

Assignment - 2

OOP Java

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1. Write a program to check if a given number is positive, negative, or zero.

```
class CheckNumberType {  
    public static void main(String[] args) {  
        int check = Integer.parseInt(args[0]);  
  
        if (check == 0)  
            System.out.println("Zero");  
        else if (check > 0)  
            System.out.println("Positive Number");  
        else  
            System.out.println("Negative");  
    }  
}
```

```
C:\Windows\System32\cmd.e  X  +  v  
  
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>javac CheckNumberType.java  
  
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>java CheckNumberType 58  
Positive Number  
  
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>java CheckNumberType -58  
Negative  
  
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>java CheckNumberType 0  
Zero
```

2. Write a program to determine whether a given year is a leap year or not.

```
class LeapYear {  
    public static void main(String[] args) {  
        int year = Integer.parseInt(args[0]);  
        if ((year%4==0 && year%100!=0) || (year%400==0))  
            System.out.println("LeapYear");  
        else  
            System.out.println("Non LeapYear");  
    }  
}
```

```
C:\Windows\System32\cmd.e  X  +  v  
Zero  
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>javac LeapYear.java  
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>java LeapYear 2500  
Non LeapYear  
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>java LeapYear 2024  
LeapYear  
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>java LeapYear 2028  
LeapYear
```

3. Write a program to check if a given character is a vowel or a consonant.

```
import java.util.Scanner;
class VowelConsonant {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a Character: ");
        char ch = scanner.next().toLowerCase().charAt(0);
        /*if (args.length != 1){
            System.out.println("VowelConsonant");
            return;
        }
        char ch = args[0].toLowerCase().charAt(0);*/

        if (!Character.isLetter(ch)){
            System.out.println("'" + ch + "' not an alphabet");
            return;
        }

        if (ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u')
            System.out.println("'" + ch + "' is a Vowel");
        else
            System.out.println("'" + ch + "' is a Consonant");
    }
}
```

```
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>javac VowelConsonant.java
```

```
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>java VowelConsonant i
'i' is a Vowel
```

```
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>java VowelConsonant s
's' is a Consonant
```

```
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>java VowelConsonant #
'#' not an alphabet
```

```
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>
```

```
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>java VowelConsonant *
Enter a Character: *
'*' not an alphabet

V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>java VowelConsonant
Enter a Character: v
'v' is a Consonant

V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>java VowelConsonant
Enter a Character: i
'i' is a Vowel

V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>
```

4. Write a program to find the largest of three numbers entered by the user.

```
class GreatestFinder {
    public static void main(String[] args) {
        int a = Integer.parseInt(args[0]);
        int b = Integer.parseInt(args[1]);
        int c = Integer.parseInt(args[2]);

        if ((a > b) && (a > c)){
            System.out.println(a + " is greater");
        }
        else if ((b > c) && (b > a)) {
            System.out.println(b + " is greater");
        }
        else {
            System.out.println(c + " is greater");
        }
    }
}
```

C:\Windows\System32\cmd.exe

```
D:\Do_Not_Open\3_Java\Assignment_Problems\2_Assignment>javac GreatestFinder.java
D:\Do_Not_Open\3_Java\Assignment_Problems\2_Assignment>java GreatestFinder 4 5 7
7 is greater
D:\Do_Not_Open\3_Java\Assignment_Problems\2_Assignment>
```

5. Write a program to check if a given number is even or odd.

```
import java.util.Scanner;
class EvenOdd {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a Number: ");
        int n = scanner.nextInt();

        if (n % 2 == 0)
            System.out.println("'" + n + "' is even");
        else
            System.out.println("'" + n + "' is odd");
    }
}
```

C:\Windows\System32\cmd.exe

```
D:\Do_Not_Open\3_Java\Assignment_Problems\2_Assignment>java EvenOdd
Enter a Number: 99
'99' is odd

D:\Do_Not_Open\3_Java\Assignment_Problems\2_Assignment>java EvenOdd
Enter a Number: 100
'100' is even

D:\Do_Not_Open\3_Java\Assignment_Problems\2_Assignment>
```

Problem 1: Days of the Week

Task: Write a program that takes an integer input (1-7) from the user and prints the corresponding day of the week. Use a switch statement to handle the conversion.

```
class DaysOfWeek {  
    public static void main(String[] args) {  
        int select = Integer.parseInt(args[0]);  
  
        switch (select){  
            case 1: System.out.println("Monday"); break;  
            case 2: System.out.println("Tuesday"); break;  
            case 3: System.out.println("Wednesday"); break;  
            case 4: System.out.println("Thursday"); break;  
            case 5: System.out.println("Friday"); break;  
            case 6: System.out.println("Saturday"); break;  
            case 7: System.out.println("Sunday"); break;  
            default: System.out.println("Out of Range"); break;  
        }  
    }  
}
```

C:\Windows\System32\cmd.exe

D:\Do_Not_Open\3_Java\Assignment_Problems\2_Assignment>javac DaysOfWeek.java

D:\Do_Not_Open\3_Java\Assignment_Problems\2_Assignment>java DaysOfWeek 10
Out of Range

