CORE JAVA

If statements Practice questions-

Practical and theoretical knowledge both are really important when learning a programming language. So, to gain a strong gasp on basics of Java, we are going to practice practical questions in this chapter. Also, do check out the homework questions.

Before doing practical questions, we are going to learn -

How to take input from the user through the console-

Till now, we are directly providing the value of variable in our code, but what to do if we want to take input from user at run-time. Let's see.

In Java, you can take input from the user through the console using the Scanner class, which is part of the java.util package. The Scanner class provides methods to read different types of input, such as strings, integers, boolean values and floating-point numbers.

Using the Scanner class makes it easy to read different types of input from the user in a console-based Java application.

Steps to Take Input from the User

1. **Import the Scanner Class:** You need to import the Scanner class from the java.util package.
2. **Create a Scanner Object:** Create an instance of the Scanner class to read input from the standard input stream (keyboard).
3. **Use Scanner Methods:** Use the appropriate methods of the Scanner class to read the type of input you need.

Common Methods of the Scanner Class-

Here are some common methods of the Scanner class used for different types of input:

- **nextInt():** Reads an integer.
- **nextFloat():** Reads a float.
- **nextDouble():** Reads a double.
- **nextBoolean():** Reads a boolean.
- **nextLine():** Reads a line of text (string input).
- **next():** Reads a single word (string input).

Example-

UserInput - Notepad

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```
import java.util.Scanner;   // importing Scanner class

public class UserInput{
        public static void main(String args[])
        {
                Scanner s=new Scanner(System.in);  // creating object of Scanner class

                int a=s.nextInt();  // using nextInt() method taking integer input from user

                System.out.println("User entered value:"+a);
        }

}
```

Output-

```
C:\Users\LENOVO\Documents\java_practical>java UserInput
10
User entered value:10
```

In the above example we are taking integer input from user from the console and then displaying the value using System.out.println() method.

Example 2:

UserInput - Notepad

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```
import java.util.Scanner;

public class UserInput{
        public static void main(String args[])
        {
                Scanner s=new Scanner(System.in);
                System.out.println("Enter Integer value:");
                int a=s.nextInt();

                System.out.println("Enter float value:");
                float pi=s.nextFloat();

                System.out.println("Enter boolean value:");
                boolean b=s.nextBoolean();


                System.out.println("User entered values:"+a+"\n"+pi+"\n"+b);

        }

}
```

Output-

```
C:\Users\LENOVO\Documents\java_practical>javac UserInput.java

C:\Users\LENOVO\Documents\java_practical>java UserInput
Enter Integer value:
10
Enter float value:
3.14
Enter boolean value:
true
User entered values:10
3.14
true
```

We will learn about - How to take character input and String input in upcoming chapters after we finish learning basics of String.

From the upcoming practical questions, we will use Scanner class in almost every program to take user input at run-time.

Practical 1: To check if a number is even or odd. (using if-else statement)

OddEvenCheck - Notepad

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```
// To check if the entered number is even or odd

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

                System.out.print("Enter your number:");
                int num=s.nextInt();

                if(num%2==0)
                {
                        System.out.println("Number is even");
                }
                else{
                        System.out.println("Number is odd");
                }

        }
}
```

Output-

```
C:\Users\LENOVO\Documents\java_practical>javac OddEvenCheck.java

C:\Users\LENOVO\Documents\java_practical>java OddEvenCheck
Enter your number:5
Number is odd
```

```
C:\Users\LENOVO\Documents\java_practical>java OddEvenCheck
Enter your number:52
Number is even
```

Practical 2: To check if the user is eligible to vote or not (using if-else statement)

VoteCheck - Notepad

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```
// To check if the user is eligible to vote or not

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

                System.out.print("Enter your age:");
                int age=s.nextInt();

                if(age>=18)
                {
                        System.out.println("User is eligible to vote");
                }
                else{
                        System.out.println("User is not eligible to vote");
                }

        }
}
```

Output-

```
C:\Users\LENOVO\Documents\java_practical>javac VoteCheck.java

C:\Users\LENOVO\Documents\java_practical>java VoteCheck
Enter your age:23
User is eligible to vote

C:\Users\LENOVO\Documents\java_practical>java VoteCheck
Enter your age:16
User is not eligible to vote
```

Homework Question: Check if user is eligible to drive or not.

Practical 3: Finding the largest number among 3 numbers(using if-else if statement and logical operators)

LargestNumber - Notepad

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```
import java.util.Scanner;

public class LargestNumber {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter three numbers: ");
        int num1 = scanner.nextInt();
        int num2 = scanner.nextInt();
        int num3 = scanner.nextInt();

        if (num1 > num2 && num1 > num3) {
            System.out.println(num1 + " is the largest number.");
        } else if (num2 > num1 && num2 > num3) {
            System.out.println(num2 + " is the largest number.");
        } else {
            System.out.println(num3 + " is the largest number.");
        }
    }
}
```

Output-

```
C:\Users\LENOVO\Documents\java_practical>javac LargestNumber.java

C:\Users\LENOVO\Documents\java_practical>java LargestNumber
Enter three numbers: 10 20 30
30 is the largest number.

C:\Users\LENOVO\Documents\java_practical>java LargestNumber
Enter three numbers: 10 15 10
15 is the largest number.
```

Practical 4: To check if a number is divisible by 2 and 5.

DivCheck - Notepad

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```
import java.util.Scanner;

public class DivCheck {
    public static void main(String[] args) {
        Scanner s = new Scanner(System.in);

        System.out.print("Enter a number: ");
        int number = s.nextInt();

        if (number % 2 == 0 && number % 5 == 0)
        {
            System.out.println("Divisible by 2 and 5");
        }
        else {
            System.out.println("Not divisible by 2 and 5");
        }
    }
}
```

Output-

```
C:\Users\LENOVO\Documents\java_practical>javac DivCheck.java

C:\Users\LENOVO\Documents\java_practical>java DivCheck
Enter a number: 10
Divisible by 2 and 5

C:\Users\LENOVO\Documents\java_practical>java DivCheck
Enter a number: 20
Divisible by 2 and 5

C:\Users\LENOVO\Documents\java_practical>java DivCheck
Enter a number: 15
Not divisible by 2 and 5
```

Practical 5: Grade Calculation (using if- else if statement)

GradeCalc - Notepad

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```
import java.util.Scanner;

public class GradeCalc {
    public static void main(String[] args) {
        Scanner s = new Scanner(System.in);

        System.out.print("Enter your score: ");
        int score = s.nextInt();

        if (score >= 90 && score <= 100) {
            System.out.println("A");
        } else if (score >= 80) {
            System.out.println("B");
        } else if (score >= 70) {
            System.out.println("C");
        } else if (score >= 60) {
            System.out.println("D");
        } else {
            System.out.println("F");
        }
    }
}
```

Output-

```
C:\Users\LENOVO\Documents\java_practical>javac GradeCalc.java

C:\Users\LENOVO\Documents\java_practical>java GradeCalc
Enter your score: 100
A

C:\Users\LENOVO\Documents\java_practical>java GradeCalc
Enter your score: 85
B
```

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