

SUMMER JAVA LABE ASSIGMENT

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Q1. How to calculate parameter of a triangle in java using object oriented approach?

Ans:

DEFINITIONS: **Perimeter :**

Perimeter of a triangle is the sum of the length of side of a triangle.

where a, b, c are length of side of a triangle.

Perimeter of a triangle can simply be evaluated using following formula :

Code:

```
public class Triangle {
    public static void main(String[] args) {
        double a=3, b=4.5, c=5.3;
        if (isValid(a, b, c))
            System.out.println("Perimeter of the
triangle with sides: "+a+", "+
                b+", and "+c+" is "+perimeter(a, b,
c));
        else
            perimeter(a, b, c);
    }

    public static boolean isValid (double side1, double
side2, double side3){
        return (side1+side2>side3 &&
            side1+side3>side2 &&
            side2+side3> side1);
    }

    public static double perimeter (double side1,
double side2, double side3){
        if (!isValid(side1, side2, side3))
        {
            System.out.println(side1+", "+side2+", and
"+side3+" does not form a valid triangle.");
            return 0;
        }
        return side1+side2+side3;
    }
}
```

```
    }  
}
```

Output (a=3, b=4.5, c=5.3) :

Perimeter of the triangle with sides: 3.0, 4.5, and 5.3 is 12.8

Output (a=1, b=1, c=2) :

1.0, 1.0, and 2.0 does not form a valid triangle.

Q2. How to calculate diameter of a circle in java using object oriented approach?

ANS:

The radius is the distance from the center of the **circle** to its edge. If the radius of the **circle** is 4 cm, then the **diameter** of the **circle** is 4 cm x 2, or 8 cm. If you know the circumference of the **circle**, divide it by π to get the **diameter**.

CODING:

```
/**  
 * Java program to calculate diameter,  
 */  
  
import java.util.Scanner;  
  
class Test  
{  
public static void main(String args[])  
{  
    double radius, diameter,  
    Scanner op=new Scanner(System.in);  
    /*  
     * Input radius of circle from user  
     */  
    System.out.print("Enter radius of circle: ");  
    radius=op.nextDouble();  
  
    /*  
     * Calculate diameter,          */  
    diameter = 2 * radius;  
    circumference = 2 * 3.14 * radius;
```

```

area = 3.14 * (radius * radius);

/*
 * Print all results
 */
System.out.println("Diameter of circle = "+diameter+" units ");
System.out.println("Circumference of circle = "+circumference+" units ");
System.out.println("Area of circle = "+area+" sq. units ");
}
}

```

Q3. How to check Leap year in java using object oriented approach?

Ans:

Algorithm

1. Take integer variable **year**.
2. Assign a value to the variable.
3. Check if the **year** is divisible by 4 but not 100, DISPLAY "**leap year**"
4. Check if the **year** is divisible by 400, DISPLAY "**leap year**"
5. Otherwise, DISPLAY "**not leap year**"

CODING:

```

import java.util.Scanner;

public class Demo {

    public static void main(String[] args) {

        int year;

        Scanner scan = new Scanner(System.in);

        System.out.println("Enter any Year:");

        year = scan.nextInt();

        scan.close();
    }
}

```

```
boolean isLeap = false;

if(year % 4 == 0)
{
    if( year % 100 == 0)
    {
        if ( year % 400 == 0)
            isLeap = true;
        else
            isLeap = false;
    }
    else
        isLeap = true;
}
else {
    isLeap = false;
}

if(isLeap==true)
    System.out.println(year + " is a Leap Year.");
else
    System.out.println(year + " is not a Leap Year.");
}
}
```

Q4. How to check that the input from the user is the vowel or not in java using object oriented approach?

Ans:

Five alphabets a, e, i, o and u are known as vowels. All other alphabets except these 5 alphabets are known as consonants.

This program assumes that the user will always enter an alphabet.

```
import java.util.Scanner;

public class JavaProgram
{
    public static void main(String args[])
    {
        char ch;

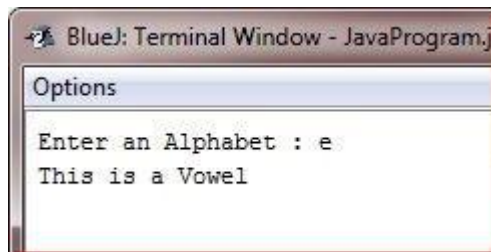
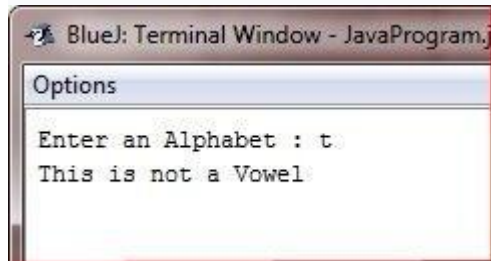
        Scanner scan = new Scanner(System.in);

        System.out.print("Enter an Alphabet : ");
        ch = scan.next().charAt(0);

        if(ch=='a' || ch=='A' || ch=='e' || ch=='E' ||
           ch=='i' || ch=='I' || ch=='o' || ch=='O' ||
           ch=='u' || ch=='U')
        {
            System.out.print("This is a Vowel");
        }
        else
        {
            System.out.print("This is not a Vowel");
        }
    }
}
```

```
    }  
    }  
}
```

Output



Q5. How to use power of a number in java using object oriented approach?

Ans:

Math pow() method in Java with Example

The `java.lang.Math.pow()` is used to calculate a number raise to the power of some other number. This function accepts two parameters and returns the value of first parameter raised to the second parameter. There are some special cases as listed below:

- If the second parameter is positive or negative zero then the result will be 1.0.
- If the second parameter is 1.0 then the result will be same as that of the first parameter.
- If the second parameter is NaN then the result will also be NaN.

Syntax:

```
public static double pow(double a, double b)Parameter:
```

a : this parameter is the base

b : this parameter is the exponent.Return :

This method returns a^b .

Coding:

```
public class Power {  
    public static void main(String[] args) {  
        int base = 3, exponent = 4;  
  
        long result = 1;  
  
        while (exponent != 0)  
        {  
            result *= base;  
            --exponent;  
        }  
  
        System.out.println("Answer = " + result);  
    }  
}
```

THANK U SIR