

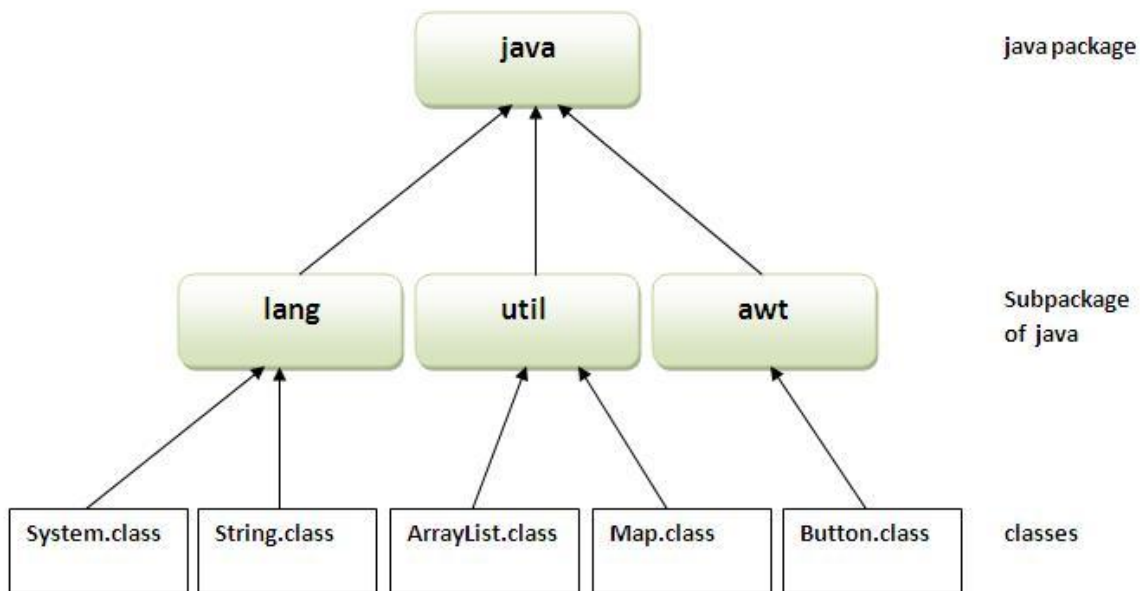
## Packages in JAVA

Packages are containers for classes that are used to keep the classes. Package allows us to create a class which will have some methods and data members in it. Whenever we need methods /data members of package classes we can import the package in our program file with the statement import.

### Packages are of two types

1. Inbuilt
2. User defined

#### 1. Inbuilt Packages – following diagram shows inbuilt packages in JAVA



#### 2. User defined Package – we can create our own packages.

How to create a Package ?

To create a package use a package keyword followed by a package name. This must be the first statement in a java file.

```
package packagename; //package declaration

public class classname // class declaration

{

//statements

}
```

## Steps to follow for creation of package and important points to remember about Package

1. Create a directory suppose we have created a directory name A
2. Create a sub directory in that say if a subdirectory is with name mypack (package name)
3. In this sub directory mypack create a class which you want to include in the package before the class definition write on top package mypack; (where package is a keyword and mypack is a packagename.Remember the package name and the subdirectory name must match).Declare the class with public access specifier
4. Compile the file with the class name(do not write main() method in the package class)
5. Come in the outer directory in this case it's A.Write a java program in this directory A which will include the package mypack.
6. A package can contain any number of classes.Only if in a same package file we have declared multiple classes then only one class can be public.
7. If we want to include all the classes in the package then write import mypack.\*;
8. If we want a specific class from that package then we can write as import mypack.classname;

e.g Following program is defining a package which has two classes ( the two classes will be written in two different files with the same package name on the top of the class file).

Defining a package mypack having two classes to find square of number and cube of a number

```
package mypack;
public class Findsquare
```

```
{  
public int square(int t)  
{  
return(t*t);  
}  
}
```

```
package mypack;  
public class Findcube  
{  
public int cube(int t)  
{  
return(t*t*t);  
}  
}
```

Compile both the files.

Write a main program as follows

```
import mypack.*;  
class TestPackge  
{  
public static void main(String args[])  
{  
Findsquare s=new Findsquare();  
Findcube c= new Findcube();  
system.out.println(" the square of a number is "+s.square(2));  
system.out.println("the cube of a number is "+c.cube(2));  
}  
}
```

Compile this file and run it we will get the output as square of a number and cube of a number where the methods for this are present in a class and a class is present in a package called mypack. Packages are very similar to headerfiles in C and C++.

The following table explain the access protection for package

	<b>Private</b>	<b>No Modifier</b>	<b>Protected</b>	<b>Public</b>
Same class	Yes	Yes	Yes	Yes
Same package subclass	No	Yes	Yes	Yes
Same package non-subclass	No	Yes	Yes	Yes
Different package subclass	No	No	Yes	Yes
Different package non-subclass	No	No	No	Yes

Following is the table which explains inbuilt JAVA API packages