D:\Do_Not_Open\3_Java\Assignment_Problems\2_Assignment>java DaysOfWeek 1
Monday

D:\Do_Not_Open\3_Java\Assignment_Problems\2_Assignment>

Problem 2: Simple Calculator Task: Write a program that takes two integers and an operator (+, -, *, /) as input and performs the corresponding operation. Use a switch statement to handle the operations.

```
import java.util.Scanner;
class Calculator {
    public static void main(String[] args) {
        int a = Integer.parseInt(args[0]);
        int b = Integer.parseInt(args[1]);
        int c;

        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter an Operation: ");
        char ch = scanner.next().charAt(0);

        switch (ch){
            case '*':
                c = a * b;
                System.out.println(c);
                break;
            case '+':
                c = a + b;
                System.out.println(c);
                break;
            case '/':
                c = a / b;
                System.out.println(c);
                break;
            case '-':
                c = a - b;
                System.out.println(c);
                break;
        }
    }
}
```

Output:

```
D:\Do_Not_Open\3_Java\Assignment_Problems\2_Assignment>java Calculator
Exception in thread "main" java.lang.ArrayIndexOutOfBoundsException: Index 0 out
    at Calculator.main(Calculator.java:4)

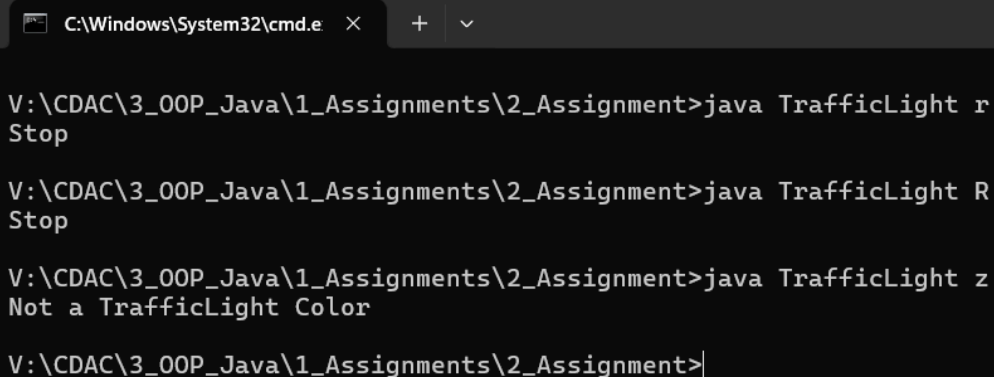
D:\Do_Not_Open\3_Java\Assignment_Problems\2_Assignment>java Calculator 8 9
Enter an Operation: *
72

D:\Do_Not_Open\3_Java\Assignment_Problems\2_Assignment>
```


Problem 3: Traffic Light System

Task: Write a program that takes a character input (R, Y, G) and prints the corresponding traffic light action (Stop, Wait, Go). Use a switch statement to handle the conversion.

```
class TrafficLight {  
    public static void main(String[] args) {  
        char ch = args[0].toUpperCase().charAt(0);  
  
        if ((ch != 'R') && (ch != 'Y') && (ch != 'G')){  
            System.out.println("Not a TrafficLight Color");  
            return;  
        }  
  
        switch (ch) {  
            case 'R': System.out.println("Stop"); break;  
            case 'Y': System.out.println("Ready"); break;  
            case 'G': System.out.println("Go"); break;  
        }  
    }  
}
```



The screenshot shows a Windows command prompt window with the title bar "C:\Windows\System32\cmd.e". The window displays the following commands and their outputs:

```
V:\CDAC\3_00P_Java\1_Assignments\2_Assignment>java TrafficLight r  
Stop  
  
V:\CDAC\3_00P_Java\1_Assignments\2_Assignment>java TrafficLight R  
Stop  
  
V:\CDAC\3_00P_Java\1_Assignments\2_Assignment>java TrafficLight z  
Not a TrafficLight Color  
  
V:\CDAC\3_00P_Java\1_Assignments\2_Assignment>
```

Problem 4: Number to Word Conversion

Task: Write a program that takes an integer input (0-5) from the user and prints the corresponding word (e.g., 0 -> "Zero", 1 -> "One"). Use a switch statement to handle the Conversion.

```
import java.util.Scanner;
class NumberConversion {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a Number between 0 to 5: ");
        int num = scanner.nextInt();

        switch (num) {
            case 0: System.out.println("Zero"); break;
            case 1: System.out.println("One"); break;
            case 2: System.out.println("Two"); break;
            case 3: System.out.println("Three"); break;
            case 4: System.out.println("Four"); break;
            case 5: System.out.println("Five"); break;
        }
    }
}
```

```
C:\Windows\System32\cmd.e  X  +  v
Five
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>java NumberConversion.java
Enter a Number between 0 to 5: 5
Five
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>java NumberConversion.java
Enter a Number between 0 to 5: 2
Two
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>
```

Problem 5: Month Days

Task: Write a program that takes an integer input (1-12) representing a month and prints the number of days in that month. Assume it's not a leap year.

```
import java.util.Scanner;
class MonthDays {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a Month number (1 to 12): ");
        int month = scanner.nextInt();
        int days = 0;
        switch (month) {
            case 1: // january
            case 3: // march
            case 5: // may
            case 7: // july
            case 8: // august
            case 10: // october
            case 12: // december
                days = 31;
                break;

            case 4: // april
            case 6: // june
            case 9: // september
            case 11: // november
                days = 30;
                break;

            case 2: days = 28; break;
        }
        System.out.println("Number of Days =" + days);
    }
}
```

Output:

```
V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>javac MonthDays.java

V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>java MonthDays
Enter a Month number (1 to 12): 4
Number of Days =30

V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>java MonthDays
Enter a Month number (1 to 12): 8
Number of Days =31

V:\CDAC\3_OOP_Java\1_Assignments\2_Assignment>|
```