

Packages

- Group of similar types of classes, interfaces and sub-packages.
- Types of package:
 - Built-in package
 - User-defined package.

Benefits of packages

Uniquely Compare Classes

Easy Search

Reuse Classes

Avoid Naming Conflicts

Provide Controlled Access

Implement Data Encapsulation



Java API packages or built-in packages

- **java.lang:** It contains classes for primitive types, strings, math functions, threads, and exceptions.
- **java.util:** It contains classes such as vectors, hash tables, dates, Calendars, etc.
- **java.io:** It has stream classes for Input/Output.
- **java.net:** Classes for networking

User defined package

- Packages that are defined by the user

```
package myPackage;  
public class MyClass  
{  
    public void getNames(String s)  
    {  
        System.out.println(s);  
    }  
}
```

User defined package(Contd...)

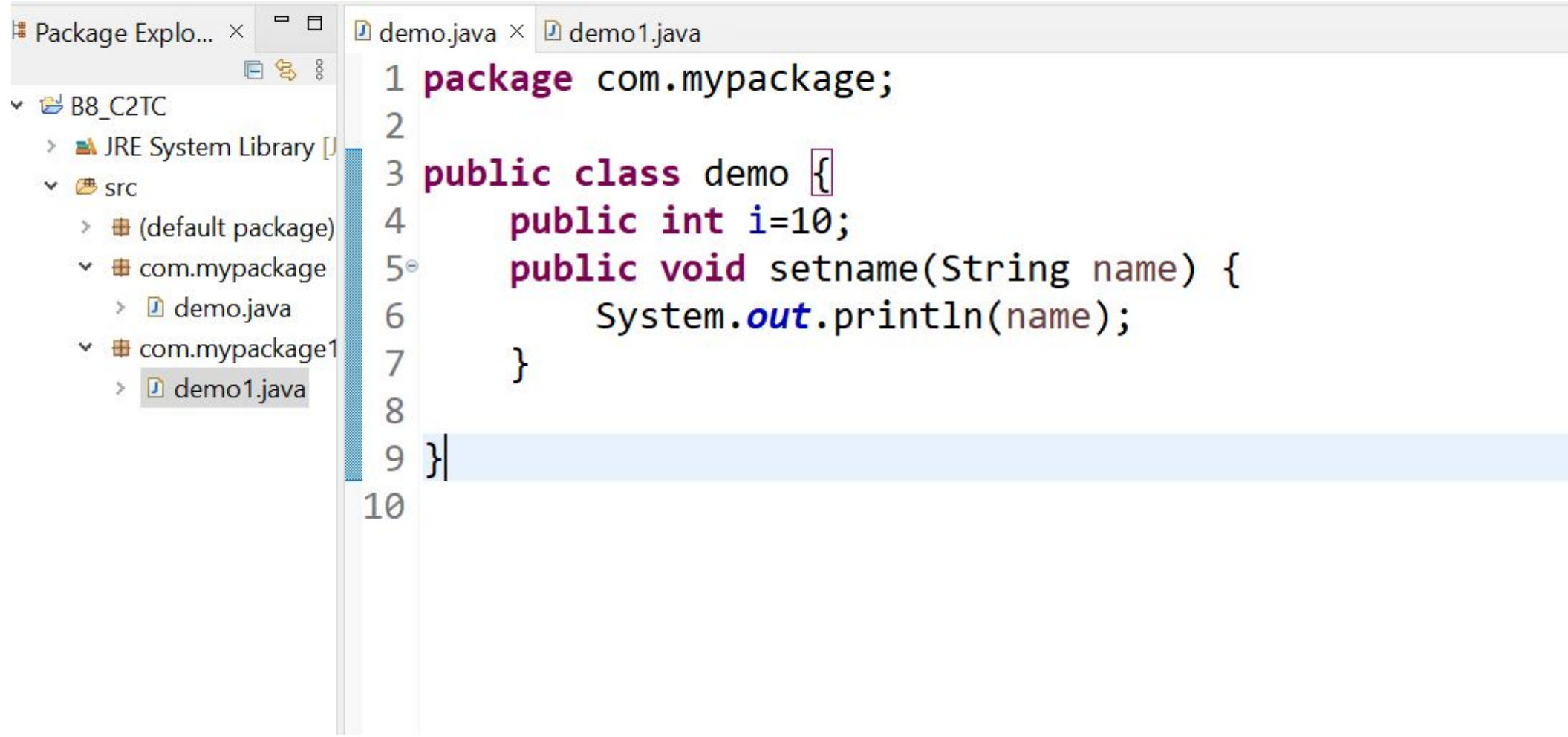
```
import myPackage.MyClass;

public class PrintName
{
    public static void main(String args[])
    {
        String name = "Welcome to C2TC Program";
        MyClass obj = new MyClass();
        obj.getNames(name);
    }
}
```

Using Packages

- Ways to access the package from outside the package.
 1. `import package.*;`
 2. `import package.classname;`
 3. fully qualified name.

