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];

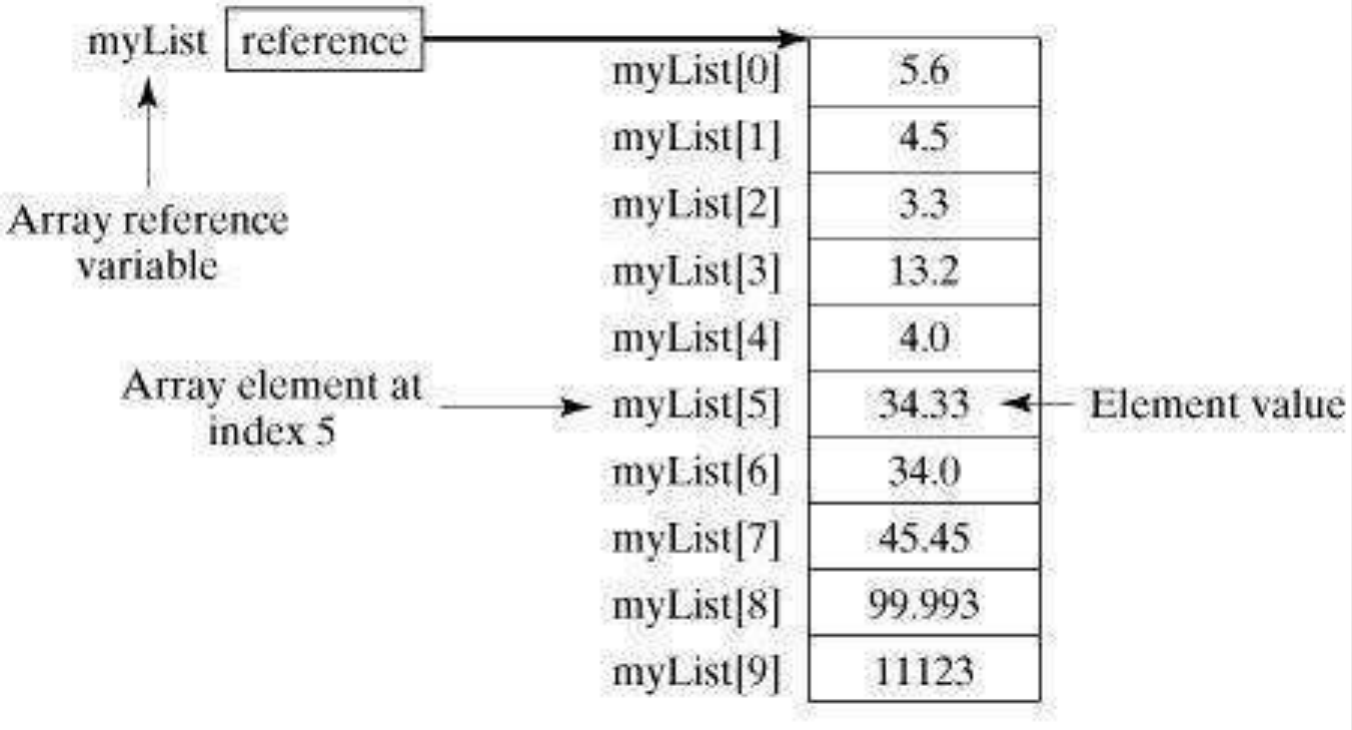
It creates an array using new dataType[arraySize];

- 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...



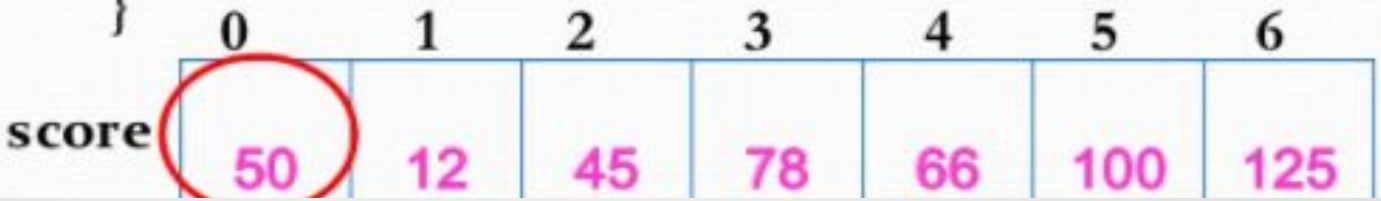
PROCESSING ARRAY ELEMENTS

- 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:-

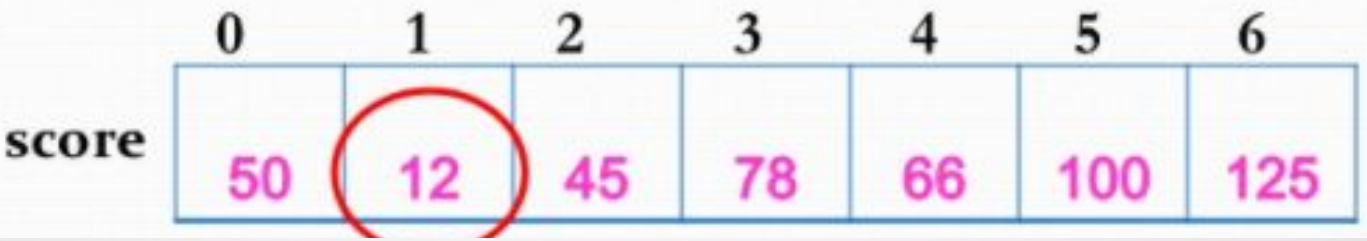
```
int i;
for(i=0;i<=2;i++)
  {
  System.out.println(+score[i]);
  }
```

score [0]



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

score [1]



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 dimenssional array

- DECLARATION:-

  Follow the same steps as that of simple arrays.

Example:-

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

```
int 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

THANK YOU