() + "' is being executed.");
```

```
    }
```

```
}
```

Thread 'main' is being executed.  
Thread 'Thread-0' is being executed.

OR

Thread 'Thread-0' is being executed.  
Thread 'main' is being executed.

```
// implementing Runnable
```

```
public class MyClass implements Runnable {
```

```
    @Override
```

```
    public void run() {
```

```
        System.out.println(
```

```
            "Thread '" + Thread.currentThread().getName() + "' is being executed.");
```

```
    }
```

```
    public static void main(String[] args) {
```

```
        new Thread(new MyClass()).start();
```

creating instance of Thread w/ run() implementation

```
        System.out.println(
```

```
            "Thread '" + Thread.currentThread().getName() + "' is being executed.");
```

```
    }
```

```
}
```

Thread 'main' is being executed.  
Thread 'Thread-0' is being executed.

OR

Thread 'Thread-0' is being executed.  
Thread 'main' is being executed.

// implementing Runnable with lambda expression

public class MyClass { no need for implements Runnable when using lambda

public static void main(String[] args) {

new Thread( implementation of run() method

() -> System.out.println( "Thread '" + Thread.currentThread().getName()  
+ "' is being executed."))

.start();

System.out.println(

"Thread '" + Thread.currentThread().getName() + "' is being executed.");

}

}

Thread 'main' is being executed.  
Thread 'Thread-0' is being executed.

OR

Thread 'Thread-0' is being executed.  
Thread 'main' is being executed.

-> SleepExample.java

-> SleepInterruptExample.java