ARRAYS

- An array is a list of similar things
- An array has a fixed:

  Name

  Type

  Length
- These must be declared when the array is created.
- Arrays sizes cannot be changed during the execution of the code

DECLARING ARRAYS

int myArray[];

declares *myArray* to be an array of integers

myArray = new int[8];

sets up 8 integer-sized spaces in memory, labelled *myArray[0]* to *myArray[7]*

int myArray[] = new int[8];

combines the two statements in one line

ASSIGNING VALUES

- Refer to the array elements by index to store values in them.

```
myArray[0] = 3;
myArray[1] = 6;
myArray[2] = 3;   ...
```

- Can create and initialise in one step:

```
int myArray[] = {3, 6, 3, 1, 6, 3, 4, 1};
```

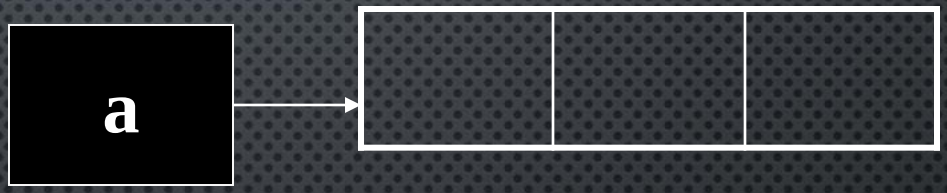
ITERATING THROUGH ARRAYS

FOR LOOPS ARE USEFUL WHEN DEALING WITH ARRAYS:

```
FOR (INT I = 0; I < MYARRAY.LENGTH; I++) {
  SYSTEM.OUT.PRINTLN(MYARRAY[I]);
}
```

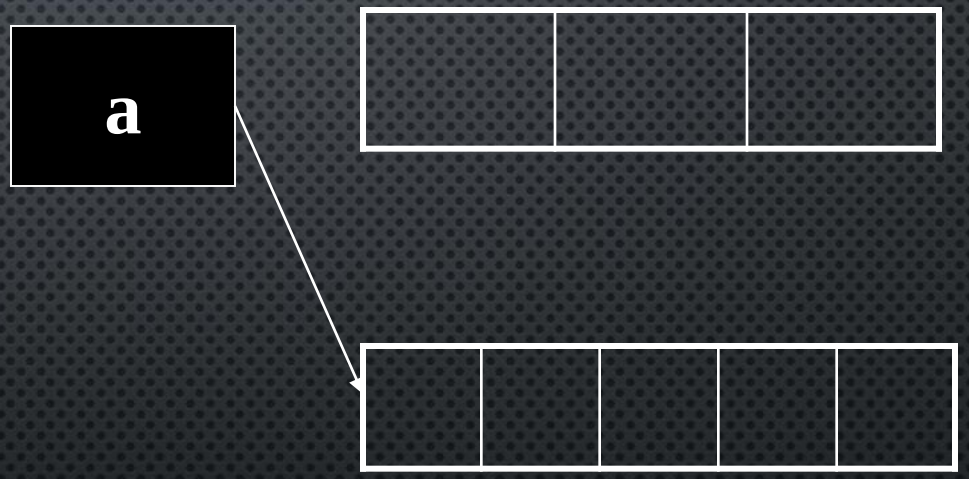
```
import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;
public class SumOfArray {
public static void main(String args[]) throws IOException {
int a[] = new int[5];   int sum = 0;
BufferedReader br = new BufferedReader(new
    InputStreamReader(System.in));
System.out.println("Enter 5 Values");
for (int i = 0; i < a.length; i++) {
    a[i] = Integer.parseInt(br.readLine());
   }
for (int i = 0; i < a.length; i++) {
      sum = sum + a[i];
    }
System.out.println("Sum of Array : " + sum); } }
```

