PROGRAMMING FUNDAMENTALS WEEK – 06 ASSIGNMENT

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Question 01

```
class Demo {
	public static void printMyMethod(){
		System.out.println("Hello JAVA...");
	}

	public static void main(String args[]) {
		printMyMethod();
	}
}
```

Question 02

```
class Demo {
	public static void printMyDetails(){
		System.out.println("My Name Is Darshana");
		System.out.println("i`m 33 Years Old");
	}

	public static void main(String args[]) {
		printMyDetails();
	}
}
```

Question 03

```
class Example {
	public static void printAlphabet(){
		for(char i = 65, j=97 ; i<91 ; i++,j++){
			System.out.print(i+""+j+" ");
		}
	}

	public static void main(String args[]) {
		printAlphabet();
	}
}
```

Question 04

```
import java.util.*;
class Example {
	public static void printStringInput(){
		Scanner input = new Scanner(System.in);
		System.out.print("Please enter String : ");
		String stringInput = input.next();
		System.out.println(stringInput);
	}

	public static void main(String args[]) {
		printStringInput();
	}
}
```

Question 05

```
import java.util.*;
class Example {
	public static void leapYearOrNot(int year){
		if(year % 4 == 0){
			if(year % 100 == 0){
				if(year % 400 == 0){
					System.out.println(" "+year+" is leap year");
				}else{
					System.out.println(" "+year+" is not a leap year");
				}
			}else{
				System.out.println(" "+year+" is leap year");
			}
		}else{
			System.out.println(" "+year+" is not a leap year");
		}
	}

	public static void main(String args[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Please enter year : ");
		int inputYear = input.nextInt();
		leapYearOrNot(inputYear);
	}
}
```

Question 06

```
class Example {
	public static void compareNumbers(int a, int b){
		char symbol ='=';
		if(a<b){
			symbol = '<';
		}else if(a>b){
			symbol = '>';
		}
		System.out.print(" "+a+" "+symbol+" "+b);
	}

	public static void main(String args[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Please enter number 01 : ");
		int num1 = input.nextInt();
		System.out.print(" Please enter number 02 : ");
		int num2 = input.nextInt();
		compareNumbers(num1,num2);
	}
}
```

Question 07

i

In program 01 Input, output all the steps done by the printName() method. Main method only doing calling the printName() method.

In program 02 only output done by the printName() method by taking the input as String name1, String name2 with parameterized method. Main method taking inputs and passing to the printName(name1,name2) method via parameterized method.

Ii

No. Because printName(); must have 2 String inputs in order to run. If not, it will throw the compile error.

Question 08

```
import java.util.*;

class Example {
	public static boolean compareFirstLetter(String word1, String word2){
		char letter1 = word1.toLowerCase().charAt(0);
		char letter2 = word2.toLowerCase().charAt(0);
		return letter1==letter2;
	}

	public static void main(String args[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Please enter Word 01 : ");
		String w1 = input.nextLine();
		System.out.print(" Please enter Word 02 : ");
		String w2 = input.nextLine();
		System.out.println(" "+compareFirstLetter(w1,w2));
	}
}
```

Question 09

```
import java.util.*;
class Example {
	public static void decimalRoundTwo(double num1){
		System.out.printf(" %1.2f",num1);
	}

	public static void main(String args[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Please enter decimal number : ");
		double num = input.nextDouble();
		decimalRoundTwo(num);
	}
}
```

Question 10

```
import java.util.*;
class Example {
	public static void howMuchMoneyDeposit(double sum){
		double monthIntrest = 20.0/12;
		System.out.printf(" amount you Need To deposit : %,.2f",(sum*100/(20.0/12)));
	}

	public static void main(String args[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Please enter your desired monthly income : ");
		int amount = input.nextInt();
		howMuchMoneyDeposit(amount);
	}
}
```

Question 11

```
import java.util.*;
class Example {
	public static void convertFahernKelvin(double tem){
		System.out.printf(" Fahrenheit Tempeture : %1.2f %n",(tem*9)/5+32);
		System.out.printf(" Kelvin Tempeture : %1.2f",tem+273.15);
	}

	public static void main(String args[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Please enter Celsius Value : ");
		double temp = input.nextDouble();
		convertFahernKelvin(temp);
	}
}
```

