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Reg# : 16550

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Paper: Final Term Object Oriented Programming (Lab)

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

Answer:

```java
import java.util.Scanner;
public class AreaTriangleDemo {
    public static void main(String args[]) {
        Scanner scanner = new Scanner(System.in);

        System.out.println("Enter the width of the Triangle:");
        double base = scanner.nextDouble();

        System.out.println("Enter the height of the Triangle:");
        double height = scanner.nextDouble();

        //Area = (width*height)/2
        double area = (base* height)/2;
        System.out.println("Area of Triangle is: " + area);
    }
}
```

Output:

```
Enter the width of the Triangle:
10
Enter the height of the Triangle:
20
Area of Triangle is:100.0_
```

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

Answer:

```java
import java.util.Scanner;

public class Circle {

    public static void main(String[] args) {

        // Declare constant for PI
        final double PI = 3.141592653;

        Scanner in = new Scanner(System.in);

        /* Input radius of circle from user. */
        System.out.println("Please enter radius of the circle : ");
        int r = in.nextInt();

        /* Calculate diameter, circumference and area. */
        int d = 2 * r;
        double circumference = 2 * PI * r;
        double area = PI * r * r;

        /* Print diameter, circumference and area of circle. */
        System.out.println("Diameter of circle is : " + d);
        System.out.println("Circumference of circle is : " + circumference);
        System.out.println("Area of circle is : " + area);
    }
}
```

Output

```
Please enter radius of the circle : 20
Diameter of circle is : 40
Circumference of circle is : 125.66370612
Area of circle is : 1256.6370612
```

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

Answer:

```java
import java.util.Scanner;
class Leapyear
{
    public static void main(String arg[])
    {
        long a,y,c;
                Scanner sc=new Scanner(System.in);
        System.out.print("enter  any  calendar year :");
                y=sc.nextLong();
        if(y!=0)
        {
        a=(y%400==0)?(c=1):((y%100==0)?(c=0):((y%4==0)?(c=1):(c=0)));
        if(a==1)
            System.out.println(y+" is a leap year");
                else
            System.out.println(y+" is not a leap year");
        }
        else
        System.out.println("year zero does not exist ");
    }
}
```

Output A:

```
1  enter  any  calendar year :1950
2  1950 is not a leap year
```

Output B:

```
1  enter  any  calendar year :1948
2  1948 is a leap year
```

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

Answer:

```java
import java.util.Scanner;
class Char
{
    public static void main(String[ ] arg)
    {
    int i=0;
    Scanner sc=new Scanner(System.in);
    System.out.println("Enter a character : ");
    char ch=sc.next( ).charAt(0);
    //char ch=sc.nextChar();
    switch(ch)
    {
     case  'a' :
     case 'e'  :
     case 'i'   :
     case 'o'  :
     case 'u'  :
     case  'A' :
     case 'E'  :
     case 'I'   :
     case 'O'  :
     case 'U'  :i++;
    }
    if(i==1)
    System.out.println("Entered character "+ch+" is  Vowel");
    else
        if((ch>='a'&&ch<='z')||(ch>='A'&&ch<='Z'))
        System.out.println("Entered character "+ch+" is Consonent");
        else
        System.out.println("Not an alphabet");
    }
}
```

Output A:

```
1  Enter a character :
2  a
3  Entered character a is  Vowel
```

Output B:

```
1  Enter a character :
2  Z
3  Entered character Z is Consonant
```

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

Answer:

```java
import java.util.Scanner;
public class PowerOfNumber {
    public static void main(String args[]){
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the base number ::");
        int base = sc.nextInt();
        int temp = base;
        System.out.println("Enter the exponent number ::");
        int exp = sc.nextInt();

        for (int i=1; i<exp; i++){
            temp = temp*temp;
        }
        System.out.println("Result of "+base+" power "+exp+" is "+temp);
    }
}
```

Output:

```
Enter the base number ::
12
Enter the exponent number ::
2
Result of 12 power 2 is 144
```