**Guvi Task 11**

1: What are the four access modifiers available in java and what is their significance in terms of class, methods and variable accessibility?

There are four types of access modifiers available in Java:

1. Default – No keyword required
2. Private
3. Protected
4. Public

**Default:**

When no access modifier is specified for a class, method, or data member – It is said to be having the default access modifier by default. The data members, classes, or methods that are not declared using any access modifiers i.e. having default access modifiers are accessible only within the same package.

**Private:**

The private access modifier is specified using the keyword private. The methods or data members declared as private are accessible only within the class in which they are declared.

* Any other class of the same package will not be able to access these members.
* Top-level classes or interfaces cannot be declared as private because

Hence these modifiers in terms of application to classes, apply only to nested classes and not on top-level classes

**Protected:**

The protected access modifier is specified using the keyword protected. The methods or data members declared as protected are accessible within the same package or subclasses in different packages. And protected means “only visible within the enclosing class and any subclasses”

**Public:**

The public access modifier is specified using the keyword public. The public access modifier has the widest scope among all other access modifiers. Classes, methods, or data members that are declared as public are accessible from everywhere in the program. There is no restriction on the scope of public data members.

2: What is the difference between exception and error?

**Errors:**

Errors are usually caused by serious problems that are outside the control of the program, such as running out of memory or a system crash

**Exceptions:**

Exceptions, on the other hand, are used to handle errors that can be recovered from within the program

3: What is the difference between checked exception and unchecked exception?

**Checked exception:**

Theseare the exceptions that are checked at compile time. If some code within a method throws a checked exception, then the method must either handle the exception or it must specify the exception using the [throws keyword](https://www.geeksforgeeks.org/throw-throws-java/). In checked exceptions, there are two types: fully checked and partially checked exceptions. A fully checked exception is a checked exception where all its child classes are also checked, like IOException, and InterruptedException. Everything under throwable is checked Exception.

**Unchecked exception:**

These are the exceptions that are not checked at compile time. Exceptions under Error and RuntimeException classes are unchecked exceptions. In short unchecked exceptions are runtime exceptions that are not required to be caught or declared in a throws clause. These exceptions are usually caused by programming errors, such as attempting to access an index out of bounds in an array or attempting to divide by zero. Unchecked exceptions include all subclasses of the RuntimeException class, as well as the Error class and its subclasses.