Assignment

1. What is the difference between Exception and error?

A.

Exception	Error
The package for exception is java.lang.Exception	The package for error is java.lang.error
The Exception are recoverable	The error is irrecoverable
Exceptions are classified into two types are: 1.Unchecked type 2.Checked type	Error is classified into only one type i.e Unchecked type
Exception can be handled through the programs by using exception handles are: 1.try-catch 2.try-catch finally 3.try-finally 4try with resources	Error cannot be handled through the program
Examples : NullPointer Exception, sqlExceptions, user defined Exceptions	**Example:** Arithmetic exception, ArrayIndexOutofbound Exception

2. How can we handle exceptions in java?

A.

- The try-catch is the simplest method of handling exceptions. Put the code you want to run in the try block, and any java exceptions that the code throws are caught by one or more catch blocks.
- This method will catch any type of java exceptions that get thrown. This is the simplest mechanism for handling exceptions.

Example:

```
try{
//block of code that can throw exception
}
```

```
Catch(Exception e)
{
//Exception handler;
}
```

3.What is throw and throws?

A. Throw: the throw keyword is used throw an exception explicity in the code, inside the function or the block of code.

Example:

```
if (task.isTooComplicated()) {
   throw new TooComplicatedException("The task is too complicated");
}
```

Throws-Thethrows keyword is used to specify that a method may raise an exception during its execution. It enforces explicit exception handling when calling a method:

Example:

```
public void simpleMethod() throws Exception {
   // ...
}
```

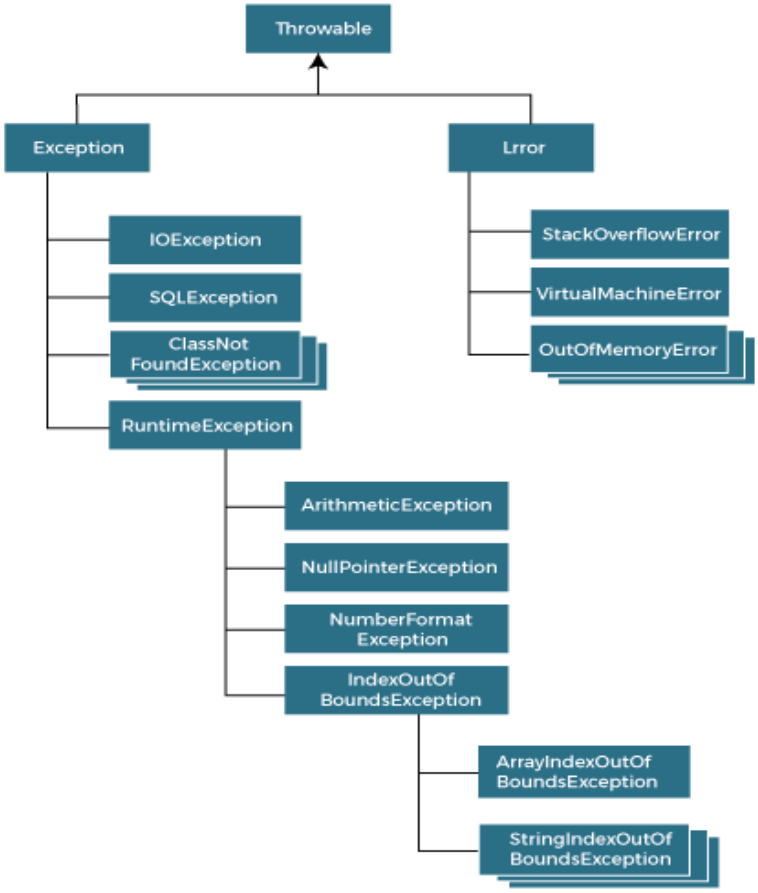
4. why do we need exception handling ?

A.We need Exception handling because it is maintain the normal flow of the application. An exception normally disrupts the normal flow of the application. that is why we need to handle exceptions If Java exceptions are not handled, programs may crash or requests may fail.

There can be many causes for a sudden crash of the system, such as incorrect or unexpected data input.

5. **what is exception hierarchy**?

The java.lang.Throwable class is the root class of Java Exception hierarchy inherited by two subclasses: Exception and Error. The hierarchy of Java Exception classes is given below:



6. how can we create user defined runtime and compile time exceptions?

A.

- To create a checked custom exception, it must extend exception or its child classes.
- We can create the custom unchecked exception by extending the runtime exception in java.
- Unchecked exceptions are inherit from the error class or the RuntimeException class.

7. what is try with resources?

In Java, the try-with-resources statement is a try statement that declares one or more resources. The resource is as an object that must be closed after finishing the program. The try-with-resources statement ensures that each resource is closed at the end of the statement execution.

In the following example writes a string into a file. It uses an instance of FileOutputStream to write data into the file. FileOutputStream is a resource that must be closed after the program is finished with it. So, in this example, closing of resource is done by itself try.

Example:

```
import java.io.FileOutputStream;

public class TryWithResources {

public static void main(String args[]){

    // Using try-with-resources

try(FileOutputStream fileOutputStream =newFileOutputStream("/java7-new-features/src/abc.txt")){

String msg = "Welcome to javaTpoint!";

byte byteArray[] = msg.getBytes(); //converting string into byte array

fileOutputStream.write(byteArray);

System.out.println("Message written to file successfuly!");

}catch(Exception exception){

    System.out.println(exception);

}

}

}
```

8. can we have try, try and finally without catch block ?

Yes, It is possible to have a try block without a catch block by using a final block.A final block will always execute even there is an exception occurred in a try block, except System.exit() it will execute always.

Example:

```
public class Yamini {
public static void main(String[] args){
try {
System.out.println(“Try Block”);
}
finally {
Systen.out.println(“Finally Block”);
}
}
}
```

9. Explain the chart and throwable error exception relation?

A.

- The throwable class is the super class of all errora and exceptions in the java language.
- Only objects that are instances of this class or one of its subclasses are thrown by the java virtual machine or can be thrown by the java throw statement.

10. What is getMessage and printstacktrace

getMessage() method:

- This is a method which is defined in java.lang.Throwable class and it is inherited into java.lang.Error and java.lang.Exception classes.
- This method will display the only exception message.

Example:

```
public class GetMessageMethod {
public static void main(String[] args){
```

```
try{

int x=1/0;

}catch(Exception e){

System.out.println(e.getMessage());

}}}
```

printStackTrace() method

- This is the method which is defined in java.lang.Throwable class and it is inherited into java.lang.Error class and java.lang.Exception class.
- This method will display the name of the exception and nature of the message and line number where an exception has occurred.

Example:

```
public class PrintStackTraceMethod{

public static void main(String[] args){

try{

int a[]=new int[5];

a[5]=20;

}

catch(Exception e){

e.printStackTrace();

}

}

}
```

11. How to write proper exception handling in java.

A.

- All exceptions must be a child of throwable.
- If you want to write a checked exception that is automatically enforced by the handle or declare rule, you need to extend the exception class.
- If you want to write a runtime exception, you need to extend the RuntimeException class.