



Royal University of Bhutan



Unit VI

Packages and Java Library

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Learning Outcomes

In this session, you will learn about:

- Categories of Packages
- Usages of API Packages
- User-Defined packages

Packages in Java

A **package** is a set of classes that are stored in a directory, which has the same name as the package name.

Two categories of Packages:

1. Java Application Programming Interface (API) packages
2. Java user-defined packages

API Packages

- The Java API contains classes that are grouped in different packages in accordance to their functions.

Java Package Name	Description
java.lang	Provides various classes, such as object, System and class.
java.util	Provides various classes that support collection or groups of objects, such as hash tables, string parsing, and system.
java.io	Defines two streams, input stream and output stream that determine the flow of bytes from a source to destination
java.awt	Provides classes to implement graphical user interface, such creating buttons, check boxes, text boxes, etc.
java.net	Provides classes that support network programming

How to use API Packages?

The ***import*** statement is used to include a Java package in a program.
The Syntax:

```
import <package_name>.<class_name>;  
import <package_name>.*;
```

Example:

```
import java.io.BufferedReader;  
import java.io.*;  
import java.util.Scanner;
```

Example for API Packages

- Default package `java.lang.*;`
 - Eg. `String` class; //`StringDemo.java`
 - Eg. `Math` class; //`MathDemo.java`
- Importing package like `import.io.*;`
 - Eg. `BufferedReader` class; //`UserInputDemo.java`

User-Defined Packages

- When you write a Java program, you can create many classes. You can organize these classes by creating your own packages. The packages that you create are called ***user-defined packages***.
- User-defined package contains one or more classes that can be imported in a Java program.

Creating and Importing User-defined Package

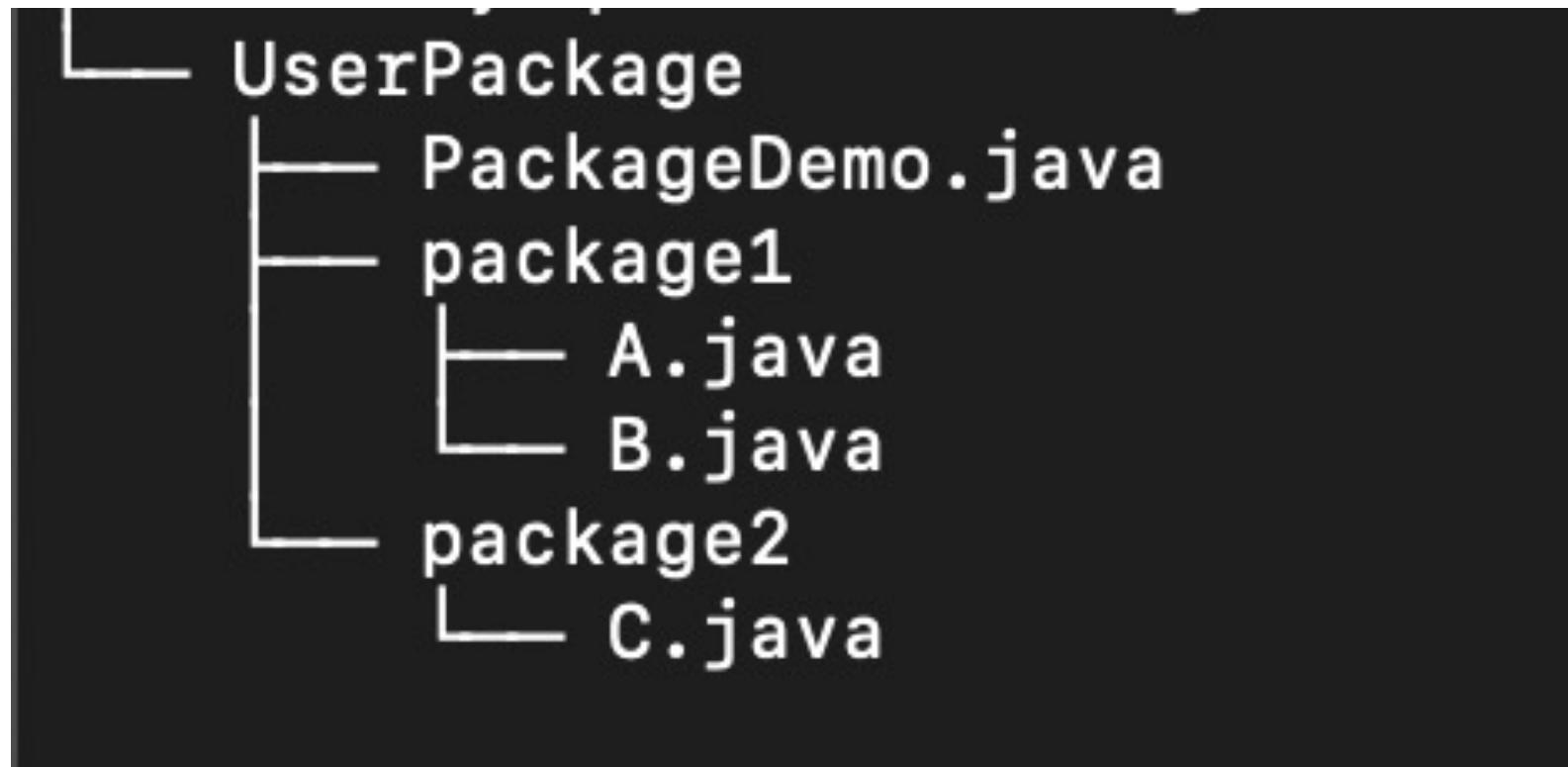
➤ Creating:

```
package <package_name>
public class <class_name>{
    //
}
```

