

Find the Problem, Fix the Problem



Craig Golightly

Senior Software Consultant

@seethatgo | www.seethatgo.com

Overview



Stack trace

- How to read
- Information available

Other logging options for debugging

Fix common exceptions



```
Exception in thread "main" java.lang.ArrayIndexOutOfBoundsException: Index 3 out of  
bounds for length 3  
at com.globomantics.orders.OrderProcess.getTopOrders(OrderProcess.java:8)  
at com.globomantics.orders.OrderProcess.main(OrderProcess.java:24)
```

Stack Trace - Simple

No additional libraries or processes - easy to read

2022-06-15 23:38:53.653 ERROR 11252 --- [nio-8080-exec-3] o.a.c.c.C.[.[]].[dispatcherServlet] : Servlet.service() for servlet [dispatcherServlet] in context with path [] threw exception [Request processing failed; nested exception is java.lang.NullPointerException: Collection must not be null.] with root cause

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at com.globomantics.stacktrace.service.OrderService.processOrder(OrderService.java:13) ~[classes/:na]
at com.globomantics.stacktrace.controller.OrderController.processOrder(OrderController.java:16) ~[classes/:na]
at java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke0(Native Method) ~[na:na]
at java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:77) ~[na:na]
at java.base/jdk.internal.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:43) ~[na:na]
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org.apache.tomcat.*
org.apache.coyote.*
org.apache.catalina.*
javax.servlet.*

◀ Application server packages

org.springframework.*
java.base.*

◀ Spring framework packages

◀ APIs for Java platform



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org.apache.coyote.*
org.apache.catalina.*
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◀ Application server packages

org.springframework.*

◀ Spring framework packages

java.base.*

◀ APIs for Java platform

org.apache.commons.*

◀ Utility libraries

com.globomantics.*

◀ Your application code

Most likely place for bugs



```
at org.apache.commons.collections4.list.UnmodifiableList.<init>(UnmodifiableList.java:74)
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Stack Trace - Key Lines

Problem with how OrderService used UnmodifiableList

Start looking around line 13 of OrderService.java - might be before or after



Log Output

System.out vs. logging frameworks

```
System.out.println("System out statement");
```

System out statement

```
logger.warn("Warning statement from logger");
logger.error("Error statement from logger");
```

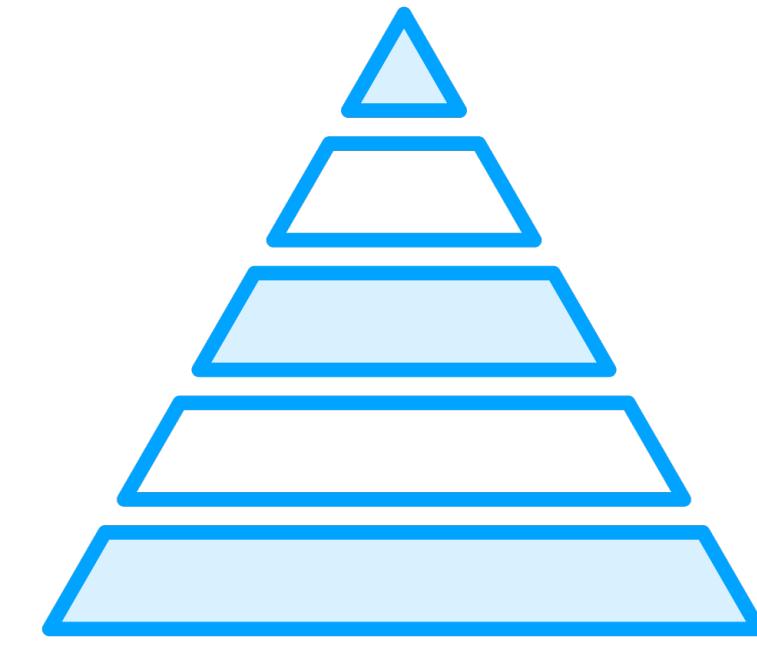
```
2022-06-16 02:59:21.156 [WARN] 10272 --- [nio-8080-exec-1]
c.g.stacktrace.service.OrderService      : Warning statement from logger
2022-06-16 02:59:21.156 [ERROR] 10272 --- [nio-8080-exec-1]
c.g.stacktrace.service.OrderService      : Error statement from logger
```



Logging



Logging framework
Simplifies logging
management



Log levels
Levels of logging
trace, debug, info,
warn, error



Related course
**Logging and
Management in Java**



RuntimeException



Not checked by compiler

Happen while running code (sometimes)

Common RuntimeExceptions:

- NullPointerException
- IndexOutOfBoundsException
- ArithmeticException (divide by zero)







More Information

Exception Handling in Java



Demo



Common RuntimeExceptions

Fix the code



Summary



Java stack trace

- Where to start looking

Logging information

Fix RuntimeExceptions

- NullPointerException
- IndexOutOfBoundsException
- ArithmeticException



Up Next:

What Else Can Go Wrong?

