

Java Packages & API

A package in Java is used to group related classes. Think of it as **a folder in a file directory**. We use packages to avoid name conflicts, and to write a better maintainable code. Packages are divided into two categories:

- Built-in Packages (packages from the Java API)
- User-defined Packages (create your own packages)

Built-in Packages

The Java API is a library of prewritten classes that are free to use, included in the Java Development Environment.

The library contains components for managing input, database programming, and much more. The library is divided into **packages** and **classes**. Meaning we can either import a single class (along with its methods and attributes), or a whole package that contain all the classes that belong to the specified package.

To use a class or a package from the library, you need to use the `import` keyword:

Syntax

```
import package.name.Class; // Import a single class
import package.name.*; // Import the whole package
```

Import a Class

If we find a class we want to use, for example, the `Scanner` class, **which is used to get user input**, writes the following code:

Example

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

In the example above, `java.util` is a package, while `Scanner` is a class of the `java.util` package.

To use the `Scanner` class, create an object of the class and use any of the available methods found in the `Scanner` class documentation. In our example, we will use the `nextLine()` method, which is used to read a complete line:

Example

Using the `Scanner` class to get user input:

MyClass.java

```
import java.util.Scanner; // import the Scanner class

class MyClass {
    public static void main(String[] args) {
        Scanner myObj = new Scanner(System.in);
        String userName;

        // Enter username and press Enter
        System.out.println("Enter username");
        userName = myObj.nextLine();

        System.out.println("Username is: " + userName);
    }
}
```

Result:

```
Enter username
```

Import a Package

There are many packages to choose from. In the previous example, we used the `Scanner` class from the `java.util` package. This package also contains date and time facilities, random-number generator and other utility classes.

To import a whole package, end the sentence with an asterisk sign (*). The following example will import ALL the classes in the `java.util` package:

MyClass.java

```
import java.util.*; // import the java.util package

class MyClass {
    public static void main(String[] args) {
        Scanner myObj = new Scanner(System.in);
        String userName;

        // Enter username and press Enter
        System.out.println("Enter username");
        userName = myObj.nextLine();

        System.out.println("Username is: " + userName);
    }
}
```

Result:

Enter username

User-defined Packages

To create your own package, you need to understand that Java uses a file system directory to store them. Just like folders on your computer:

Example

```
└─ root
  └─ mypack
    └─ MyPackageClass.java
```

To create a package, use the `package` keyword:

MyPackageClass.java

MyPackageClass.java

```
package mypack;

class MyPackageClass {
    public static void main(String[] args) {
        System.out.println("This is my package!");
    }
}
```

Result:

This is my package!