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19BCE245

# Practical 3
## OOP Lab

### Practical 3 A

Write a Java program using class that prints the numbers 1 to 50.
For all multiples of 3 print "Fizz" and for all multiples of 5 print

**CODE**

```
class prac3a {
    public static void main(String[] args) {
        int n;
        for(int i=1;i<=50;i++){
            System.out.print( i + " : ");
            if (i%3==0 && i%5==0) {
                System.out.println("Fizz-Bizz");
            }
            else if(i%3==0){
                System.out.println("Fizz");
            }
            else if(i%5==0){
                System.out.println("Bizz");
            }
            else{
                System.out.println();
            }
        }
    }
}
```

**INPUT :**

-

## OUTPUT :

```
1 :
2 :
3 : Fizz
4 :
5 : Bizz
6 : Fizz
7 :
8 :
9 : Fizz
10 : Bizz
11 :
12 : Fizz
13 :
14 :
15 : Fizz-Bizz
16 :
17 :
18 : Fizz
19 :
20 : Bizz
21 : Fizz
22 :
23 :
24 : Fizz
25 : Bizz
26 :
27 : Fizz
28 :
29 :
30 : Fizz-Bizz
31 :
32 :
33 : Fizz
34 :
35 : Bizz
36 : Fizz
37 :
38 :
39 : Fizz
40 : Bizz
41 :
42 : Fizz
43 :
44 :
45 : Fizz-Bizz
46 :
47 :
48 : Fizz
49 :
50 : Bizz
```

Run Succeeded    Time 131 ms          M main ⌄   Tabs: 4 ⌄   Line 3, Column 15

## CONCLUSION :

From the practical 3 A, we revised the concept of for loop along with modular operator and if-else blocks.

## Practical 3 B

## Demonstrate concept of Arithmetic & Bitwise Operators with a java program. Operands to be considered as per the operators

### CODE

```java
import java.util.Scanner;
class prac3b {
    public static void main(String[] args) {
        System.out.println("ARITHMATIC OPERATORS : ");
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the first number : ");          //asks user to enter the first number
        double n1 = sc.nextDouble();    //scans double as first number
        System.out.print("Enter the second number : ");       //asks user to enter the second number
        double n2 = sc.nextDouble();    //scans double as second number
        System.out.print("Enter an arithmatic operator ['*' or '/' or '%' or '+' or '-'] to perform action between two integer : ");          //asks user to enter a string (char)
        char operator = sc.next().charAt(0);   //scans a char
        double answer=0;
        switch (operator) {
            case '+':
                answer = n1 + n2;
                break;
            case '-':
                answer = n1 - n2;
                break;
            case '*':
```

```java
                    answer = n1 * n2;
                    break;
            case '/':
                    answer = n1 / n2;
                    break;
            case '%':
                    answer = n1 % n2;
                    break;
            default:
                    System.out.println("Invalid operator :(");
                    break;
        }
        System.out.println(n1 + " " + operator + " " + n2 + " = " + answer);

        System.out.println("BITWISE OPERATORS : ");

        System.out.print("Enter a bitwise operator ['&' or 'l' or '^' or '~'] to perform
action between two integer : ");         //asks user to enter a string (char)
        char operator2 = sc.next().charAt(0); //scans a char
        int answer2=0;
        switch (operator2) {
            case '&':
            System.out.print("Enter the first integer : ");
            int N1 = sc.nextInt();
            System.out.print("Enter the second number : ");
            int N2 = sc.nextInt();
                    System.out.println(N1 + " " + operator2 + " " + N2 + " = " + (N1
& N2));

                    break;
            case 'l':
            System.out.print("Enter the first integer : ");
            N1 = sc.nextInt();
            System.out.print("Enter the second number : ");
            N2 = sc.nextInt();
                    System.out.println(N1 + " " + operator2 + " " + N2 + " = " + (N1 l
N2));

                    break;
            case '^':
            System.out.print("Enter the first integer : ");
            N1 = sc.nextInt();
            System.out.print("Enter the second number : ");
            N2 = sc.nextInt();
//              answer2 = N1 ^ N2;
                    System.out.println(N1 + " " + operator2 + " " + N2 + " = " + (N1 ^
N2));

                    break;
            case '~':
            System.out.print("Enter an integer : ");
            N1 = sc.nextInt();
```

```
//                    answer2 = ~ N2;
                      System.out.println(operator2 + " " + N1 + " = " + (~ N1));
                      break;
                default:
                      System.out.println("Invalid operator :(");
                      break;
              }

          System.out.println("SHIFT OPERATORS : ");

          System.out.print("Enter a number : ");
          int nn1 = sc.nextInt();
      System.out.print("Enter a operator['>' or '<' or '>>>' or '~'] : ");
          String operator3 = sc.nextLine();
          operator3 = sc.nextLine();
          System.out.print("Enter a number of places to shift : [enter any random
number if ~ is chosen] ");
          int nn2 = sc.nextInt();
          int answer3=0;
          switch (operator3) {
                case ">>":
                      answer3 = nn1 >> nn2;
                      break;
                case "<<":
                      answer3 = nn1 << nn2;
                      break;
                case ">>>":
                      answer3 = nn1 >>> nn2;
                      break;
                case "~":
                      answer3 = ~nn1;
                      break;
                default:
                      System.out.println("Invalid operator :(");
                      break;
              }
          System.out.println(nn1 + " " + operator3 + " " + nn2 + " = " + answer3);
      }
}
void add(struct distance *D1,struct distance *D2){
      if((D1->inches + D2->inches)<12){    //if addition of inches is less then zero then
no need to convert inches into feet.
          D1->inches+=D2->inches;
          D1->foot+=D2->foot;
      }
      else{       ////if addition of inches is greated then zero then we have to convert
inches into feet and have to display remaining inches.

          D1->foot+=D2->foot;
```

```
        D1->foot+=((D1->inches + D2->inches)/12);
        D1->inches=((D1->inches + D2->inches)%12);
    }
}
```