Question 12

```
import java.util.*;
class Example {
	public static void calPeriAndArea(double angle ,double radius){
		System.out.println(" perimeter is : "+(angle/360)*2*(22/7)*radius);
		System.out.println(" area is : "+(angle/360)*(22/7)*radius*radius);
	}
	public static void main(String args[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Please enter angle : ");
		double angle = input.nextInt();
		System.out.print(" Please enter radius : ");
		double radius = input.nextInt();
		calPeriAndArea(angle,radius);
	}
}
```

Question 13

```
import java.util.*;
class Example {
	public static void calQuad(int a, int b){
		System.out.println(" Answer is : "+a*a+(a+b)*a+a*b);
	}
	public static void main(String args[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Please enter Celsius Value : ");
		int x1 = input.nextInt();
		System.out.print(" Please enter Celsius Value : ");
		int x2 = input.nextInt();
		calQuad(x1,x2);
	}
}
```

Question 14

```
import java.util.*;
class Calculator {
	public static void add(int a ,int b){
		System.out.println(" "+a+" + "+b+" : "+(a+b));
	}
	public static void subtraction(int a ,int b){
		System.out.println(" "+a+" - "+b+" : "+(a-b));
	}
	public static void multiplication(int a ,int b){
		System.out.println(" "+a+" * "+b+" : "+(a*b));
	}
	public static void dividend(int a ,int b){
		System.out.println(" "+a+" / "+b+" : "+(a/b));
	}
	public static void reminder(int a ,int b){
		System.out.println(" "+a+" % "+b+" : "+(a%b));
	}
	public static void power(int a ,int b){
		int tem = a;
		for(int i = 1 ; i<b ; i++){
			tem*=a;
		}
		System.out.println(" "+a+" ^ "+b+" : "+tem);
	}
	public static void main(String args[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Enter the first number : ");
		int num1 = input.nextInt();
		System.out.print(" Enter the second number : ");
		int num2 = input.nextInt();
		System.out.print(" Enter the operator (+,-,*,/,%,^) : ");
		char operator = input.next().charAt(0);
		switch(operator){
			case '+': add(num1,num2);break;
			case '-': subtraction(num1,num2);break;
			case '*': multiplication(num1,num2);break;
			case '/': dividend(num1,num2);break;
			case '%': reminder(num1,num2);break;
			case '^': power(num1,num2);break;
		}
	}
}
```

Question 15

```
import java.util.*;

class Example {
	public static void swapNumbers(int x ,int y){
		System.out.println(" You Entered x:"+x+" & y:"+y);
		x=x+y;
		y=x-y;
		x=x-y;
		System.out.println(" After swep x:"+x+" & y:"+y);
	}
	public static void main(String args[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Please enter x : ");
		int num1 = input.nextInt();
		System.out.print(" Please enter y : ");
		int num2 = input.nextInt();
		swapNumbers(num1,num2);
	}
}
```

Question 16

```
import java.util.*;
class Example {
	public static boolean checkPerfect(int a){
		int tem = a;
		int sum = 0;
		for(int i = a-1 ; i>0 ; i--){
			if(tem%i==0){
				sum+=i;
			}
		}
		return sum==a;
	}

	public static void main(String args[]) {
		Scanner input = new Scanner(System.in);
		System.out.print("Please enter x : ");
		int num = input.nextInt();
		System.out.print(checkPerfect(num)?" You Entered Perfect Number":"You Did Not Entered Perfect Number");
	}
}
```

Question 17

```
import java.util.*;
class Example {
	public static void checkMultipliers(int num, int upper, int lower){
		int tem = upper;
		int count = 0;
		for(int i = tem ; i>lower ; i-- ){
			if(i%num==0){
				count++;
			}
		}
		System.out.print("Multiples of "+num+" between "+lower+" and "+upper+" - "+count);
	}

	public static void main(String args[]) {
		Scanner input = new Scanner(System.in);
		System.out.print("Number : ");
		int num = input.nextInt();
		System.out.print("The lower bound of the range : ");
		int lower = input.nextInt();
		System.out.print("The upper bound of the range : ");
		int upper = input.nextInt();
		checkMultipliers(num,upper,lower);
	}
}
```

Question 18

Line 02 : Compiler says its not a statement. There is no variable called test. Even its exist, statement cannot write like this.

Line 04 : This is function declare statement and its missing public static return type and ;. function cannot be called like this.

Line 05 : This is function declare statement and its missing public static return type . function cannot be called like this.

Line 8 : test() is void type function and does not return anything.

Line 10 : test(s) is void type function and does not return anything.

