



PARSHVANATH CHARITABLE TRUST'S

A.P. SHAH INSTITUTE OF TECHNOLOGY

Department of Computer Science and Engineering
Data Science

Subject: SBL-OOPJ

Class: SE-DS

Semester: III

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Experiment No. 5

- ❖ **Aim :** To write a Java program on packages.
- ❖ **Objective :** To learn how to create user defined java package and access that package in your program.
- ❖ **Software used :** jdk 1.6.0
- ❖ **Prerequisites :**

Packages in java is group or collection of classes/interfaces or sub packages. So before starting this practical students should know importance of class and the need of grouping few classes together (to build package) in java programming.

Also students should know about system defined packages like util & system defined classes like scanner, string, vector etc in java language .

- ❖ **Problem Statement :**

Write a java program to developed user define packages & to access the user define package through another package.

- ❖ **Theory :**

- A package as the name suggests is a pack(group) of classes, interfaces and other packages.
- In java we use packages to organize our classes and interfaces.
- We have two **types of packages in Java:**
 - built-in packages and
 - user defined package (the packages we can create)
- There are many built-in packages such as java, lang, awt, javax, swing, net, io, util, sql etc.
for example when we need user input, we import a package like this:
`import java.util.Scanner`



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Here,

- **java** is a top level package
- **util** is a sub package
- and **Scanner** is a class which is present in the sub package **util**.

CREATING A USER-DEFINED PACKAGES :

- The package which is created by user is called user-defined package.
- In java, the **package keyword** is used to create a package.
- To compile a user-defined packages, one must use the following syntax :
`javac -d directory javafilename`
 - The -d switch specifies the destination where to put the generated class file.
 - You can use any directory name like /home (in case of Linux), d:/abc (in case of windows) etc.
 - If you want to keep the package within the same directory, you can use . (dot).
- User-defined java package program can be executed by using fully qualified name.
i.e. We need to specify the actual package name given to the created package to execute program, as shown in following syntax.
e.g. *Package Name.class name*
- Example :

```
//save as Simple.java  
package mypack;  
public class Simple{  
    public static void main(String args[]){  
        System.out.println("Welcome to package");  
    }  
}
```

- In above program Name of Package is mypack & Name of class is Simple.
- **How to access package from another package**
- In java, “*import*” keyword is used to access package from another package.



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➤ There are three ways to access the package from outside the package.

1. Using packagename.*
2. Using packagename.classname
3. Using Fully qualified Name of package.

1] Using packagename.* :

- If you use package.* then all the classes and interfaces of this package will be accessible except subpackages of that package.
- The import keyword is used to make the classes and interface of another package accessible to the current package.
- Example :

```
//save by A.java  
package pack;  
public class A{  
    public void msg(){System.out.println("Hello");}  
}
```

```
//save by B.java  
package mypack;  
import pack.*;  
  
class B{  
    public static void main(String args[]){  
        A obj = new A();  
        obj.msg();  
    }  
}
```

2] Using packagename.classname

- If you import package.classname then only declared class of this package will be accessible.
- That means if we want to access any particular class from one package to another package then we can use this method.
- Example :



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```
//save by A.java
```

```
package pack;

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

```
//save by B.java
```

```
package mypack;

import pack.A;

class B{
    public static void main(String args[]){
        A obj = new A();
        obj.msg();
    }
}
```

3] Using Fully Qualified Name :

- If you use fully qualified name then only declared class of this package will be accessible.
- Now there is no need to import. But you need to use fully qualified name every time when you are accessing the class or interface.
- It is generally used when two packages have same class name e.g. java.util and java.sql packages contain Date class.
- Example :

```
//save by A.java
```

```
package pack;

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

```
//save by B.java
```

```
package mypack;

class B{
    public static void main(String args[]){
        pack.A obj = new pack.A();//using fully qualified name
        obj.msg();
    }
}
```

CONCLUSION : Summaries what you understood from this lab.