

EXPERIMENT 4

// Introduction to Input Statements in Java

/* Input mechanism in Java is a highly sophisticated one, and there are many ways to carry out the input operations in Java.

This experiment explores the method of using **an object of the Scanner class** to receive input from the user. */

PROGRAM 3

// To check whether a given number is a palindrome or an armstrong number.

// Source Code -

```
import java.util.Scanner;
```

```
class RandomCheck
```

```
{
```

```
    public static void main(String args[])
```

```
    {
```

```
        Scanner sc = new Scanner(System.in);
```

```
        System.out.print("Enter a number: ");
```

```
        int num = sc.nextInt();
```

```
        System.out.print("Enter '1' to check for Palindrome &  
'2' to check for Armstrong: ");
```

```
        int option = sc.nextInt();
```

```
        int temp = num, digit, rev=0, sum=0;
```

```
        switch(option)
```

```
        {
```

```
            case 1:
```

```
            {
```

```
                while(num>0)
```

```
                {
```

```
                    digit = num % 10;
```

```

        rev = rev*10 + digit;
        num /= 10;
    }
    if(rev == temp)
    {
        System.out.println("Palindrome");
    }
    else
    {
        System.out.println("Not Palindrome");
    }
    break;
}

case 2:
{
    while(num>0)
    {
        digit = num % 10;
        sum = sum + (digit*digit*digit);
        num /= 10;
    }
    if(sum == temp)
    {
        System.out.println("Armstrong");
    }
    else
    {
        System.out.println("Not Armstrong");
    }
    break;
}

default:
{
    System.out.println("Check not applicable.");
}
}
}
}

```

Output -

Enter a number: 121

Enter '1' to check for Palindrome & '2' to check for Armstrong: 1
Palindrome

Enter a number: 153

Enter '1' to check for Palindrome & '2' to check for Armstrong: 2
Armstrong

Enter a number: 132

Enter '1' to check for Palindrome & '2' to check for Armstrong: 2
Not Armstrong

Enter a number: 465

Enter '1' to check for Palindrome & '2' to check for Armstrong: 3
Check not applicable.

VIVA QUESTIONS**1) What is a package?**

A package is a collection of classes that contains functionalities to support a specific task.

2) Why do we need to import any package in a program?

We need to import a package to get a specific task performed in the program. Whenever we create a source file with the extension of a particular programming language, some predefined functionalities of that language get automatically attached to our source file and we can use them very easily in our program. But, certain functionalities are highly specific and sophisticated, and they cannot be assigned to a program so loosely, may be because of security concerns or for preventing wastage of memory. So, such functionalities should be imported in a program only when they are required to be used and these are imported in the form of a package.

3) What does the 'java.util' package bring in a Java program?

The 'java.util' package contains many functionalities to support execution of a Java program like the collections framework, legacy collection classes, event model, date and time facilities, internationalization, and miscellaneous utility classes.

4) Describe the purpose of Scanner class?

The Scanner class is a predefined class in java.util package that provides functionalities to carry out input operations in Java.

5) What does System.in represent?

The 'System' class is a predefined class in 'java.lang' package that gets automatically imported in a Java program. This class contains several aspects of the run-time environment to support a Java program in its execution.

From System class we get a variable 'in' which is associated with the standard input stream (keyboard) of the computer, and helps in getting input from the keyboard in a program.

'System' makes a call to its variable 'in' through dot operator(.).

6) Explain the statement - *Scanner sc = new Scanner(System.in);*

This statement creates an object of the Scanner class at the run-time of a program, and assigns it to the standard input stream of the computer through the 'System.in' command. This objects makes us utilize the functionalities of the Scanner class in real time. Any input operation in the program occurs with the help of it.

7) List the various input functions in Java.

The various input functions in Java are:

Function	Purpose
nextByte()	To read a byte value
nextShort()	To read a short value
nextInt()	To read an integer value
nextLong()	To read a long value
nextFloat()	To read a float value
nextDouble()	To read a double value
nextLine()	To read a String value
nextBoolean()	To read a boolean value

8) What is the significance of the 'break' keyword?

This keyword allows us to terminate a particular block of code as and when required, and shift the control of execution to the next statement outside it.