

OOPM Lab

Lab Assingment number 07

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Aim: Write a JAVA program to implement the concept of Package

Theory:

Package:

A package in Java is used to group related classes. Think of it as a folder in a file directory. We use packages to avoid name conflicts, and to write a better maintainable code.

Uses of Package:

1. Packages provide code reusability, because a package contains group of classes
2. It helps in resolving naming collision when multiple packages have classes with the same name.
3. Packages also provides the hiding of class facility, Thus, other programs can not use the classes from hidden package.
4. Access limitation can be applied with the help of packages.
5. Nesting of packages, that is, one package can be defined in another package in a hierarchy fashion.

Types of Packages:

1. Built-in Packages (packages from the Java API)
 - i. The Java API is a library of pre written classes, that are free to use, included in the Java Development Environment.
 - ii. The library is divided into packages and classes. Meaning you can either import a single class (along with its methods and attributes), or a whole package that contain all the classes that belong to the specified package.
2. User-defined Packages (create your own packages)
 - i. Packages created by user to increase reusability and simplicity of code

Program

credit package

```
// code
package credit;
public class AmountInWords {
    // data member
    int amount = 0;
    int temp = 0;
    // method to get amount from the user
    public void getAmount(int amount) {
        this.amount = amount;
    }

    // method to display the amount
    public void displayAmount() {
        int num;
        String word = "";
        // units
        String[] units = new String[] { "zero", "one", "two", "three", "four", "five", "six", "seven",
            "eight", "nine", "ten", "eleven", "twelve", "thirteen", "fourteen", "fifteen", "sixteen", "seventeen",
            "eighteen", "nineteen" };
        // tens
        String[] tens = new String[] { "zero", "ten", "twenty", "thirty", "forty", "fifty", "sixty",
            "seventy", "eighty", "ninety" };

        while (amount != 0) {
            if (amount == 10000) { // lakhs
                word = "one lakh";
                break;
            }
            if (amount < 100000 && amount >= 1000) { // thousand
                if (amount < 100000 && amount >= 10000) {
                    word += tens[amount/10000];
                    word += " ";
                    amount = amount % 10000;
                }
                if (amount < 10000 && amount >= 1000) {
                    word += units[amount/1000];
                    word += " thousand ";
                    amount = amount % 1000;
                }
            }
            if (amount < 1000 && amount >= 100) { // hundreds
```

```

        word += units[amount/100];
        word += " hundred ";
        amount = amount % 100;
    }
    if (amount == 0) { // check for zero
        break;
    }
    if (amount < 100) { // tens
        if (amount < 20) {
            word += units[amount%100];
            word += " ";
            amount = amount / 100;
        } else {
            word += tens[amount/10];
            word += " ";
            amount = amount%10;
        }
    }
}
System.out.println(word);
}
}

```

Driver Class

// code

```

import java.util.*;
import credit.*;

class UsePackage {
    public static void main(String args[]) {
        Scanner sc = new Scanner(System.in);
        AmountInWords obj = new AmountInWords();
        System.out.print("Enter the amount : ");
        int amount = sc.nextInt();

        obj.getAmount(amount);
        System.out.print("Amount i n word : ");
        obj.displayAmount();
    }
}

```

// output

```
E:\Sem-3\LabWork - Assignments\OOPM\Lab Assignment 7>javac UsePackage.java
```

```
E:\Sem-3\LabWork - Assignments\OOPM\Lab Assignment 7>java UsePackage
```

```
Enter the amount : 99999
```

```
Amount in word : ninety nine thousand nine hundred ninety nine
```

```
E:\Sem-3\LabWork - Assignments\OOPM\Lab Assignment 7>java UsePackage
```

```
Enter the amount : 54781
```

```
Amount in word : fifty four thousand seven hundred eighty one
```

```
E:\Sem-3\LabWork - Assignments\OOPM\Lab Assignment 7>■
```