Question 19

```
import java.util.*;
class Example{
	public static void subjectPrinter(String[] group1){
		Random ranNum = new Random();
		int num = ranNum.nextInt(group1.length);
		System.out.println(group1[num]);
	}
	public static void main(String args[]){
		String[] group1 = {"Business & Accounting", "Geography", "Citizenship Education", "Entrepreneurship studies","2nd language Sinhala","2nd Language Tamil","Arabic","Hindi","French","Janapn"};
		String[] group2 = {"Art", "Tamil Literature", "English Literature", "Sinhala Literature","2nd language Sinhala","Music","Dancing"};
		String[] group3 = {"Information & technology", "Agriculture", "Home Economics", "Health Science","Art & Craft","Media"};
		subjectPrinter(group1);
		subjectPrinter(group2);
		subjectPrinter(group3);
	}
}
```

Question 22

```
import java.util.*;
class Example{
	public static void speedConvertor(double speed){
		double convertedSpeed = speed*1000/3600;
		System.out.printf(" %1.4f mps",convertedSpeed);
	}
	public static void main(String args[]){
		Scanner input = new Scanner(System.in);
		System.out.print(" Please Enter Speed (kmph) :");
		double speed = input.nextDouble();
		speedConvertor(speed);
	}
}
```

Question 23

```
import java.util.*;
class Example{
	public static void vowelChecker(String word){
		int count = 0;
		for(int i = 0; i<word.length() ; i++){
			char letter = word.toLowerCase().charAt(i);
			if(letter == 'a'||letter =='e'|| letter=='i'|| letter=='o'|| letter=='u'){
				count++;
			}
		}
		System.out.print("Number of vowels : "+count);
	}
	public static void main(String args[]){
		Scanner input = new Scanner(System.in);
		System.out.print(" Please Enter Word :");
		String word = input.nextLine();
		vowelChecker(word);
	}
}
```

Question 24

```
import java.util.*;


class Example{
	public static void findcylinderVolume(int red , int high){
		double vol = (22.0/7)*red*red*high;
		System.out.printf(" Volume of the cylinder : %1.2f ",vol);
	}
	public static void main(String args[]){
		Scanner input = new Scanner(System.in);
		System.out.print(" Please Enter Radius of the  cylinder :");
		int radius = input.nextInt();
		System.out.print(" Please Enter Height of the  cylinder :");
		int height = input.nextInt();
		findcylinderVolume(radius,height);
	}
}
```

Question 25

```
import java.util.*;
class Example{
	public static void sphereVolume(double x){
		double reduis = x/2;
		double vol =(4.0/3)*(22.0/7)*reduis*reduis*reduis;
		System.out.printf(" Volume of the cylinder : %1.2f ",vol);
	}
	public static void main(String args[]){
		Scanner input = new Scanner(System.in);
		System.out.print(" Please Enter length of the cube :");
		double length = input.nextDouble();
		sphereVolume(length);
	}
}
```

Question 26

Question 27

```
import java.util.*;
class Example{
	public static void sphereVolume(double x){
		double reduis = x/2;
		double vol =(4.0/3)*(22.0/7)*reduis*reduis*reduis;
		System.out.printf(" Volume of the cylinder : %1.2f ",vol);
	}
	public static void main(String args[]){
		Scanner input = new Scanner(System.in);
		System.out.print(" Please Enter length of the cube :");
		double length = input.nextDouble();
		sphereVolume(length);
	}
}
```

Question 28

A. Function has to me return Boolean value - Not Legal

B. Default return value is true – Legal

C. avg>=50; return true or false – Legal

D. Thre are if and else statements – Legal

E. only Return true when avg>=50. So there is not guarantee that this statement return the value. - Not Legal

F. Turnery operator with if else statement – Legal

G. Default return is false. But when the if condition true return true and terminate the method. – Legal

Question 29

```
import java.util.*;
class Example{
	public static void checkMonth(String month){
		boolean status = false;
		boolean isFebruary = false;
		boolean isNothing = false;

		switch(month.toLowerCase()){
			case "january" : status=true;break;
			case "february" : status=false; isFebruary=true;break;
			case "march" : status=true;break;
			case "april" : status=false;break;
			case "may" : status=true;break;
			case "june" : status=false;break;
			case "july" : status=true;break;
			case "august" : status=true;break;
			case "september" : status=false;break;
			case "october" : status=true;break;
			case "november" : status=false;break;
			case "dececmber" : status=true;break;
			default : status=true;isNothing=true;break;
		}
		System.out.println(isFebruary?" Days 28":isNothing?" Please enter correct month":status?" Days 31":" Days 30");
	}
	public static void main(String args[]){
		Scanner input = new Scanner(System.in);
		System.out.print(" Please Enter Month :");
		String month = input.nextLine();
		checkMonth(month);
	}
}
```