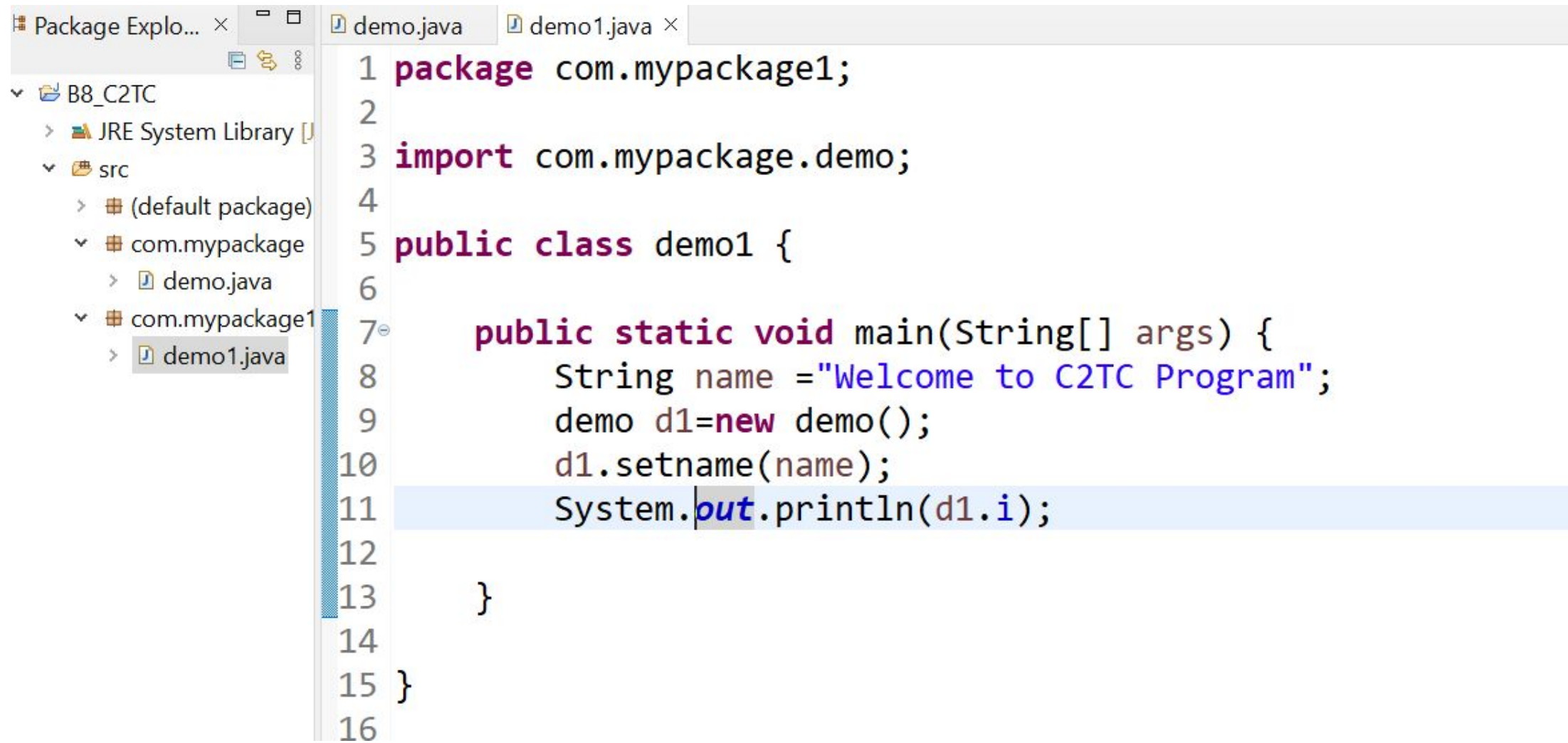
Packages - Example



The screenshot shows an IDE interface. On the left is the 'Package Explorer' window, which displays a project named 'B8_C2TC'. Under this project, there is a 'JRE System Library' and a 'src' folder. The 'src' folder contains two packages: '(default package)' and 'com.mypackage'. The 'com.mypackage' package contains two files: 'demo.java' and 'demo1.java'. The 'demo1.java' file is currently selected. On the right is the 'Code Editor' window, which shows the contents of 'demo1.java'. The code defines a package 'com.mypackage' and a public class 'demo'. The class has a public integer field 'i' initialized to 10, and a public void method 'setname' that takes a 'String name' parameter and prints it using 'System.out.println(name)'. The code is as follows:

```
1 package com.mypackage;
2
3 public class demo {
4     public int i=10;
5     public void setname(String name) {
6         System.out.println(name);
7     }
8
9 }
10
```


Packages - Example



The screenshot shows an IDE with a project explorer on the left and a code editor on the right. The project explorer shows a project named 'B8_C2TC' with a 'src' folder containing a package 'com.mypackage1' which includes a file 'demo1.java'. The code editor shows the content of 'demo1.java'.

```
1 package com.mypackage1;
2
3 import com.mypackage.demo;
4
5 public class demo1 {
6
7     public static void main(String[] args) {
8         String name = "Welcome to C2TC Program";
9         demo d1=new demo();
10        d1.setname(name);
11        System.out.println(d1.i);
12
13    }
14
15 }
16
```

Packages - Example

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

Packages – Example(Contd...)

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

Packages – Example(Contd...)

```
package myPack;
import pack.*;
class B
{
    public static void main(String args[]) {
        A obj = new A();
        C obj1 = new C();
        obj.msg();
        obj1.msg();
    }
}
```