## INPUT :

*5*
*2*
*\**
*&*
*5*
*7*
*5*
*~*
*1*

## OUTPUT :

```
ARITHMATIC OPERATORS :
Enter the first number : 5
Enter the second number : 2
Enter an arithmatic operator ['*' or '/' or '%' or '+' or '-'] to
perform action between two integer : *
5.0 * 2.0 = 10.0
BITWISE OPERATORS :
Enter a bitwise operator ['&' or '|' or '^' or '~'] to perform action
between two integer : &
Enter the first integer : 5
Enter the second number : 7
5 & 7 = 5
SHIFT OPERATORS :
Enter a number : 5
Enter a operator['>' or '<' or '>>>' or '~'] : ~
Enter a number of places to shift : 1
5 ~ 1 = -6



      ✓ Run Succeeded    Time 296 ms                          M main ⌄   Tabs: 4 ⌄   40 characters
```

**CONCLUSION :**

From the practical 3 B, we revised the basic concept of Arithmetic & Bitwise Operators and its syntax in java along with shift operators .

## Practical 3 C

Write a java program which generates student grade report in console. Take student roll number and marks (out of 100) of 5

**CODE :**

```java
import java.util.Scanner;
class prac3c {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("STUDENT GRADE REPORT");
        System.out.println("Enter the roll number : ");
        int rollNumber = sc.nextInt();
        System.out.println("Enter the marks for the ENGLISH subject : ");
        float english = sc.nextFloat();
        System.out.println("Enter the marks for the HINDI subject : ");
        float hindi = sc.nextFloat();
        System.out.println("Enter the marks for the MATHS subject : ");
        float maths = sc.nextFloat();
        System.out.println("Enter the marks for the SCIENCE subject : ");
        float science = sc.nextFloat();
        System.out.println("Enter the marks for the COMPUTER subject : ");
        float computer = sc.nextFloat();
        float percentage = ((english+hindi+maths+science+computer)/500)*100;
```

```
        System.out.println("Percentage of rollnumber" + rollNumber + " is : " +
percentage);
        if(percentage>90)
        System.out.println("Grade : A+");
        else if(percentage>80)
        System.out.println("Grade : A");
        else if(percentage>70)
        System.out.println("Grade : B+");
        else if(percentage>60)
        System.out.println("Grade : B");
        else if(percentage>50)
        System.out.println("Grade : C+");
        else if(percentage>40)
        System.out.println("Grade : C");
        else
        System.out.println("FAIL :(");
    }
}
```

## INPUT :

*1*
*1*
*23*
*34*
*am*
*4*
*12*
*28*
*pm*

## OUTPUT :

```
STUDENT GRADE REPORT
Enter the roll number :
245
Enter the marks for the ENGLISH subject :
80
Enter the marks for the HINDI subject :
60
Enter the marks for the MATHS subject :
90
Enter the marks for the SCIENCE subject :
90
Enter the marks for the COMPUTER subject :
95
Percentage of rollnumber245 is : 83.0
Grade : A
```

```
✓ Run Succeeded    Time 229 ms                     M main ◇   Tabs: 4 ◇   Line 21, Column 25
```

## CONCLUSION :

From the practical 3 C, we revised the concept of scanner class and if-else statements .

## Practical 3 D

## Write a program to calculate area and perimeter of a circle. Take the value of radius from user.

### CODE :

```java
import java.util.Scanner;
import java.lang.Math.*;
class prac3d {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the radius : ");
        float radius = sc.nextFloat();
        float area = ((float)Math.PI)*(radius)*(radius);
        float perimeter = 2*((float)Math.PI)*(radius);
        System.out.printf("Area of the circle with radius %f is %.2f and its perimeter is %.2f",radius,area,perimeter);
    }
}
```

### INPUT :

5

### OUTPUT :

```
Enter the radius :
5
Area of the circle with radius 5.000000 is 78.54 and its perimeter is
31.42
```
✓ Run Succeeded    Time 204 ms                          Symbol ◇    Tabs: 4 ◇    12 lines, 443 characters

## CONCLUSION :

From the practical 3 D, we learnt about math class in java and different use of it in mathematical problems.