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24BCS298

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

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

PS D:\Java Programs\packageUse> javac packageUse.java

1.Square
2.Rectangle
3.Circle
4.Triangle
Select the shape

Enter the dimensions of rectangle : 10 15
2

Enter the dimensions of rectangle : 10 15
Area of reactangle with dimensions 10 & 15 is 150

PS D:\Java Programs\packageUse>
```

//Package Implementation-2:

```
import useFull.UseMe;

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

## Output

```
javac manager.java
```

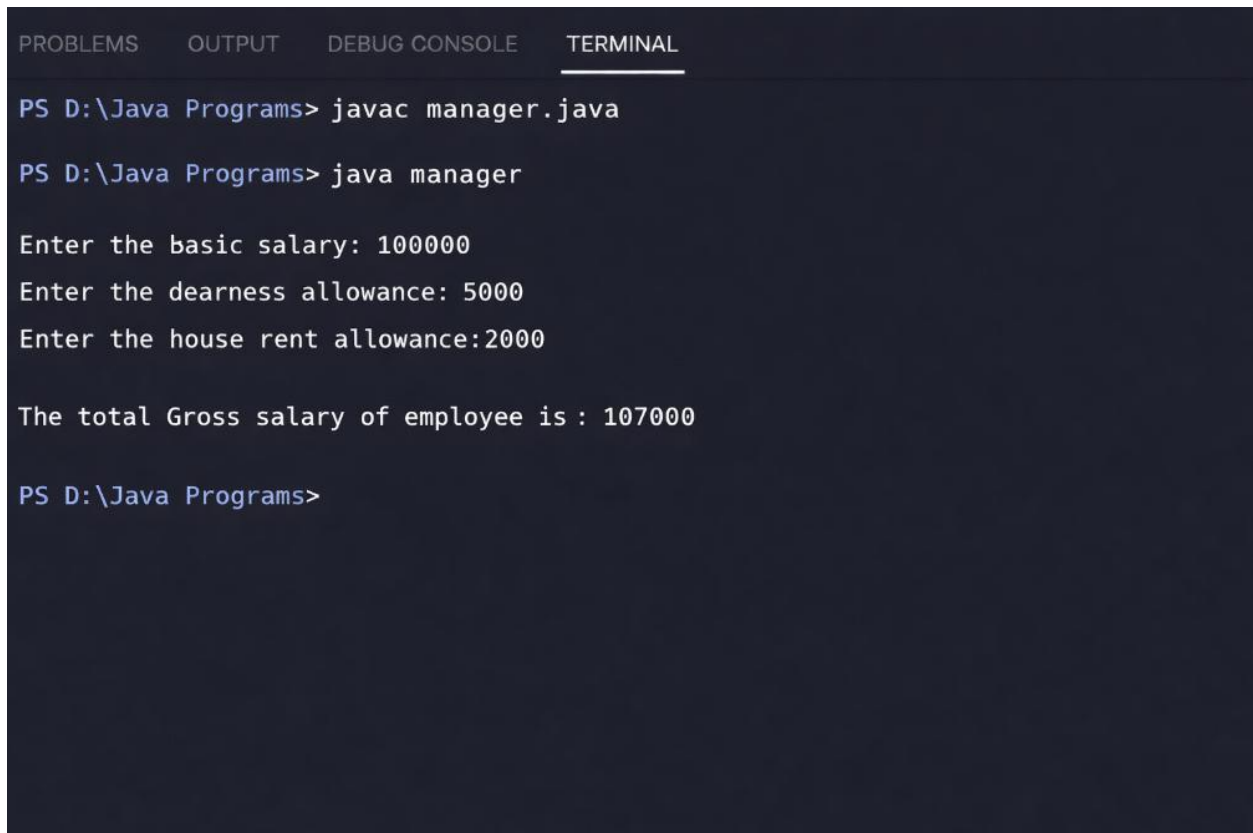
```
java manager
```

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 Java IDE's terminal window. The terminal has tabs for 'PROBLEMS', 'OUTPUT', 'DEBUG CONSOLE', and 'TERMINAL', with 'TERMINAL' being the active tab. The command prompt shows the user is in the directory 'D:\Java Programs'. The user enters 'javac manager.java' to compile the program, followed by 'java manager' to run it. The program prompts the user for three values: 'Enter the basic salary: 100000', 'Enter the dearness allowance: 5000', and 'Enter the house rent allowance:2000'. After these inputs, the program outputs 'The total Gross salary of employee is : 107000'. The prompt returns to 'PS D:\Java Programs>'.

## 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 ( <code>import java.util.*;</code> )
Contains	Fundamental classes needed for any Java program	Helper classes for collections, date/time, scanning, randomness, etc.
Usage frequency	Used in <b>every</b> 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		