Experiment Number : 9 **Date:**

Implementation of a Java Program to import packages using different methods

Aim:

Write a Java program to import packages using different methods for different use cases.

PRE LAB EXERCISE

QUESTIONS

1. How to import a single class and multiple classes from a package in Java?

To import a single class from a package in Java, you use the import keyword followed by the full package name and the class name. For example, if you want to import only the Scanner class from the java.util package, you write import java.util.Scanner;. This allows you to use the Scanner class directly in your program without writing the full package name every time. To import multiple classes from the same package, you can use the wildcard symbol *. For example, import java.util.*; imports all classes available in the java.util package, so you can use classes like ArrayList, Vector, Scanner, etc., directly in your code.

2. Which package is always imported by default in every Java class?

The package that is always imported by default in every Java class is java.lang. You do not need to explicitly import it because the Java compiler automatically makes it available. Classes such as String, System, Math, Integer, and Objectbelong to java.lang, which is why you can use them without writing an import statement

IN LAB EXERCISE

Objective

To understand and implement the Java packages using different methods and import them.

Problem

Define a package named ‘useFul’ with a class names ‘UseMe’ having following methods:

1) area()- To calculate the area of given shape.

2) salary()- To calculate the salary given basic Salary,da,hRA.

3) percentage()-To calculate the percentage given total marks and marks obtained.

4) Develop a program named ‘Package Use’ to import the above package ‘useFul’ and use the method area().

5) Develop a program named ‘manager’

Source Code

```
//Package Creation:

package useFull;

import java.util.*;

public class UseMe

{

        Scanner obj=new Scanner(System.in);

public static void area()

      {

          class method{

            void aos(int a)

            {

              System.out.print("\nArea of square with length "+a+" is "+(a*a));

            }

            void aor(int a,int b)

            {

              System.out.print("\nArea of reactangle with dimensions "+a+" & "+b+" is "+(a*b));
```

```
    }
    void aoc(int r)
   {
     double a=3.14*r*r;
    }
   System.out.print("\nArea of circle with radius "+r+" is "+a);
}
void aot(int a,int b)
 {
   float ar=(a*b)/2;
   System.out.print("\nArea of triangle with dimensions "+a+" &"+b+" is "+ar);
 } }
Scanner obj=new Scanner(System.in);
method m=new method();
System.out.print("\n1.Square\n2.Rectangle\n3.Circle\n4.Triangle\nSelect the shape\n");
int ch=obj.nextInt();
UseMe u=new UseMe();
switch(ch)
        {
        case 1:System.out.print("\nEnter the length of side of square : ");
                int s=obj.nextInt();m.aos(s);
                break;
        case 2:System.out.print("\nEnter the dimensions of rectangle : ");
                int l=obj.nextInt();
                int b=obj.nextInt();
                m.aor(l,b);
                break;
        case 3:System.out.print("\nEnter the radius of circle : ");
```

```
                    int r=obj.nextInt();
                    m.aoc(r);
                    break;
                case 4:System.out.print("\nEnter the dimensions of triangle : ");
                    int ba=obj.nextInt();
                    int w=obj.nextInt();
                    m.aot(ba,w);
                    break; } }
public void salary()
   {
        int ba,da,hra;
        System.out.print("\nEnter the basic salary : ");
        ba=obj.nextInt();
        System.out.print("\nEnter the dearness allowance :");
        da=obj.nextInt();
        System.out.print("\nEnter the house rent allowance : ");
        hra=obj.nextInt();
        System.out.print("\nThe total Gross salary of employee is : "+(ba+da+hra));
    }
public void percentage()
    {
        int n,sum=0;
        float p;
        System.out.print("\nEnter the total number of subjects : ");
        n=obj.nextInt();
        int m[]=new int[n];
        System.out.print("\nEnter the marks of "+n+" subjects : ");
        for(int i=0;i<n;i++)
```

```
        {
            m[n]=obj.nextInt();
        }
        for(int i=0;i<n;i++)
        {
             sum=sum+m[i];
        }
        p=sum/n;
        {
                System.out.print("\nPercentahe of student : "+p);
        }
    }
}
//Package Implementation-1:
        import useFull.UseMe;
        class packageUse
        {
                public static void main(String args[])
                {
                UseMe o=new UseMe();o.area();
                }
        }
```

