Wednesday, April 20, 2022 9:34 AM

keywords
public static ,null new ,if else, for , while ,boolean, import , break, this,
true , void , false , continue, private ,case , do , return , switch , final , default

package !!!

packages in JAVA ----------

what is a package ? Package is a folder name OR directory name

Libraries = API (Application Program Interface) = ready made methods and classes

Java programmer
1. Class writer ---- creating the API
2. Class User ---- use the API

---

class Book
Properties -- int id, String bookName
2 constructors
Getters and setters

class UserOfBook
main
create book using default constructor
Set values using setters
Print values using getters

create a book using parameterized constructor (no need of setter)
print values using getters .

Q ---- if I have TWO SOURCE files One.java , Planet.java
One.java Consists of 3 classes One Two Three
Planet.java consists of 2 classes Earth Mars

If we compile One.java and Planet.java
What will be the output ?
5 .class files ? One.class, Two.class , Three.class , Earth.class, Mars.class

Will we have Planet.class ?? NO

Packages are needed to ORGANIZE the class files .

package keyword is written outside the class .
package gives info about WHERE to keep the .class files of the classes
when the compiler reads the package keyword --compiler will create the folder and copy the .class in that folder.

Add the Book class in a package study.basics --- study folder , it has a subfolder basics , it has the .class
Add the UserOfBook class in a package study.users ---- study folder , it has subfolder users , it has the .class

---

Workspace

Projectfolder
src = SOURCE FILES == .java files
bin = Binary Files = .class files

Book is the PACKAGED class NOW !!!
Book must be accessed using PACKAGE QUALIFIED ClassName

How to create packages using notepad ?
We have a file One.java
Add package pack1.pack2.pack3

Compile this using javac -d . One.java } this will create the pack1 folder in whichever is the current directory

compile this using javac -d ./bin One.java } this will create the pack1 folder in bin folder of the current directory

compile this using javac -d E:/cdac/iet/java One.java } this will create the pack1 folder in E:/cdac/iet/java folder of the current directory

-d option of javac command , it tells WHERE to create the package

---

import study.basics.Book;

import is a keyword .
import is written outside the class
import is followed by the PACKAGE QUALIFIED CLASS NAME

When compiler reads the import keyword ---------- the compiler checks the entire file for the occurrences of **Book**
Wherever it find Book , it will replace it with Package qualified class name
Just like find and replace

import study.basics.* (it does not check for sub packages Only classes of the current package)
We tell the compiler
If you find any class of study.basics package in my code , replace the class name with package qualified class name

---

HW 1 ----------

Write a class study.basics.maths.Calculator
add a method **public static int calculate(int num1 , int num2, char operator)**
Use switch case --- + return sum and so on …

Write a class study.users.CalcUser
Main
accept two numbers from the user and a char from the user
Pass it to the calculate method of Calculator class and show the output

---

Access Specifiers / Scopes in Java :-

Java has 4 scopes and 3 access specifiers

scope	Access specifier Keyword	Visibility
private scope	**private**	**private properties/attributes or private methods or private constructors can be accessed a) ONLY within the class where they are defined**
package scope Also called as default scope	**NA**	**package scope class or properties or methods or constructors can be accessed a) within the class where they are defined + b) within any class of the same package**
protected scope	**protected**	**protected scope properties /methods /constructors can be accessed within the a) within the class where they are defined + b) within any class of the same package + c) within any sub class in any package**
public scope	**public**	**public class/property /method /constructor Can be accessed within the a) within the class where they are defined + b) within any class of the same package + c) within any sub class in any package + d) within any class in any package**

Ex1 ---- Write a class study.scopes.Alpha
Write a private property int data

Public static void test0
{
Create object of Alpha
set data to 300
}

Write a class study.scopes.Beta

public static void test1()
{
Create object of Alpha
And set the value of data to 100
}

Write a class study.another.Gama
public static void test2()
{
Create object of Alpha
Set the value of data to 200
}

HW 2-------

Part1 ---- write following non static methods in Alpha class written by us.

```
private void show1()
        show the values of data, data2, data3

void show2()  //default scope
        show the values of data, data2, data3

public void show3()
        show the values of data, data2, data3
```

In test0 , test1 and test3 call all the show methods , observe if they compile or not , write comments giving reasons

---

Part2 ---------- write a public class study.example.Delta

```
public Delta() {  sysout  no parameter constructor of  Delta }

private Delta(String name)
        {
                Sysout   hello + name
        }

Delta(int x)  //default scope
{
    Sysout  you passed  x
}


public static void test0()
{
        Create 3 Delta objects using each constructor
}
```

Write a public class study.example.Theta

```
{
        public static void test1 ()
        {
                Create 3 Delta objects using each constructor, observe which constructors compile or not give
                reasons in comments
        }

}
```

Write a class study.example.users.User

```
public static void test2 ()
{
        Create 3 Delta objects using each constructor, observe which constructors compile or not give reasons
        in comments
}
```

Data Types in Java ----------

8 Primitive Data Types in Java

byte	integer value	1 byte
short	integer value	2 bytes
int	integer value	4 bytes
long	integer value	8bytes
float	floating point value	4bytes

double	floating point value	8 bytes
char	single character value	Unicode character 2 bytes
boolean	true or false	differs from JVM to JVM

WHAT is the effect of size of data type ? It changes the range of values that can be assigned to the variable of that data t ype.

byte data type - - - - - - - - 8 bits and two alphabets 0 and 1 } how many combinations --- 2 raised to 8 = 256

To accommodate +ve and -ve = 256/2=128

-128 to +127

Ex1 ---------- write a class study.datatypes.Example1

main

int x ==========variable

22 ==========literal

double d ==========variable

23.45 ========literal

char ch = ========== variable

'A' ==========literal