How to Create Package in Java

In Java, a **package** is a group of classes, interfaces, enumeration, and annotations. Java contains many pre-defined packages such as **java.lang, java.io, java.net,** etc. When we create any Java program the **java.lang package is imported by default**. We need not to write the package name at the top of the program. We can also create our own package by providing the name that we want. In this section, we will learn **how to create a package in Java**.

We use package for the following reasons:

- The package makes the search easier for the classes and interfaces.
- It provides a fully qualified name that avoids naming conflicts.
- It also controls access.
- It organizes classes in a folder structure.
- It improves code reusability.
- Programmer can group classes and interfaces into a related package.

Creating a Package

To create a package, follow the steps given below:

- Choose a package name according to the naming convention.
- Write the package name at the top of every source file (classes, interface, enumeration, and annotations).
- Remember that there must be only one package statement in each source file.

Package Naming Convention

We follow the naming convention rules to name a package. Java has some predefined packages and also allows us to create our own package. So, it is possible that a programmer can create a class with the same name as a package that already contains that type in a predefined package.

Let's take an example of the Rectangle class.

Suppose, a programmer creates a class with the name Rectangle in the package shape. The class with the same [illegible]sent in java.awt package. The compiler allows both classes if they belong to the different [illegible]qualified name of each class contains the package name that differentiate both Rectangle

classes. Therefore, the package name of the user-defined class will be **shape.Rectangle** and the package name of the predefined class will be **java.awt.Rectangle**.

- Package name must be in lower case that avoids conflict with the name of classes and interfaces.
- Organizations used their internet domain name to define their package names. For example, **com.javatpoint.mypackage**. Sometimes, the organization also uses the region after the company name to name the package. For example, **com.javatpoint.region.mypackage**.
- We use underscore in the package name if the domain name contains hyphen or other special characters or package names begin with a digit or reserved keyword.

Domain Name	Package Name Prefix
Hyphenated-name.example.org	org.example.hyphenated_name
Example.int	int_.example
123name.example.com	com.example._123name

Importing a Package

If we want to use a package in Java program it is necessary to import that package at the top of the program by using the import keyword before the package name.

Syntax:

```
import packageName;
```

Let's create a calculator program in Java using the package.

Add.java

```
package p1;
import java.util.*;
public class Add
{
int s;
public void sum()
{
System.out.print("Enter the first number: ");
Scanner scan=new Scanner(System.in);
int x=scan.nextInt();
System.out.print("Enter the second number: ");
Scanner scan1=new Scanner(System.in);
int y=scan1.nextInt();
s=x+y;
System.out.println("sum="+s);
```

```
}
```

Sub.java

```
package p2;
import java.util.*;
public class Sub
{
int d;
public void diff()
{
System.out.print("Enter the first number: ");
Scanner scan=new Scanner(System.in);
int x=scan.nextInt();
System.out.print("Enter the second number: ");
Scanner scan1=new Scanner(System.in);
int y=scan1.nextInt();
d=x-y;
System.out.println("Difference="+d);
}
}
```

Mult.java

```
package p3;
import java.util.*;
public class Mult
{
int m;
public void pro()
{
System.out.print("Enter the first number: ");
Scanner scan=new Scanner(System.in);
int x=scan.nextInt();
```

⇧ SCROLL TO TOP nter the second number: ");

```
Scanner scan1=new Scanner(System.in);
int y=scan1.nextInt();
m=x*y;
System.out.println("Product="+m);
}
}
```

Div.java

```
package p4;
import java.util.*;
public class Div
{
int q;
public void divd()
{
System.out.print("Enter the first number: ");
Scanner scan=new Scanner(System.in);
int x=scan.nextInt();
System.out.print("Enter the second number: ");
Scanner scan1=new Scanner(System.in);
int y=scan1.nextInt();
q=x/y;
System.out.println("Division="+q);
}
}
```

Now, we are going to create the main class named **Calculator**. In this class, we have imported all the packages that we have created above. It includes all the classes in the Calculator class.

Calculator.java

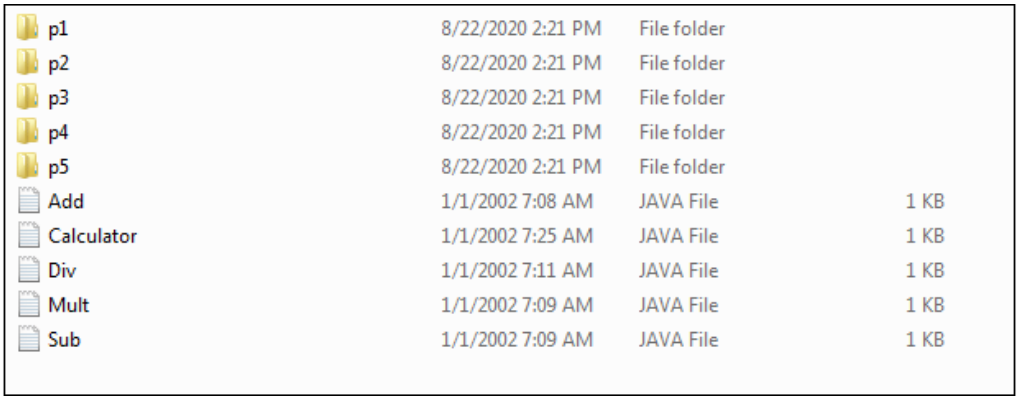
```
package p5;
//importing pre-defined package
import java.util.*;
//importing user-defined package
import p1.Add;
import p2.Sub;
import p3.Mult;
import p4.Div;
public class Calculator
{
public static void main(String args[])
```



```
nter your choice: ");
```

```
Scanner scan=new Scanner(System.in);
int t=scan.nextInt();
switch(t)
{
case 1:
Add a=new Add();
a.sum();
break;
case 2:
Sub s=new Sub();
s.diff();
break;
case 3:
Mult m=new Mult();
m.pro();
break;
case 4:
Div d=new Div();
d.divd();
break;
}
}
}
```

When we compile the above program, it creates corresponding .class files in packages named p1, p2, p3, p4, and p5, respectively.



The .class files are generated. Now, we can run the above program.

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Output:

```
Enter your choice: 3
Enter the first number: 2
Enter the second number: 23
Product=46
```

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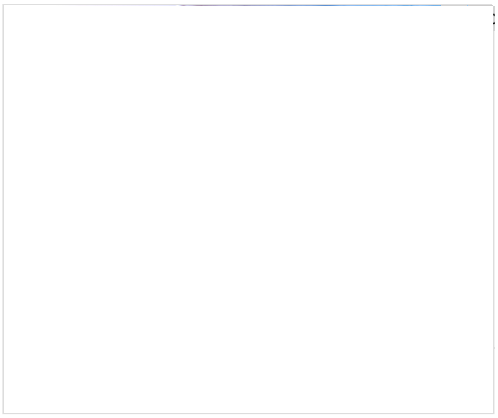

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