Experiment Number : 9 **Date: 26-02-26**

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24BCS285

CSE-A1

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?
   Single class:

```java
import java.util.ArrayList;
```

Multi Class:

```java
import java.util.*;
```

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`

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

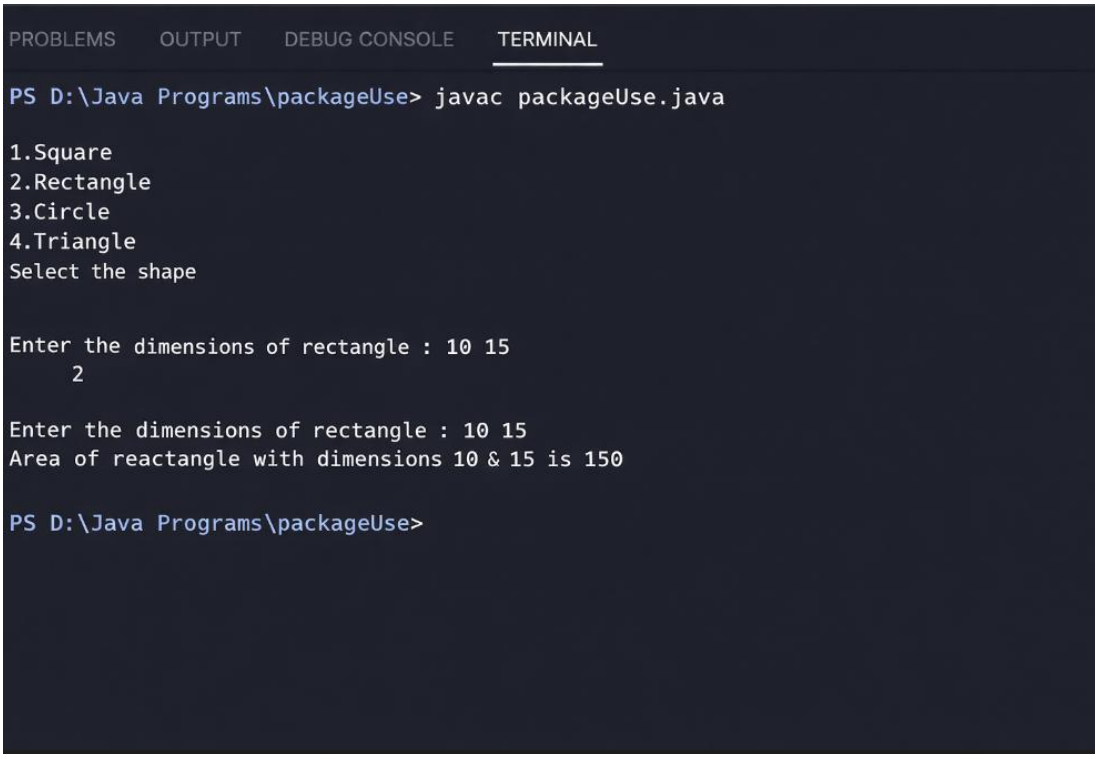
javac packageUse.java

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

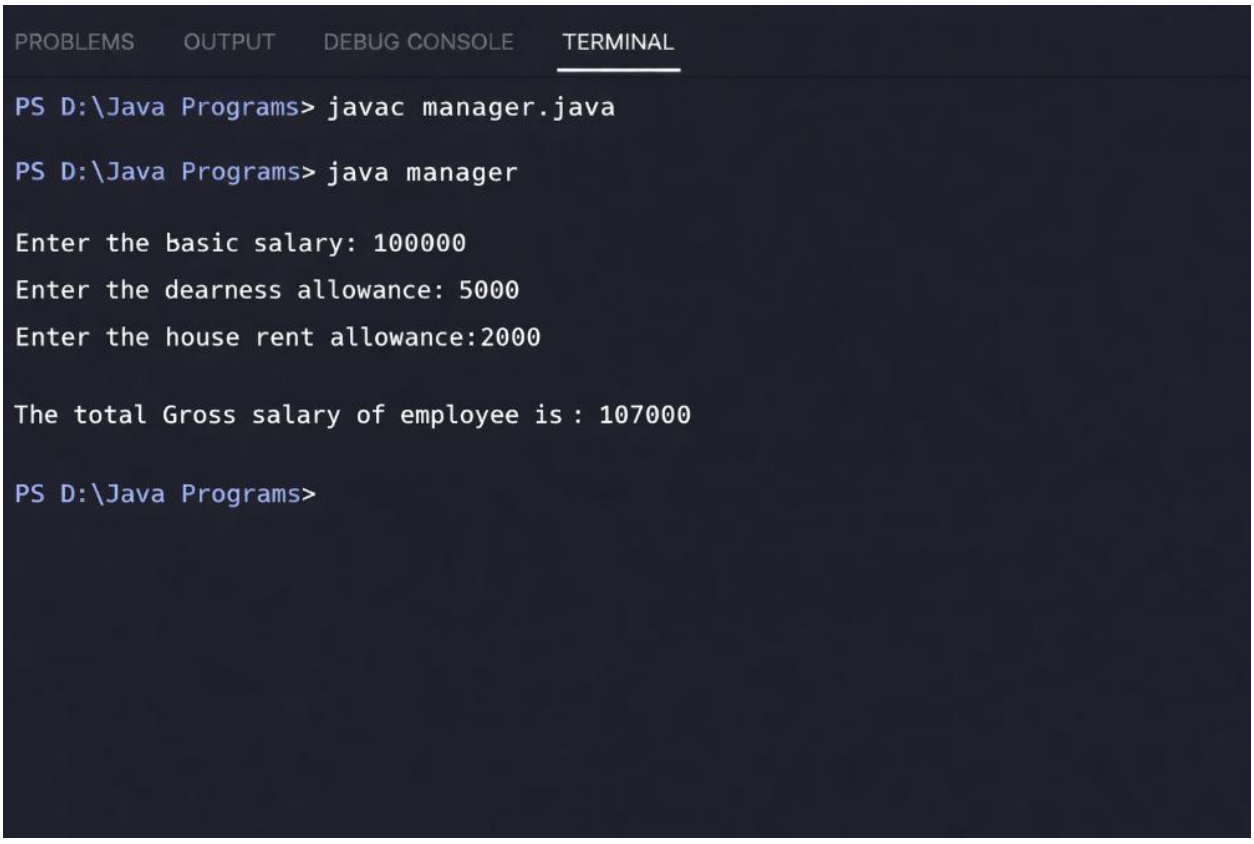
java manager

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.

Aspect	`java.lang`	`java.util`
Purpose	Core language support	Utility classes & data structures
Import required?	❌ No (auto-imported)	✅ Yes (`import java.util.*;`)
Contains	Fundamental classes needed for any Java program	Helper classes for collections, date/time, scanning, randomness, etc.
Usage frequency	Used in **every** Java program	Used when you need utilities
Examples of classes	`Object`, `String`, `Math`, `System`, `Thread`, `Exception`	`Scanner`, `ArrayList`, `HashMap`, `Date`, `Random`, `Collections`
Dependency level	Lowest level (base of Java)	Built on top of core language

2. List some of the subpackages of java.util

- **java.util.concurrent**
→ Multithreading utilities (Executor, Future, Locks)
- **java.util.concurrent.atomic**
→ Atomic variables for thread-safe operations
- **java.util.concurrent.locks**
→ Advanced locking mechanisms
- **java.util.function**
→ Functional programming (Predicate, Function, Consumer)
- **java.util.stream**
→ Stream API for functional-style data processing
- **java.util.regex**
→ Regular expressions (Pattern, Matcher)
- **java.util.spi**
→ Service Provider Interfaces (rarely used by beginners)

ASSESSMENT

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

Viva	**10**	
Total	**30**	
Faculty Signature		