Output

javac packageUse.java

java packageUse

1. Square
2. Rectangle
3. Circle

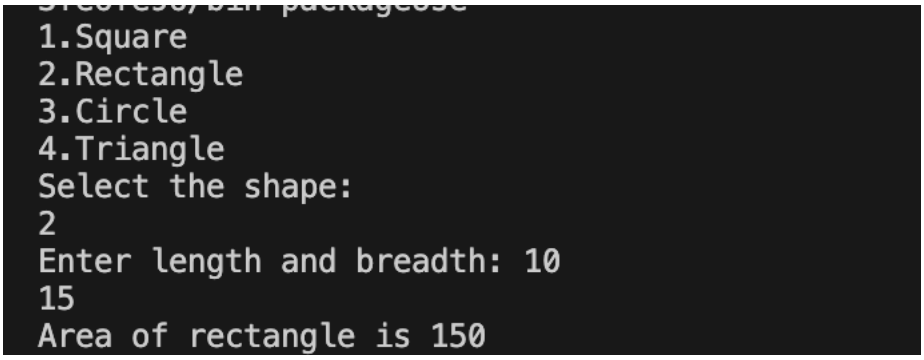
4. Triangle

   Select the shape

   2

   Enter the dimensions of the rectangle: 10 15

   Area of the rectangle with dimensions 10&15 is 150



//Package Implementation-2:

```
import useFull.UseMe;
class manager
{
   public static void main(String args[])
   {
    UseMe obj=new UseMe();obj.salary();
    }
```

}

Output

javac manager.java

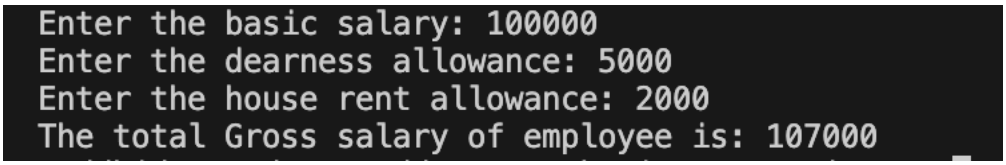
java manager

Enter the basic salary: 100000

Enter the dearness allowance: 5000

Enter the house rent allowance: 2000

The total Gross salary of employee is: 107000



POST LAB EXERCISE

1. Find the key differences between java.util and java.lang packages.

The main difference between the java.util and java.lang packages is their purpose and usage. The java.lang package contains fundamental classes that are essential for basic programming in Java, such as String, System, Math, Object, Integer, and Thread. This package is automatically imported by default in every Java program, so there is no need to write an import statement for it. On the other hand, the java.util package provides utility classes that support data structures, collections, date and time handling, random number generation, and user input. It includes important classes and interfaces such as ArrayList, LinkedList, HashMap, HashSet, Vector,

Scanner, and Date. Unlike java.lang, the java.utilpackage must be imported explicitly if its classes are used.

2. List some of the subpackages of java.util

Some of the subpackages of java.util include java.util.concurrent, which provides support for multithreaded programming; java.util.function, which contains functional interfaces used in lambda expressions; java.util.logging, which supports logging operations; java.util.regex, which provides classes for regular expression handling; and java.util.stream, which supports stream processing introduced in Java 8.

ASSESSMENT

Description	Max Marks	Marks Awarded
Pre Lab Exercise	**5**	
In Lab Exercise	**10**	

Post Lab Exercise	**5**	
Viva	**10**	
Total	**30**	
Faculty Signature		