

# Programming in Java Lab



## *Lab 02: Reading Input From Keyboard and Arrays*

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Course webpage

<http://www.mkbhandari.com/mkwiki>

# Outline



- 1 Reading Input from Keyboard
- 2 Arrays and Types of arrays



# Reading input from Keyboard (User)

// Java program to read data of various types from user **(using Scanner class)**

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

```
public class InputFromUser{
```

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

```
        //Declare the object and initialize with predefined standard input object
```

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

```
        // String input
```

```
        String name = input.nextLine();
```

```
        // Character input
```

```
        char gender = input.next().charAt(0);
```

```
        // Numerical data input
```

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

```
        long mobileNo = input.nextLong();
```

```
        float cgpa = input.nextFloat();
```

```
        // Print the values
```

```
        System.out.println("Name: "+name);
```

```
        System.out.println("Gender: "+gender);
```

```
        System.out.println("Age: "+age);
```

```
        System.out.println("Mobile Number: "+mobileNo);
```

```
        System.out.println("CGPA: "+cgpa);
```

```
    }
```

```
}
```

# Arrays



- An array is a group of like-typed variables that are referred to by a common name.
- Arrays in Java work differently than they do in C/C++.
  - In Java all arrays are dynamically allocated.
  - Since arrays are objects in Java, we can find their length using member **length**.
- Creating, Initializing, and Accessing an Array(1-D)
  - `int intArray[ ];` or `int[ ] intArray;` // Declaring array
  - `intArray = new int[20];` // Allocating memory to array
  - `Int[ ] intArray = new int[20];` // Combining both statements in one
  - `Int[ ] intArray = new int[ ]{ 1,2,3,4,5,6,7,8,9,10 };` // Declaring array literal
  - Accessing the elements of an array  
for (int i = 0; i < intArray.length; i++)  
    System.out.println("Element at index " + i + " : "+ intArray[i]);

# Arrays – 1D Example



```
class Array1DExample{
    public static void main(String args[ ]){
        int arr[ ];
        System.out.println("Enter the size of array");
        int n = input.nextInt();
        arr[ ] = new int[n];
        //Read the element of array from user
        System.out.println("Enter the Element in array);
        for(int i = 0; i < arr.length; i++) {
            arr[i] = nextInt();
        }

        // Print the element of array
        for (int i = 0; i < arr.length; i++) {
            System.out.println("Element at index " + i + " : "+ arr[i]);
        }
    }
}
```

# Multi Dimensional Arrays



## ■ Creating, Initializing, and Accessing an Array(Multi-Dimensional Array)

- `Int[ ][ ] intArray = new int[10][20];` //a 2D array or matrix  
`Int[ ][ ][ ] intArray = new int[10][20][10];` //a 3D array

```
class Array2DExample
{
    public static void main(String args[ ]) {
        // declaring and initializing 2D array
        int arr[][] = { {2,7,9},{3,6,1},{7,4,2} };
        // printing 2D array
        for (int i=0; i< 3 ; i++) {
            for (int j=0; j < 3 ; j++) {
                System.out.print(arr[i][j] + " ");
            }
            System.out.println();
        }
    }
}
```

# References



## R Reference for this topic

- [ GeeksforGeeks ]  
<https://www.geeksforgeeks.org/java/>
- [ Java T Point tutorial ]  
<https://www.javatpoint.com/java-tutorial>