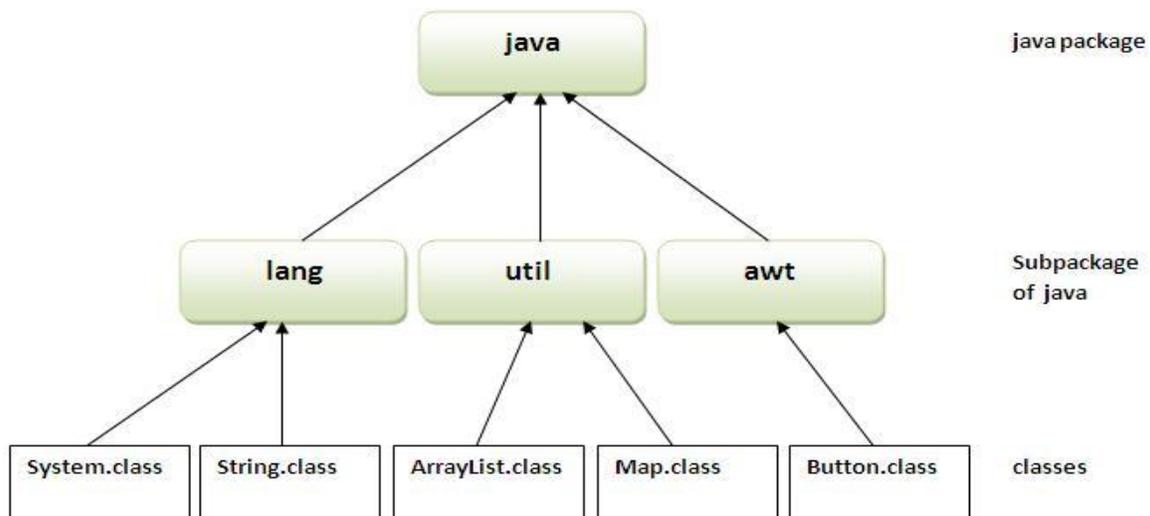


Object Oriented Programming

Packages, Scanner

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Java Package: A java package is a group of similar types of classes, interfaces and sub-packages. 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. Here, we will have the detailed learning of creating and using user-defined packages.



Simple example of java package

The **package keyword** is used to create a package in java.

```
//save as Simple.java
package mypack;
public class Simple{
  public static void main(String args[]){
    System.out.println("Welcome to package");
  }
}
```

You need to use fully qualified name e.g. mypack. Simple etc to run the class.

Output: Welcome to package

The -d is a switch that tells the compiler where to put the class file i.e. it represents destination. The . represents the current folder.

How to access package from another package?

There are three ways to access the package from outside the package.

1. import package.*;
2. import package.classname;
3. fully qualified name.

*1) Using packagename.**

If you use package.* then all the classes and interfaces of this package will be accessible but not subpackages.

The import keyword is used to make the classes and interface of another package accessible to the current package.

Example of package that import the packagename.*

```
//save by A.java
package pack;
public class A{
    public void msg(){System.out.println("Hello");}
}
//save by B.java
package mypack;
import pack.*;

class B{
    public static void main(String args[]){
        A obj = new A();
        obj.msg();
    }
}
Output: Hello
```

2) Using *packagename.classname*

If you import `package.classname` then only declared class of this package will be accessible.

Example of package by import `package.classname`

```
//save by A.java
```

```
package pack;  
public class A{  
    public void msg(){System.out.println("Hello");}  
}
```

```
//save by B.java
```

```
package mypack;  
import pack.A;
```

```
class B{  
    public static void main(String args[]){  
        A obj = new A();  
        obj.msg();  
    }  
}
```

Output: Hello

3) Using *fully qualified name*

If you use fully qualified name then only declared class of this package will be accessible. Now there is no need to import. But you need to use fully qualified name every time when you are accessing the class or interface.

It is generally used when two packages have same class name e.g. `java.util` and `java.sql` packages contain `Date` class.

Example of package by import fully qualified name

```
//save by A.java
```

```
package pack;  
public class A{  
    public void msg(){System.out.println("Hello");}  
}
```

```
//save by B.java
```

```
package mypack;  
class B{  
    public static void main(String args[]){  
        pack.A obj = new pack.A();//using fully qualified name  
        obj.msg();  
    }  
}
```

```
}  
}
```

Output: Hello

Note: If you import a package, subpackages will not be imported.

If you import a package, all the classes and interface of that package will be imported excluding the classes and interfaces of the subpackages. Hence, you need to import the subpackage as well.

Java Scanner class: There are various ways to read input from the keyboard, the `java.util.Scanner` class is one of them. The **Java Scanner** class breaks the input into tokens using a delimiter that is whitespace by default. It provides many methods to read and parse various primitive values. Java Scanner class is widely used to parse text for string and primitive types using regular expression.

```
import java.util.Scanner;
```

```
class ScannerTest{
```

```
    public static void main(String args[]){    Scanner sc=new Scanner(System.in);
```

```
        System.out.println("Enter your rollno");
```

```
        int rollno=sc.nextInt();
```

```
        System.out.println("Enter your name");
```

```
        String name=sc.next();
```

```
        System.out.println("Enter your fee");
```

```
        double fee=sc.nextDouble();
```

```
        System.out.println("Rollno:"+rollno+" name:"+name+" fee:"+fee);
```

```
        sc.close();
```

```
    }
```

```
}
```