**Java Exceptions and Error Handling**

**Task Description:**

1.What are the four access modifiers available in Java and what is their significance in terms of class, method, and variable accessibility?

Java has **Public, Private, Protected and Default** Access Modifier.

**Public**:

* Public access modifier are specified with **Public** Keyword.
* Classes, methods, or data members that are declared as public are accessible from everywhere in the program. There is no restriction.

**Private:**

* Private access modifier are specified with **Private** Keyword.
* methods or data members declared as private are accessible only within the class in which they are declared.

**Protected:**

* Protected access modifier are specified with **Protected** Keyword.
* The methods or data members declared as protected are accessible within the same package or subclasses in different packages.

**Default:**

* When **NO** access modified is specified, it’s consider as **Default** access modifier.
* The data members, classes, or methods that are not declared using any access modifiers are accessible only within the same package.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Access Modifier** | **Same Class** | **Same Package** | **Subclass** | **Other Packages** |
| **Public** | Yes | Yes | Yes | Yes |
| **Protected** | Yes | Yes | Yes | No |
| **Default (No Access modifier)** | Yes | Yes | No | No |
| **Private** | Yes | No | No | No |

2. What is the difference between Exception and error?

|  |  |
| --- | --- |
| **Error** | **Exception** |
| We can’t recover from Error | We can Recover from exceptions by either using try-catch block or throwing exceptions back to caller. |
| All errors in java are unchecked type | Exceptions includes both checked as well as Unchecked types |
| Errors are mostly caused by environment in which program is running | In Program itself responsible for causing exceptions |
| Error can occur at compile time | Unchecked exceptions occur at runtime whereas checked exceptions occur at compile time |
| They are defined under **java.lang.Error** package. | They are defined under **java.lang.Exception** package |

3. What is the difference between checked Exception and unchecked Exception?

|  |  |
| --- | --- |
| **Checked Exception** | **Unchecked Exception** |
| Checked Exception occur at compile time | Unchecked exceptions occur at runtime |
| Compiler will check a checked exception | Compiler will not check these types of exception |
| These type of exceptions can be handled at time of compilation | These type of exception cannot be catch or handle at time of compilation, Because they are get generated by mistake in the program |
| They are sub-class of exception class | They are runtime exception and hence are not part of exception class |
| Here JVM Needs the exception to catch and handle | Here JVM does not required the exception catch and handle |