

Experiment – 9

Package

LEARNING OUTCOMES:

Student will be able to

1. Create classes to develop package
2. Compile those class file and store all those class files in package
3. Execute the required operation related classes

OBJECTIVE:

To Create a package and Import packages from other packages.

REQUIRED APPARATUS:

1. Notepad/Editors (VS Code), JDK 1.7
2. Personal Computer with 2GB RAM, 320GB HDD and Pentium2 processor or above

Precautions and safety measures for a computer lab

1. Don't touch the switch boards with wet hands.
2. Don't operate a system if the walls are wet.
3. Keep the food and beverages outside workspace.
4. Shutdown and switch off properly the systems to avoid the system crash.
5. Keep footwear outside the lab so as to protect equipment from dust.
6. Know the place of fire extinguisher in lab

BRIEF THEORY

A package in Java is a collection of related classes and interfaces

There are two types of packages in java:

- **User-defined Package** (Create Your Own Package's)
- **Built-in packages** are packages from the java application programming interface that are the packages from Java API for example such as swing, util, net, io, AWT, lang, javax, etc.

CREATING USER-DEFINED PACKAGES:

Java also allows you to create packages as per user need. These packages are called user-defined packages. user-defined packages are created by using the "package" keyword.

Syntax:

package package-name;

Example:

Package cse;

Note: The package statement must be first statement

COMMON PROCEDURE:

Step 1: Open the editor(Notepad/VS editor)

Step 2: Type the program as shown

Step 3: Save the program.

Step 4: Compile the program using java compiler. If it is command prompt use the following instruction
C:/> javac filename . for example : javac ifexample.java

Step 5: Check and correct the errors then recompile

Step 6: Repeat the steps 3 and 4 until all the errors are corrected

Step 7: Run the program by the command line. If it is command prompt use the following code
C:/>java class name for ex: java if_Example.

Step 8: Provide the input for given program

Step 9: Run the tests for test cases. Check for the intended result.

Step 10: If the output corresponds to input then the program is executed successfully.

Syntax:

Creating package:

```
package myapp;
```

```
public class MyClass {
```

```
    public void display() {
```

```
        System.out.println("Hello from MyClass");
```

```
    } }
```

Note: Save the above file with class name only because it is public class i.e. MyClass.java .

Also see that the

package created and the file importing the package are in the same path or folder.

```
import myapp.MyClass;
```

```
public class Main {
```

```
    public static void main(String[] args) {
```

```
        MyClass obj1 = new MyClass();
```

```
        obj1.display();
```

```
    } }
```

//Write a Java program to create a package to accept student information

```
package cse;
```

```

import java.io.BufferedReader;
import java.io.InputStreamReader;
import java.io.IOException;

public class stuinfo {
    int phno,sub1,sub2,tot;
    float avg;
    String pin,name;

    public void getData() throws IOException {
        BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
        System.out.print("Enter PIN NO: ");
        pin= br.readLine();
        System.out.print("Enter Name: ");
        name = br.readLine();
        System.out.print("Enter Phone Number: ");
        phno = Integer.parseInt(br.readLine());
        System.out.print("Enter sub1 Marks:");
        sub1=Integer.parseInt(br.readLine());
        System.out.print("Enter sub2 Marks:");
        sub2=Integer.parseInt(br.readLine());
        tot=sub1+sub2;
        avg=tot/2;
        System.out.println("sub1 Marks:"+sub1);
        System.out.println("sub2 Marks:"+sub2);
        System.out.println("Total Marks:"+tot);
        System.out.println("Average:"+avg);
    }
}

```

File Name:stuinfo.java

To Compile: javac -d . stuinfo.java

The -d options tells the compiler to put the generated class files into specified directory.

Importing packages from other packages:

In java, the import keyword used to import built-in and user-defined packages.

Syntax:

```

import packageName.ClassName; // import specific class in package
import packageName.*; //import all classes in package

```

**An example Java program to import a package, create object for package class and p
class related
activities**

```
import cse.stuinfo;  
import java.io.IOException;  
public class Main_new {  
    public static void main(String[] args) {  
        try {  
            stuinfo student = new stuinfo();  
            student.getData();    }  
        catch (IOException e) {  
            System.err.println("An error occurred while reading input.");  
            e.printStackTrace();  
        }  
    }  
}
```

File Name:Main_new.java

Execution:java Main_new

Output:

C:\Users\CME DEPARTEMENT\Desktop\java>javac -d . stuinfo.java //compile

C:\Users\CME DEPARTEMENT\Desktop\java>javac Main_new.java

C:\Users\CME DEPARTEMENT\Desktop\java>java Main_new

Enter PIN NO: 233EE090

Enter Name: VANI

Enter Phone Number: 900000009

Enter sub1 Marks:36

Enter sub2 Marks:40

sub1 Marks:36

sub2 Marks:40

Total Marks:76

Average:38.0

Here, Above Java program having classes, stuinfo and Main_new, which
intended to work together. The stuinfo class is part of the cse package, and the M
class interacts with it.

Sample Viva questions:

1. What is a package in Java?