



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,};`

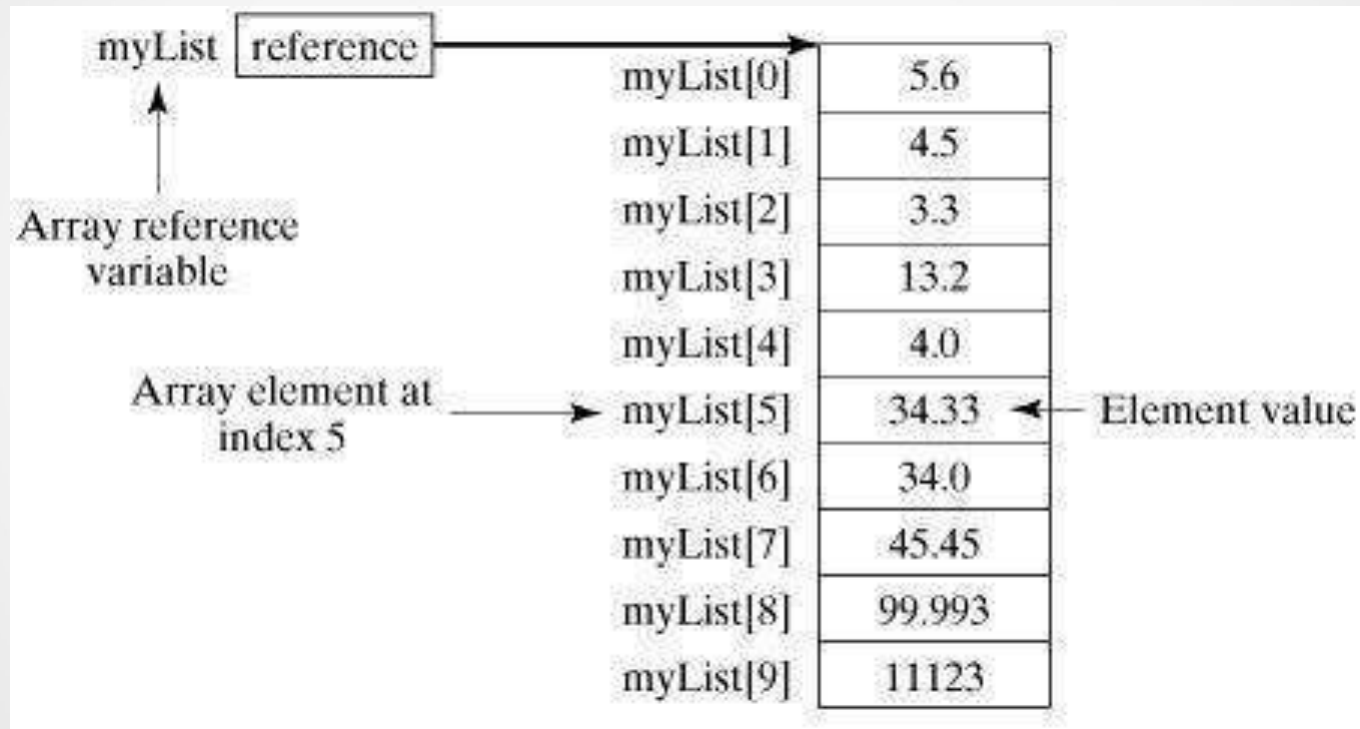
· Array index starts from 0 to `arraySize-1`;

· `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]);`

`}`

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

score [0]



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

score [1]



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

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

- DECLARATION:-

Follow the same steps as that of simple arrays.

Example:-

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

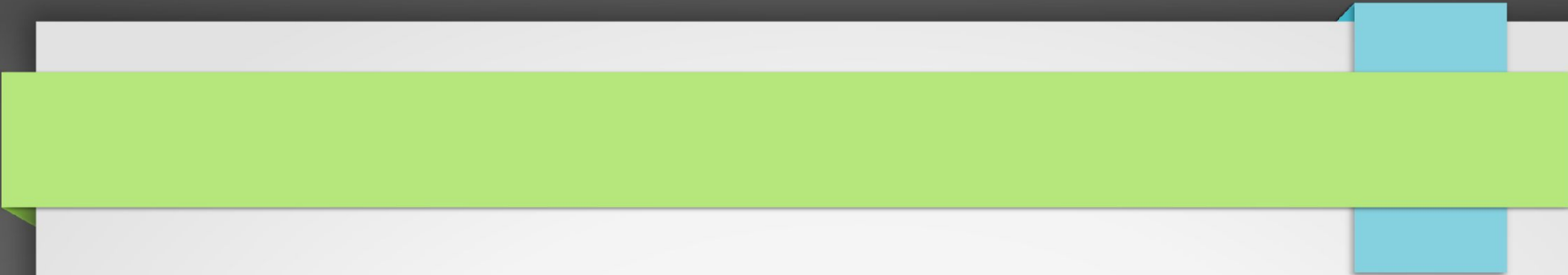
- INITIALIZATION:-

`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 |

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- 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