

JAVA@17

Java Scanner & API

Objective

After completing this session you will be able to understand,

- Working with new Scanner API

Why Scanner API?

What good is a video game if you are not allowed to provide any input?



You all know to display text on the console from a java program, but how can you take an input from a user?

**Use Scanner
Class**

java.util.Scanner

- Prior to Java 1.5, getting input from the console involved some complex steps.
- Java 1.5 introduced the Scanner class which simplifies console input.
- It can also be used to read from files and Strings.
- It also can be used as a pattern matching utility.
- Scanner is available in the java.util package.

How Scanner is works?

How Scanner works?

- The Scanner class parses input from the source into tokens by using delimiters to identify the token boundaries.

Example: Shri, Hari, Saro, Iyan

Token 1: Shri **Token 2:** Hari **Token 3:** Saro

- The default set of delimiters consists of the whitespace characters, space, tab, newline and carriage return.
- Scanner will read a line of input from its source.

Syntax:

Scanner <objectName>= **new Scanner(System.in);**

System.in is an **InputStream** used to receive data inputs from console using the keyboard.

Scanner APIs

Method	Description
<i>String</i> next()	Finds and returns the next token from the input as a string
<i>String</i> nextLine()	Finds and returns the next token from the input as a string
<i>boolean</i> nextBoolean()	Scans the next token of the input as a boolean
<i>byte</i> nextByte()	Scans the next token of the input as a byte
<i>short</i> nextShort()	Scans the next token of the input as a short
<i>int</i> nextInt()	Scans the next token of the input as a integer
<i>long</i> nextLong()	Scans the next token of the input as a long
<i>float</i> nextFloat()	Scans the next token of the input as a float
<i>double</i> nextDouble()	Scans the next token of the input as a double



Important: InputMismatchException can be thrown if you try to get the next token using a next method that does not match the type of the token.

How to work with Scanner Class?

Let us learn on how to use the Scanner class to read user input

Step 1: Create an instance of Scanner class.

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

Step 2: User name retrieved as input from the console, Invoke the `nextLine()` method in the following way

```
String userName = scan.nextLine();
```

Step 3: Age retrieved as input from the console, Invoke `nextInt()` method in the following way.

```
int age = scan.nextInt();
```

Example – Scanner class

Problem Statement: Develop a java program which requests the user to enter the user name and his age and print a message welcoming the user

Develop a class **ScanDemo** with a main method that performs the below operations

1. The program should display the message in console **“Enter your name”** once the user has entered the name.
2. The program should display the message **“Enter your age”**
3. Once the user has entered the age.
4. The program should display a welcome message as mentioned below,
“Welcome to Mr./Ms.<user name>, Your age is <user age>”

Example – Scanner class

Solution:

```
public class ScanDemo {  
    public static void main(String[] args) {  
        Scanner scan = new Scanner(System.in);  
        System.out.println("Enter your name");  
        String name = scan.nextLine();  
        System.out.println("Enter your age");  
        int age = scan.nextInt();  
        System.out.println("Welcome to Mr./Ms."+name+", Your age is "+age);  
        scan.close();  
    }  
}
```

Thank you

You have successfully completed
Scanner API