

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?
In Java, a **single class** can be imported using the import packageName.ClassName; statement, and **multiple classes** can be imported using the import packageName.*; statement, which imports all classes of that package.
2. Which package is always imported by default in every Java class?
The **java.lang package** is automatically imported by default in every Java program. It contains essential classes like System, String, and Math.

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[i]=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

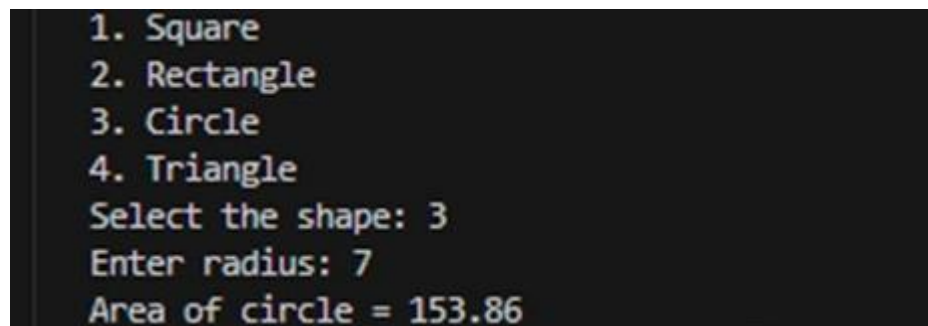
```
javac packageUse.java
```

```
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



```
1. Square  
2. Rectangle  
3. Circle  
4. Triangle  
Select the shape: 3  
Enter radius: 7  
Area of circle = 153.86
```

```
//Package Implementation-2:
```

```
import useFull.UseMe;
```

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

Output

```
javac manager.java
```

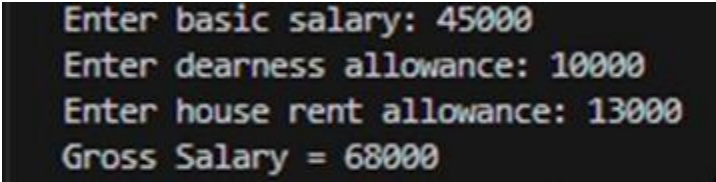
```
java manager
```

Enter the basic salary: 100000

Enter the dearness allowance: 5000

Enter the house rent allowance: 2000

The total Gross salary of employee is: 107000

A screenshot of a terminal window showing the output of the Java program. The text is as follows:

```
Enter basic salary: 45000
Enter dearness allowance: 10000
Enter house rent allowance: 13000
Gross Salary = 68000
```

POST LAB EXERCISE

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

java.lang	java.util
Automatically imported by default	Must be imported explicitly
Contains core language classes	Contains utility and collection classes
Examples: String, System, Math, Object	Examples: Scanner, ArrayList, HashMap, Date

2. List some of the subpackages of java.util

Some important subpackages of java.util are:

- java.util.concurrent
- java.util.function
- java.util.regex
- java.util.stream
- java.util.logging

ASSESSMENT

Description	Max Marks	Marks Awarded
Pre Lab Exercise	5	
In Lab Exercise	10	
Post Lab Exercise	5	
Viva	10	
Total	30	
Faculty Signature		