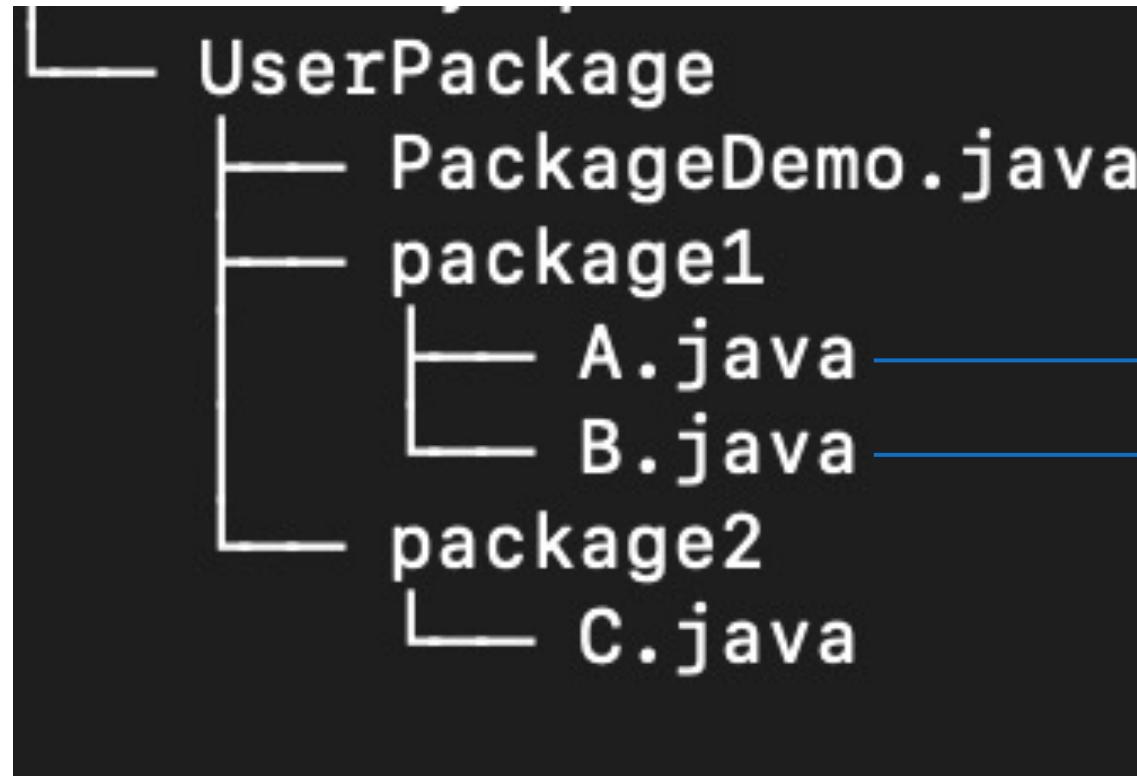
➤ Importing:

```
import <package_name>.<class_name>;
import <package_name>.*;
```

