Package in Java

Package Overview

- A java package is a group of similar types of classes, interfaces and sub-packages.
- Package can be considered as folder where class files of java classes, interfaces and sub-packages are stored.
- Package in java can be categorized in two form, **built-in package** and **user-defined package**.
- There are many built-in packages such as java, lang, awt, javax, swing, net, io, util, sql etc.
- The package is both a naming and a visibility control mechanism. You can define classes inside a package that are not accessible by code outside that package.
- You can also define class members that are exposed only to other members of the same package.

Advantage of Java Package

- Java package is used to categorize the classes and Interfaces so that they can be easily maintained.

- Java package provides access protection.
- **protected** and **default** have package level access control. A protected member is accessible by classes in the same package and its subclasses. A default member (without any access specifier) is accessible by classes in the same package only.

- Java package removes naming collision.
- For example there can be two classes with name **Employee** in two packages, college.staff.cse.Employee and college.staff.ee.Employee

User-defined package

- User-defined packages are defined by programmer for containing their own classes, interfaces, enum, and sub-packages.
- Defining a package, we must use "**package <package_name>;**" at the first statement of the package program.
- Defining a Package:
  1. The package keyword is used to create a package in java.
  2. The package statement defines a name space in which classes are stored.
  3. While creating a package, you should choose a name for the package and include a package statement along with that name at the top of every source file that contains the classes, interfaces, enumerations, and sub-package types that you want to include in the package.
  4. The package statement should be the first line in the source file. There can be only one package statement in each source file, and it applies to all types in the file.
  5. If a package statement is not used in a file then all classes, interfaces, enumerations types will be placed in the current **default package, which has no name.**

- To compile the Java programs with package statements, you have to use -d option as shown below.
- javac –d . file_name.java //To create package in the current directory
- javac -d Destination_folder file_name.java //To create package in a specific folder
- There can be only one package statement per class file.
- The package declaration statement should precede an import statement.
  - package FirstPackage;
  - import SecondPackage.*;
- How to access package from another package?
  - There are three ways to access the package from outside the package.
  - import package_name.*;
  - import package_name.Class_Name;
  - fully qualified name.

Access package using fully qualified name

```
package pkg;
public class Hello
{
        public void display()
        {
                System.out.println("Hello World");
        }
}
```

```
import pkg.*;
public class PkgDemo{
        public static void main(String[] args)
        {
                pkg.Hello h = new pkg.Hello();
                h.display();
        }
}
```