Array

Array[1] refers to the 1st element in the array.

A non-negative integer is used to name each element. For example:

- These variables are commonly called elements.
- An array object contains zero or more unnamed variables of the same type.
- They may be assigned to variables of the same type object.
- Are dynamically created (via new), and
- Are objects.

Arrays
reference, including interface, types and abstract class types.

- The element type of an array may be any type, whether primitive or

- An array's length is not part of its type.

- An array of integers. — For example, int[] is the type corresponding to a one-dimensional
  or more empty pairs of square brackets.

- An array type is written as the name of an element type followed by one

Array Types
Array Variables

Type may contain references to arrays of different lengths.
Because an array’s length is not part of its type, a single variable of array
creates the variable, which can contain a reference to an array.
Declaring a variable of array type does not create an array object. It only

precision floating-point numbers.
declares a variable whose type is a two-dimensional array of double-
double[ ] matrices

the array’s type followed by the array’s name. For example, array variables are declared like other variables: a declaration consists of

Array Variables

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• Please use the latter:

```c
double [][] matrix;
double [ ] rowvector, colvector;
```

or

```c
double [ ] rowvector, colvector, matrix[];`n```

• This declaration is equivalent to

```c
double rowvector [ ], colvector [], matrix[][];```

• Example:

```c
to complicated declarations, C/++-like syntax is also supported, for
```

Array Variables (cont.)
```java
new Widget()

Widget[] arrayWidgets = new Widget()

"String"

String[] arrayStrings = new String[]

int [] arrayInts = { 1, 2, 3, 4, 5 }

Another way to initialize array variables is

String[] arrayStrings = new String[10];

Another way to initialize array variables is

Array objects, like other objects, are created with new. For example,

Array Creation

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Array Creation (cont.)

• Once an array object is created, it never changes length!

\[
\text{int}[\text{int}][\text{int}] \text{arrayOfArrayOfInt} = \{{\ 1, 2 \}, \{ 3, 4 \}\};
\]

• The array’s length is available as a final instance variable \text{length}. For example,

\[
\text{int}[\text{int}] \text{arrayOf1To5} = \{ 1, 2, 3, 4, 5 \};
\]

\[
\text{System.out.println(arrayOf1To5.length)};
\]

would print “5”. 
All array accesses are checked at run time: An attempt to use an index that is less than zero or greater than or equal to the length of the array causes an IndexOutOfBoundsException to be thrown.
Consider

Array Store Exception
Java. Java. ArraystoreException
true

produces the output:

Array Store Exception (cont.)