Question 30

```
import java.util.*;
class Example{
	public static void digitReturn(int num){
		int tem = num;
		int evenDigits = 0;
	int oddDigits = 0;
		do{
			int digit=tem%10;
			if(digit%2==0){
				evenDigits = evenDigits * 10 + digit;
			}else if(digit%2!=0){
				oddDigits = oddDigits * 10 + digit;
			}
		}while((tem/=10) != 0);
		System.out.print(" "+oddDigits+" "+evenDigits);
	}
	public static void main(String args[]){
		Scanner input = new Scanner(System.in);
		System.out.print(" Please Enter positive Integer :");
		int num = input.nextInt();
		digitReturn(num);
	}
}
```

Question 31

```
import java.util.*;


class Example {
	public static void rollDice(){
		Random input = new Random();
		int num1 = 0;
		int num2 = 0;
		int count = 0;
		do{
			count++;
			num1 = input.nextInt(6)+1;
			num2 = input.nextInt(6)+1;
			System.out.print(num1+" "+num2);
			System.out.println();
		}while(num1!=num2);
		System.out.println("Dice roll - "+count+" times");
	}



	public static void main(String args[]) {
		rollDice();
	}
}
```

Question 34

```
import java.util.*;


class Example {
	public static int fact(int num){
		int f = 1;
		while(num>0){
			f*=num--;
		}
		return f;
	}
	public static int numberOfGroups(int n, int r){
		return fact(n)/fact(n-r)*fact(r);
	}




	public static void main(String args[]) {
		Scanner input = new Scanner(System.in);
		System.out.print("Number of children : ");
		int children = input.nextInt();
		System.out.print("Number of group members : ");
		int group = input.nextInt();
		int groups = numberOfGroups(children,group);
		System.out.print("The number of groups = "+groups);


	}
}
```

Question 35

```
class Example {
	public static void checkNumber() {
		boolean status = true;
		long num = 1;
		while(status){
			int count = 0;
			for(int i = 1 ; i<=20 ; i+=20){
				if(num%i==0){
					count++;
					if(count==20){
						status = false;
						System.out.println(num+" smallest positive number that is evenly divisible by all
of the numbers from 1 to 20 ");
					}
				}
			}
			num++;
		}
	}

	public static void main(String args[]) {
		checkNumber();
	}
}
```

Question 36

```
import java.util.*;
class Example {
	public static void findOrigin(int x, int y) {
		String origin = "";
		if(x>0&&y>0){
			origin = "Quadrant I";
		}else if(x<0&&y>0){
			origin = "Quadrant II";
		}else if(x<0&&y<0){
			origin = "Quadrant III";
		}else if(x>0&&y<0){
			origin = "Quadrant IV";
		}
		System.out.println("point lies in "+origin);
	}

	public static void main(String args[]) {
		Scanner input = new Scanner(System.in);
		System.out.print("Enter X coordinate: ");
		int x = input.nextInt();
		System.out.print("Enter Y coordinate: ");
		int y = input.nextInt();
		findOrigin(x,y);
	}
}
```

Question 37

```
import java.util.*;


class Example {
	public static boolean checkValidTriangle(int x, int y, int z) {
		return x + y > z||x + z > y||y + z > x;
	}


	public static void main(String args[]) {
		Scanner input = new Scanner(System.in);
		System.out.print("Enter Distance x: ");
		int x = input.nextInt();
		System.out.print("Enter Distance y: ");
		int y = input.nextInt();
		System.out.print("Enter Distance z: ");
		int z = input.nextInt();
		System.out.print("Valid Triangle ?: "+checkValidTriangle(x,y,z));
	}
}
```

Question 38

Question 39

```
public class Example{
	public static void printSum(int a, int b) {
		System.out.println("Sum of integers: " + (a + b));
	}

	public static void printSum(double a, double b) {
		System.out.println("Sum of doubles: " + (a + b));
	}

	public static void printSum(String a, String b) {
		System.out.println("Concatenated string: " + a + " " + b);
	}

	public static void main(String[] args) {
		int num1Int = 5;
		int num2Int = 7;
		double num1Double = 3.14;
		double num2Double = 2.5;
		String str1 = "Hello";
		String str2 = "World";

		printSum(num1Int, num2Int);
		printSum(num1Double, num2Double);
		printSum(str1, str2);
	}
}
```