

Arrays in JAVA

Arrays

- Array is collection of related or similar data items
- Creating an array
 - Declare an array
 - Create memory location
 - Putting values to memory locations

Declaring an Array Variable

- `<type> [] variable_name;`
- `Double[] myList;`
- `double myList[];`
- Both syntaxes are equivalent
- No memory allocation at this point

Defining an Array

Define an array as follows:

- `variable_name=new <type>[arraySize];`
- `Number = new int[5];`
- `Mylist = new int[10];`

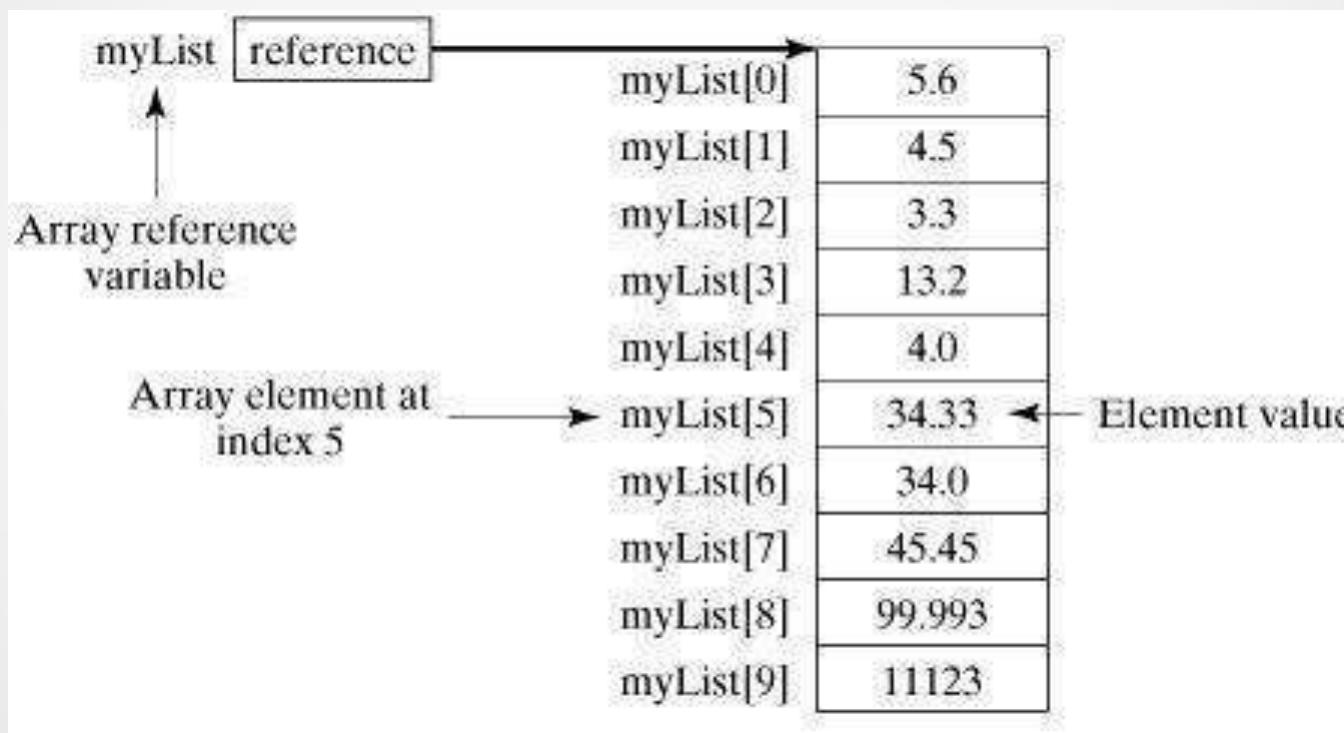
It creates an array using `new dataType[arraySize];`

- . It assigns the reference of the newly created array to the variable `variable_name`.
- . `dataType arrayname[] = {list of values};`
- . `Int a []={1,2,3,4,5,6,7,};`
- . Array index starts from 0 to `arraySize-1`;
- . `int` is of 4 bytes, total space= $4 * 10 = 40$ bytes

Declaring and defining in the same statement:

- `Double [] myList = new double[10];`

Creating arrays cntd...



PROCESSING ARRAY ELEMENTS

- Often a **for()** loop is used to process each of the elements of the array in turn.
- The loop control variable, **i**, is used as the index to access array components

EXAMPLE:- int i;

```
for(i=0;i<=2;i++)
```

```
{
```

```
    System.out.println(+score[i]);
```

```
}
```

score [0]



0	1	2	3	4	5	6	
score	50	12	45	78	66	100	125

```
int i;  
for(i=1;i<=2;i++)  
{  
    System.out.println(+score[i]);  
}
```

score [1]



0	1	2	3	4	5	6
50	12	45	78	66	100	125

score

Array Length

- Refer to array length using *length() method*
 - A data member of array object
 - `array_variable_name.length`
 - `for(int k=0; k<primes.length;k++)`
- Sample Code:

```
long[ ] primes = new long[20];
System.out.println(primes.length);
```
- Output: 20
- If number of elements in the array are changed,
JAVA will automatically change the length attribute!

Sample Program

```
class MinArray
{
    public static void main ( String[] args )
    {
        int[] array = { 20, 19, 1, 5, 71, 27, 19, 95 } ;
        int min=array[0]; // initialize the current minimum
        for ( int index=0; index < array.length; index++ )
        {
            if ( array[ index ] < min )
                {min = array[ index ] ;}
        }
        System.out.println("The minimum of this array is: " + min );
    }
}
```

Two dimensional array

o DECLARATION:-

Follow the same steps as that of simple arrays.

Example:-

```
int [ ][ ];           → int chart[ ][ ] = new int [3][2];  
chart = new int [3][2];
```

o INITIALIZATION:-

```
int chart[3][2] = { 15,16,17,18,19,20};
```

15	16
17	18
19	20

```
int chart[ ][ ] = { {15,16,17},{18,19,20} };
```

15	16	17
18	19	20

- Write a java program to accept 10 students marks and display the highest marks and its position ansh
- Write a java program to accept 3x2 matrix and display transpose of a matrix sanjudevi

THANK YOU