What is Exception?

Exception is an event that occurs during the execution of a program and disrupts the normal flow of instructions.

Exception are two types

Checked Exception/ compile time Exception

Exceptions that the Java compiler forces you to handle during the compilation.

Ex: FileReaderClass... Thread. Sleep()....wait()...Class.forName()...SqlException

If a method is declared to throw a checked exception, the calling method must either handle throw catch the exception using a try-catch block or declare with throws statement.

Un-Checked Exception/Runtime Exception

These are exceptions that the compiler does not force you to handle explicitly. They typically represent programming bugs, such as attempting to divide by zero or accessing an array element that does not exist. Null pointer Exception, ArrayIndexoutofBoundException, Stack overflow

Mostly accord during the running time.

What we do when exception Object has been raised?

Whenever Exception Object has been raised, It normal check whether the method is handling the exception Object or not using try/catch block or hand over ring this responsibility to calling method .

If it was not handle than it looks for calling method to handle the exception, if no method is handling than main method handover the exception object to Jvm, Now Jvm handover this Object to default Exception Handler.

Now Default Exception handler terminate the flow of stack than leads to abnormal termination, Before termination it call the print stack trace method to print the exception Object on the console.

What is Error?

Error are generally not recoverable and Errors usually indicate problems that are outside the scope of the application's control, such as out-of-memory errors or hardware failures

It cannot be recovered by program, because of lack of system resources.

What is the difference between finally, final, and finalize in Java?

Final is a Keyword: It was applicable for class var and methods
Declare class as a Final: you cannot extend the class.
Declare method as a Final: you cannot Override the method in sub class,
Declare var as final: you cannot change the value.

Finally : Finally is a block that follow with try or with catch block,
Irrespective of exception if we want some peace of code that you need to execute than place that code in finally block(Ex: all close statements)

Finalize: Object class methods, It was invoked by Garbage collector at the background.

If any object found un referenced in heap memory than gc automatically calls and remove the Object from the heap, Before removing the Object from heap gc call the particular class finalize method.

***--Define try-with resource?

Simplify the handling of resources such as files, or database connections that need to be explicitly closed after they are no longer needed. The try-with-resources statement ensures that each resource is closed properly, even if an exception occurs during the execution of the code within the try block.

Try: The try keyword begins the try block.

() (parentheses): Inside the parentheses, you declare and initialize the resources that need to be managed. These resources must implement the Auto Closeable or Closeable interface.

Catch: Optionally, you can include a catch block to handle exceptions that may be thrown within the try block.

Finally: The finally block is not required when using try-with-resources. The resources are automatically closed after the try block, whether an exception occurs or not.

What is ClassNotFoundException in Java? -std

Describe OutofMemoryError in exception handling.-std

Define NumberFormatException exception in Java.-std

What do you understand by ArrayIndexOutOfBoundsException?-std

What is the error of ClassCastException?

Can we throw an exception explicitly? Yes

We can throw the Exception explicitly using the throw Keyword.

Describe the use of the throw keyword.

Throw is used for creating user defined Exception.

How to create user defined Exception

Creating User Defined Exception Below Steps:

Extending Exception class or Runtime Exception class: Depending on whether you want to create a checked or unchecked exception, extend either Exception (for checked) or Runtime Exception (for unchecked).

Constructors: Provide one or more constructors for your custom exception. The constructors typically call the corresponding constructor of the superclass (Exception or Runtime Exception) by using the super keyword.

Handling the Exception: When using a checked exception, you need to either catch it using a try-catch block or declare that the method throws the exception. Unchecked exceptions can be thrown without explicit handling.

Describe the use of the throws keyword.

Throws delegate the responsibility to handle the exception to calling method.

It's important to note that if a method declares with throws (checked exception), than calling method must handle using try /catch block.

```
Public void m1 () throws Checked Exception ()

{}

Public void m2 () // throws Exception

{

//m1--code write inside the try/catch block

}
```

When should we use the printStackTrace () method to String () and get Message?

print stack trace : display the Stack flow, Exception name and error message
Using to String display only Exception name and error message
using message method display only Error message

Describe unreachable catch block error in Java.

if catch follows with parent exception and later next catch followed the child Exception class than it lead to un-Reachable statement

In which situation will you not be able to execute the finally block?

Is it possible to throw a statement inside a static block? No

Define user-defined or custom exceptions in Java.