Example for User-Defined Packages



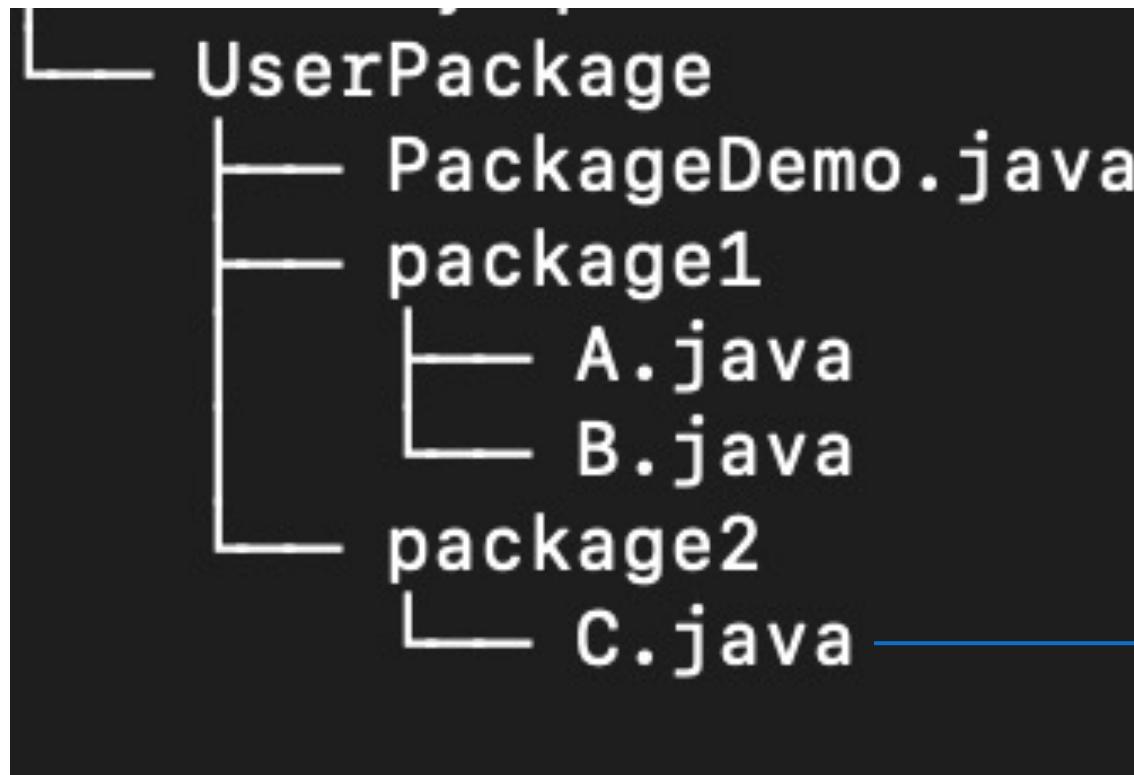
Example for User-Defined Packages



```
package package1;  
public class A{  
    public void showClassAMethod(){  
        System.out.println("");  
    }  
}  
package package1;  
public class B{  
    public void showClassBMethod(){  
        System.out.println("");  
    }  
}
```

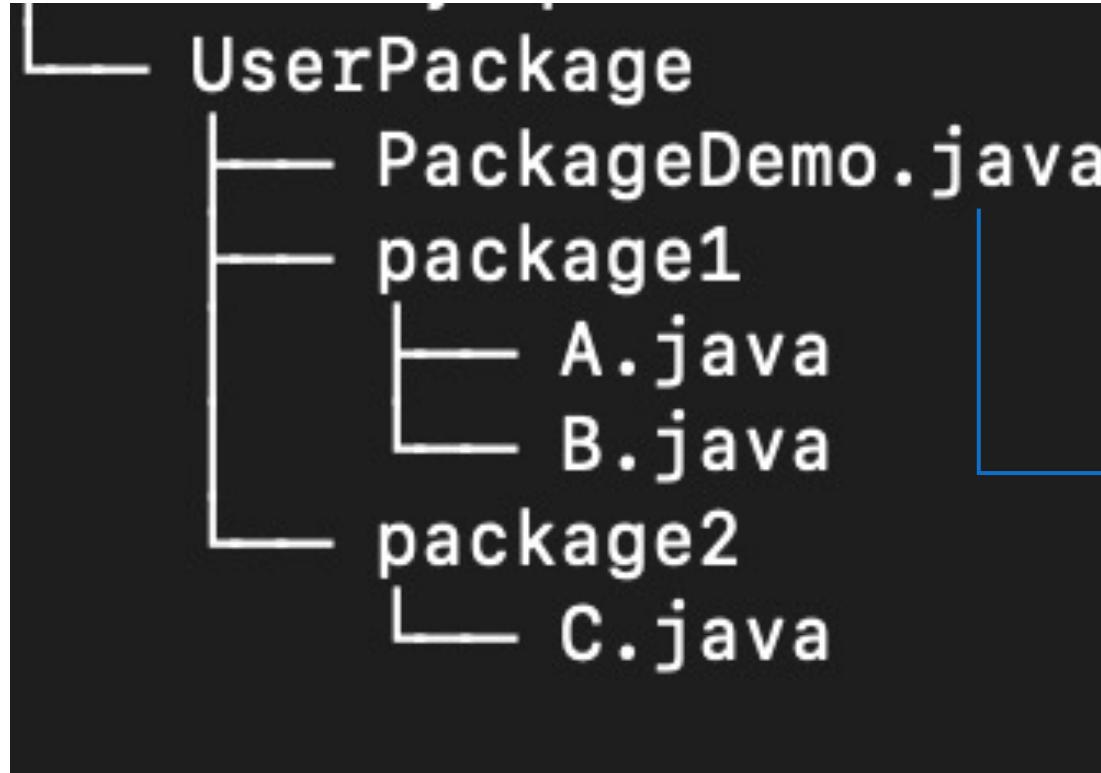
```
package package1;  
public class B{  
    public void showClassBMethod(){  
        System.out.println("");  
    }  
}
```

Example for User-Defined Packages



```
package package2;  
public class C{  
    public void showClassCMethod(){  
        System.out.println("");  
    }  
}
```

Example for User-Defined Packages



```
/ import package1.*;  
import package1.A;  
import package1.B;  
import package2.C;  
  
class PackageDemo{  
    public static void main(String arg[]){  
        A a=new A();  
        B b=new B();  
        C c=new C();  
        a.showClassAMethod();  
        b.showClassBMethod();  
        c.showClassCMethod();  
    }  
}
```

Thank you!