AN ARRAY HAS A FIXED LENGTH




```
INT A[]=NEW INT[3];
```

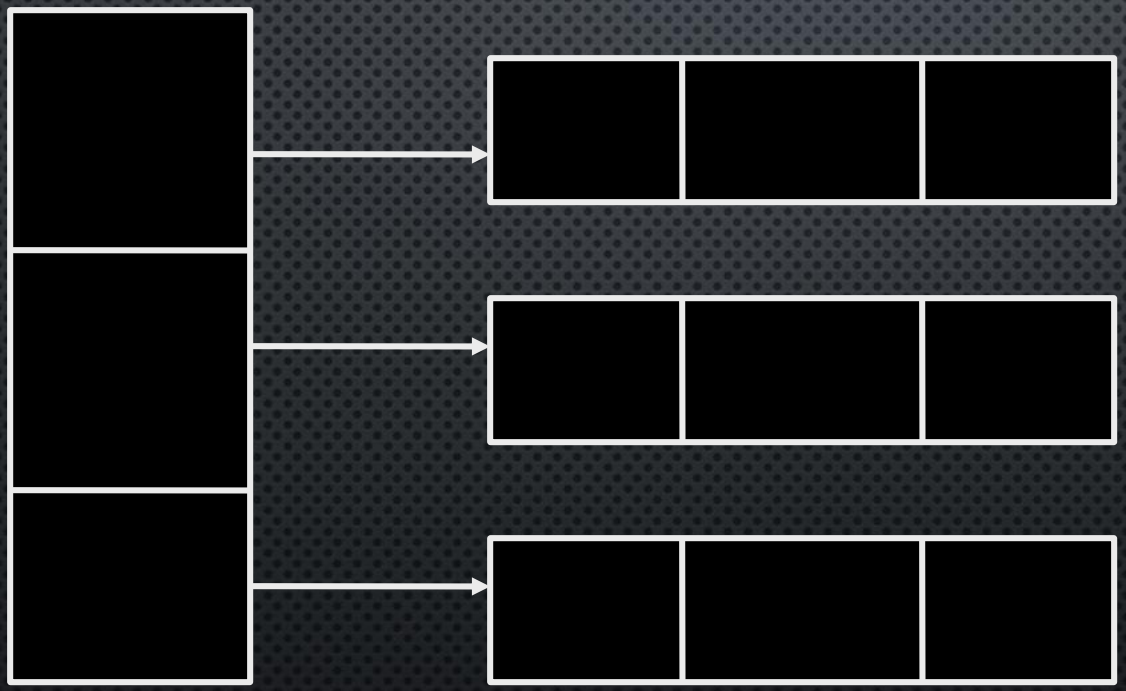
AN ARRAY HAS A FIXED LENGTH




```
INT A[]=NEW INT[3];

A=NEW INT[5];
```

MULTIDIMENSIONAL ARRAY

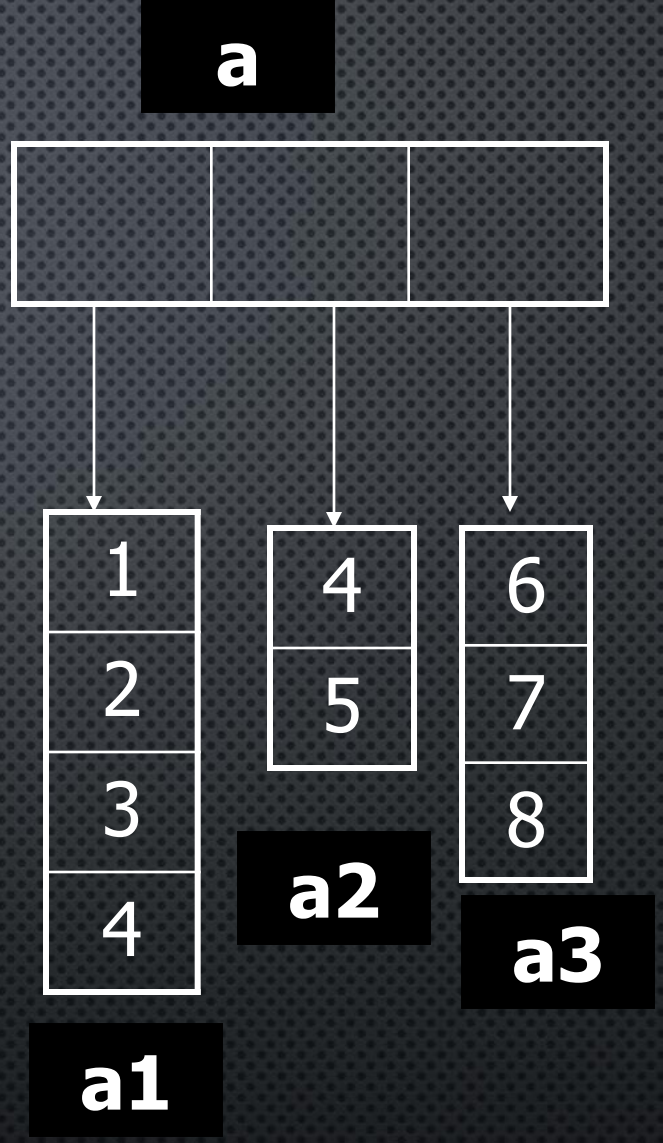


EXAMPLE 1

```
public class ArrayOfArray1 {
    public static void main(String args[]){
        int a[][]={{1,2,3},{4,5,6},{7,8,9}};
        System.out.println("Array in Matrix form");
        for(int i=0;i<3;i++){
            for(int j=0;j<3;j++){
                System.out.print(a[i][j]);
            }
            System.out.println();
        }
    } }
```

EXAMPLE 2

```
public class ArrayOfArray2 {
 public static void main(String args[])    {
    int a[][]=new int[3][];
    int a1[]={1,2,3,4};
    int a2[]={4,5};
    int a3[]={6,7,8};
    a[0]=a1; a[1]=a2; a[2]=a3;
    System.out.println("Elements from the
      Array");
    for(int i=0;i<a.length;i++){
       for(int j=0;j<a[i].length;j++){
          System.out.print(a[i][j]);
        }
       System.out.println();
    } } }
```



ARRAY OF OBJECTS

1. Declare the array

   Student studentList[];

this declares studentList

2 .Create the array

studentList = new Student[10];

this sets up 10 spaces in memory that can hold references to Student objects

3. Create Student objects and add them to the array:

studentList[0] = new Student("Cathy", "Computing");

ARRAY OF OBJECT

```
public class ArrayOfObject {
    String name;     int age;
    ArrayOfObject(String name,int age){
        this.name=name;         this.age=age;
    }
    public static void main(String args[])    {
        ArrayOfObject obj[]=new ArrayOfObject[3];
        obj[0]=new ArrayOfObject("AAA",10);
        obj[1]=new ArrayOfObject("BBB",20);
        obj[2]=new ArrayOfObject("CCC",30);
        System.out.println("Elements from the Array");
        for(int i=0;i<obj.length;i++){
            System.out.println("Object : "+i);
            System.out.println("Name   : "+obj[i].name);
            System.out.println("Age    : "+obj[i].age);
        }    }  }
```