27-FEB-2020

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OOPS CONCEPTS

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JAVA PROGRAM STRUCTURE

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1. Class with main method only

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Syntax: package package.name;

public class class.name

{

// declaration

}

public static void main (String [] args)

{

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------------------// statements

}

where as script will execute whichever we have written in main method only

Disadvantage:

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Script is not reusable

2. Class with multiple methods:

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In general with the class we can create one or more methods or functions

Advantages:

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Reusability of the script within the class (or) another class

- Script is easy to understand

- Easy to identify any logical errors

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There are 2 types of methods/functions in a class

1. Static method

2. Non-static method

1. Static Method

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When we created method with "static" keyword then these method directly we can call into main method using name of static method

-- If these methods to call into another class then we need to use Class

Ex: Classname.methodname();

Syntax: { to create static method }

public static void methodName(){

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----- // statements

}

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Ex: Write program to perform different arithmetic operations using static methods in a class

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package oops.concept;

public class ArithmeticEX {

static int result;

//to perform addition

public static void sumOf() {

int a= 10;

int b= 20;

result= a+b;

System.out.println("Sum of given numbers is: "+result);

}

//to perform multiplication

public static void multiOf() {

System.out.println(result);

int x= 5;

int y= 9;

result= x\*y;

System.out.println("Multiplication of given numbers is: "+result);

}

public static void main(String[] args) {

sumOf();

multiOf();

}

}

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2. Non-static Methods

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In general we prefer non-static methods

Syntax: { for Non-static method }

public void methodName () {

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------ } Script

}

To call these non-static methods we need to create instance object for the class and then using that instance object we can call non-static methods

Syntax: { to create Instance object for Class }

class\_name obj= new class\_name();

// to call non-static methods

obj.method\_name();

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Ex: Write program to perform different arithmetic operations using non-static

methods

package oops.concept;

public class MyCalc {

int result;

//to perform addition

public void sumOf() {

int a= 10;

int b= 20;

result= a+b;

System.out.println("Sum of given numbers is: "+result);

}

//to perform multiplication

public void multiOf() {

System.out.println(result);

int x= 5;

int y= 9;

result= x\*y;

System.out.println("Multiplication of given numbers is: "+result);

}

public static void main(String[] args) {

//create instance object for class

MyCalc mc= new MyCalc();

mc.sumOf();

mc.multiOf();

}

}

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ChromeDriver driver=new ChromeDriver(); // where driver is instance object

driver.get(URL); // where get is the method

sc.nextInt(); // where sc is the instance object; Scanner is the classname

By.name // By is the static method

--> non-static method will allow static as well as non static

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\*\*\*\* Interview Question

Difference between Non-static and Static methods

Non-static method Static Method

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Memory is allocated multiple times whenever method is calling Memory is allocated only once the time of class loading

It is specific to an object so that these are also known as These are common to every object so that it is also known as method or

instance method class method

These methods always access the object reference These property always access the class reference

Syntax: Objref.methodname(); Syntax: className methodname();

If any method wants to be execute multiple time that can be If any method wants to be executed only once in the program that can be

declared as non static declare as static

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Note:

--> Utilities excel sheet data drive uses Static methods in real time

--> Application related uses non-static methods in real time

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Variables in Class

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There are 3 types of variables

1. Instance variables:

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These variables are used to create objects for classes

Syntax: class Name obj= new className();

here Obj ---> is instance object

2. Class Variables/ Global Variables:

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These are declared in class level, which can be used into any method

There are 2 types of class level variables

i. static variables

A static variable can be called into static method as well as into non-static methods

Syntax: static datatype var\_name;

ii. Non-static Variables:

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These variables we can call into non-static methods only

Syntax: datatype var\_name;

3. Local Variables

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These variables are declared within the method and lifetime of those variables within that method only

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\*\*\* Passing values from main method to submethods

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In general we should not maintain any fixed values/hard coded values in sub methods

Where as we pass the values/data to the submethods while calling those methods from main method\

To read values from main method, we should maintain arguments in sub method

Syntax: public void methodname ( arg1, arg2,...)

{

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------ // statements

}

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Ex: Create class with a method to find sum of given numbers

set-1: 10 & 20

Set-2: 30 & 40

package oops.concept;

public class MyCalc {

//to perform addition

public void sumOf(int a, int b) {

int c= a+b;

System.out.println("Sum of given numbers is: "+c);

}

public static void main(String[] args) {

//create instance object for class

MyCalc mc= new MyCalc();

mc.sumOf(10, 20);

mc.sumOf(30, 40);

}

}

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Return value by submethod

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Where as we need to use "return" keyword in submethod and specify data type in place of "void"

Syntax:

public data type subMethod(){

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---------- // statements

}

Note: return -statement should be written as last line in submethod

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Ex: develop automation test script to select different language links

in www.google.co.in, whereas each operation there should be individual methods

-To Initialize browser

-To select language link

-To close application

package oops.concept;

import org.openqa.selenium.By;

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.chrome.ChromeDriver;

public class GoogleLang {

WebDriver driver;

//To Initialize browser

public void setUp() {

System.setProperty("webdriver.chrome.driver", "./Drivers\\chromedriver.exe");

driver= new ChromeDriver();

driver.get("https://google.co.in");

driver.manage().window().maximize();

}

//To select language link

public void langSelection(String myLanguage) throws InterruptedException {

//to click on Telugu link

driver.findElement(By.linkText(myLanguage)).click();

Thread.sleep(4000);

}

//To close application

public void tearDown() {

driver.close();

}

public static void main(String[] args) throws InterruptedException {

GoogleLang gl= new GoogleLang();

gl.setUp();

gl.langSelection("??????");

gl.langSelection("??????");

gl.langSelection("?????");

gl.langSelection("English");

gl.tearDown();

}

}

===================================================================END OF CLASS===================================================================================