EXCEPTIONS

1. Error

An error is an irrecoverable condition occurring at runtime. Such as OutOfMemory error. These JVM errors you cannot repair them at runtime. Though error can be caught in the catch block but the execution of application will come to a halt and is not recoverable.

1. Exception

Exceptions are conditions that occur because of bad input or human error etc. e.g. FileNotFoundException will be thrown if the specified file does not exist. Or a NullPointerException will take place if you try using a null reference. In most of the cases it is possible to recover from an exception (probably by giving the user feedback for entering proper values etc.

1. How can you handle Java exceptions?

There are five keywords used to handle exceptions in Java:

* + - try
    - catch
    - finally
    - throw
    - throws

1. Checked Exception

* The classes that extend Throwable class except RuntimeException and Error are known as checked exceptions.
* Checked exceptions are checked at compile-time.
* Example: IOException, SQLException etc.

1. Uncecked Exception

* The classes that extend RuntimeException are known as unchecked exceptions.
* Unchecked exceptions are not checked at compile-time.
* Example: ArithmeticException, NullPointerException etc.

1. What is a finally block? Is there a case when finally will not execute?

Finally block is a block which always executes a set of statements. It is always associated with a try block regardless of any exception that occurs or not.

Yes, finally will not be executed if the program exits either by calling System.exit() or by causing a fatal error that causes the process to abort.

1. Will the finally block get executed when the return statement is written at the end of try block and catch?

The finally block always gets executed even hen the return statement is written at the end of the try block and the catch block. It always executes , whether there is an exception or not. There are only a few situations in which the finally block does not execute, such as VM crash, power failure, software crash, etc. If you don’t want to execute the finally block, you need to call the System.exit() method explicitly in the finally block.

1. How does an exception propagate in the code?

If an exception is not caught, it is thrown from the top of the stack and falls down the call stack to the previous procedure. If the exception isn’t caught there, it falls back to the previous function, and so on, until it’s caught or the call stack reaches the bottom. The term for this is Exception propagation.

1. Throw

* Throw is used to explicitly throw an exception.
* Checked exceptions can not be propagated with throw only.
* Throw is followed by an instance.
* Throw is used within the method.
* You cannot throw multiple exception

1. Throws

* Throws is used to declare an exception.
* Checked exception can be propagated with throws.
* Throws is followed by class.
* Throws is used with the method signature.
* You can declare multiple exception e.g. public void method()throws IOException,SQLException.

1. . What is exception hierarchy in java?

Throwable is a parent class of all Exception classes. There are two types of Exceptions: Checked exceptions and UncheckedExceptions or RunTimeExceptions. Both type of exceptions extends Exception class whereas errors are further classified into Virtual Machine error and Assertion error.

1. How to create a custom Exception?

To create you own exception extend the Exception class or any of its subclasses.

* class New1Exception extends Exception { } // this will create Checked Exception
* class NewException extends IOException { } // this will create Checked exception
* class NewException extends NullPonterExcpetion { } // this will create UnChecked exception

1. What are the important methods of Java Exception Class?

Exception and all of it’s subclasses doesn’t provide any specific methods and all of the methods are defined in the base class Throwable.

* String getMessage() – This method returns the message String of Throwable and the message can be provided while creating the exception through it’s constructor.
* String getLocalizedMessage() – This method is provided so that subclasses can override it to provide locale specific message to the calling program. Throwable class implementation of this method simply use getMessage() method to return the exception message.
* Synchronized Throwable getCause() – This method returns the cause of the exception or null id the cause is unknown.
* String toString() – This method returns the information about Throwable in String format, the returned String contains the name of Throwable class and localized message.
* void printStackTrace() – This method prints the stack trace information to the standard error stream, this method is overloaded and we can pass PrintStream or PrintWriter as an argument to write the stack trace information to the file or stream.

1. Can we write multiple catch blocks under single try block?

Yes we can have multiple catch blocks under single try block but the approach should be from specific to general. Let’s understand this with a programmatic example.

1. What is OutOfMemoryError in Java?

OutOfMemoryError is the subclass of java.lang.Error which generally occurs when our JVM runs out of memory.

1. What are the different types of garbage collectors in Java?

Garbage collection in Java a program which helps in implicit memory management. Since in Java, using the new keyword you can create objects dynamically, which once created will consume some memory. Once the job is done and there are no more references left to the object, Java using garbage collection destroys the object and relieves the memory occupied by it. Java provides four types of garbage collectors:

* Serial Garbage Collector
* Parallel Garbage Collector
* CMS Garbage Collector
* G1 Garbage Collector