Packages:

Sometimes we may wish to reuse the existing classes and interfaces in our program which are defined in another program. One way of achieving this is to physically copy these classes and interfaces from other programmes and copy them in our program and use it. But this is laborious process. Another way of achieving this is through packages.

A package is a collection of related classes and interfaces. We can easily access the classes and interfaces of a package in a program by importing that package into that program. In other words a package is a directory in which you keep related classes and interfaces. When you have your own directory and want to use the other directory in which the classes are defined you call them as packages in your program to access the classes and interfaces. It is like using the correct path to call the classes.

Syntax:

As a package normally contains several classes and interfaces, Java allows us to conveniently split up a package and keep its classes and interfaces separately in different source files. When we do so, each source file must have the package statement of the following from as its first statement:

Package package-name;

Example :

For the below program do the steps:

1. **Create a folder called mypackage.**
2. **Type the following program and store it as Balance.java**

//Packages

package mypackage;

class Balance

{

 String name;

 double bal;

Balance(String n,double b)

{

 name=n;

 bal=b;

}

void show()

{

 if(bal<0)

 System.out.println("-------------->");

 System.out.println(name+" : $ "+bal);

}

}

1. **Type the following in another separate file and name it as Account.java**

Package mypackage;

public class Account {

 public static void main(String[] args) {

 Balance current[]=new Balance[3];

 current[0]=new Balance("k.j.fielding",123.33);

 current[1]=new Balance("will tell",154.33);

 current[2]=new Balance("tom",-12.33);

 for(int i=0;i<3;i++)

 current[i].show();

 }

}

1. Now execute the command as shown below. In this case under the folder called myfirst, mypackage folder is created. Inside it Balance.java is saved.

E:\myfirst\mypackage>javac Balance.java

1. Next execute the below command to create Account.class file

E:\myfirst > javac mypackage\Account.java

1. Now move to the parent folder and execute the following command.

Java packagename.classfile name

E:\myfirst>java mypackage.Account

k.j.fielding : $ 123.33

will tell : $ 154.33

-------------->

tom : $ -12.33

Example 2:

In this create three directories with name **geometry2d, geometry3d** and **importdemo**

Inside the **geometry2d** create the file named **circle.java** and type the following codes

package geometry2d;

interface shape2d

{

double computearea();

}

public class circle implements shape2d

{

int radius;

public circle(int r)

{

radius=r;

}

public double computearea()

{

return 3.14\*radius\*radius;

}

}

You can see the snapshot: That is the file is created inside **geometry2d** folder as below: When you run the **circle.java** it will create **circle.class** and **shape2d.class (interface)**



Inside the **geometry3d** create the file named **cube.java** and type the following codes

package geometry3d;

interface shape3d

{

double computevolume();

}

public class cube implements shape3d

{

int side;

public cube(int s)

{

side=s;

}

public double computevolume()

{

return side\*side\*side;

}

}

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You can see the snapshot: That is the file is created inside **geometry3d** folder as below: When you run the **cube.java** it will create **cube.class** and **shape3d.class (interface)**

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Inside the **importdemo** create the file named **importdemo2.java** and type the following codes

package importdemo;

import geometry2d.\*;

import geometry3d.\*;

public class importdemo2

{

public static void main(String args[])

{

circle obj1=new circle(10);

System.out.println("area="+obj1.computearea());

cube obj2=new cube(5);

System.out.println("volume="+obj2.computevolume());

}

}

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You can see the snapshot: That is the file is created inside **importdemo** folder as below: When you run the **importdemo2.java** it will create **importdemo2.class**



access protection

java addresses four categories of visibility for class members:

* subclasses in the same package
* non-subclasses in the same package
* subclasses in different packages
* classes that are neither in the same package nor subclasses