



# CancellationException

Learn the reasons that cause CancellationException to be thrown.

We'll cover the following




- Overview
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## Overview#

CancellationException is thrown to indicate that the output or result of a value producing task can't be retrieved because it was cancelled.

CancellationException is an unchecked exception and extends  IllegalStateException, which in turn extends the RuntimeException.

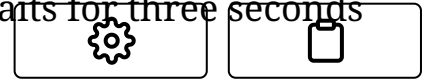
Some of the classes that throw CancellationException exception are:

- FutureTask
- CompletableFuture
- ForkJoinTask

## Example#

The following program demonstrates a scenario where an instance of CancellationException is thrown by the program. We create a FutureTask that has the thread sleep for one second intervals for a total of one hour. The

main thread submits the task to the executor service, waits for three seconds



and then attempts to cancel the task. Next when the main thread attempts to retrieve the result of the task by invoking the `get()` method on the task object, `CancellationException` exception is thrown.

```
1  import java.util.concurrent.*;
2
3  class Demonstration {
4      public static void main( String args[] ) {
5
6          ExecutorService es = Executors.newFixedThreadPool(5);
7
8          // Create a FutureTask, which takes in an instance of Callable
9          FutureTask<Integer> futureTask = new FutureTask<>(new Callable<Integer>() {
10              @Override
11              public Integer call() throws Exception {
12
13                  // The task simply intends to sleep for an hour but one second
14                  for (int i = 0; i < 3600; i++) {
15                      try {
16                          Thread.sleep(1000);
17                      } catch (InterruptedException ie) {
18                          System.out.println("Thread " + Thread.currentThread().getName() + " interrupted");
19                          break;
20                      }
21                  }
22                  return 786;
23              }
24          });
25
26          try {
27              es.submit(futureTask);
28              Thread.sleep(3000);
```



Some other nuances about the above program include:

- If the main thread doesn't invoke `task.get()` then `CancellationException` isn't thrown even if the main thread invokes `cancel()` on the task object.



- The `cancel()` method on the task object takes in a boolean `mayInterruptIfRunning`, indicating if the task should be interrupted in case it is running. In the above program if we pass `false` instead of `true` on line#29, the main thread will still see the `CancellationException` being thrown by the `get()` method, however, the task keeps running and the print statement on line#18 doesn't appear in the program output.

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