How to Set Timer in Java?

Java Timer Class

In Java, **Timer** is a class that belong to the **java.util** package. It extends the **Object** class and implements the **Serializable** interface. The class provides the constructors and methods that can be used to perform time related activities. Using the Timer class, we can schedule the task which we want to execute at a particular time.

Note that the Timer class is a thread-safe class. It means that only a thread can execute the timer class method. Another point to note that the class uses binary heap data structure to store its task.

Timer Java Programs

Scheduling a Task to be Executed by Timer Thread

ScheduleTimer.java

```
import java.util.Calendar;
import java.util.Timer;
import java.util.TimerTask;
public class ScheduleTimer
{
public static void main(String args[])
{
//instance of the Timer class
Timer timer = new Timer();
TimerTask task = new TimerTask()
{
//represent the time after which the task will begin to execute
int i = 5;
@Override
public void run()
{
if(i>0)
{
System.out.println(i);
i--;
}
else
{
System.out.println("Wish You Very Happy Birthday!!");
//cancel the task once it is completed
timer.cancel();
}
}
};
//creating an instance of the Calendar class
Calendar date = Calendar.getInstance();
//setting the date and time on which timer will begin
date.set(2022, Calendar.MARCH, 30,23, 59, 54);
//enables the counter to count at a rate of 1 second
```

```
timer.scheduleAtFixedRate(task, date.getTime(), 1000);
}
}
```

Output:

```
5
4
3
2
1
Wish You Very Happy Birthday!!
```

Let's see another Java program in which we have executed a task after a specific interval of time.

TimerDemo.java

```
import java.util.Timer;
import java.util.TimerTask;
public class TimerDemo
{
Timer timer = new Timer();
TimerDemo(int seconds)
{
//schedule the task
timer.schedule(new RemindTask(), seconds*1000);
}
class RemindTask extends TimerTask
{
public void run()
{
System.out.println("You have a notification!");
//terminate the timer thread
timer.cancel();
}
}
//driver code
public static void main(String args[])
{
```

```
//function calling
new TimerDemo(10);
}
}
```

Output:

```
You have a notification!
```

The program takes 10 seconds to display message on the console.

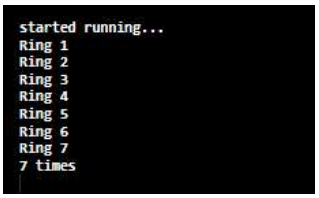
Start and stop a Timer

StartStopTimer.java

```
import java.util.Timer;
import java.util.TimerTask;
class Task extends TimerTask
{
int counter;
public Task()
{
counter = 0;
}
public void run()
{
counter++;
System.out.println("Ring " + counter);
}
public int getCount()
{
return counter;
}
}
public class StartStopTimer
{
private boolean running;
private Task task;
private Timer timer;
public StartStopTimer()
{
timer = new Timer(true);
}
public boolean isRinging()
{
return running;
}
public void startRinging()
{
```

```
running = true;
task = new Task();
timer.scheduleAtFixedRate(task, 0, 3000);
}
public void doIt()
{
running = false;
System.out.println(task.getCount() + " times");
task.cancel();
}
public static void main(String args[])
{
StartStopTimer phone = new StartStopTimer();
phone.startRinging();
try
{
System.out.println("started running...");
Thread.sleep(20000);
}
catch (InterruptedException e)
{
}
phone.doIt();
}
}
```

Output:



Similarly, we can also create a countdown timer using the Timer class.

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