

# Java Programming Language SE - 6

## Module 5 : Arrays

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**ORACLE®**

**Certified Professional**

Java SE 6 Programmer



# Objectives

- Declare and create arrays of primitive, class, or array types
- Explain why elements of an array are initialized
- Explain how to initialize the elements of an array
- Determine the number of elements in an array
- Create a multidimensional array
- Write code to copy array values from one array to another





# Relevance



- What is the purpose of an array?

# Declaring Arrays

- Group data objects of the same type.
- Declare arrays of primitive or class types:

```
char s[];
```

```
Point p[];
```

```
char[] s;
```

```
Point[] p;
```

- Create space for a reference.
- An array is an object; it is created with new.

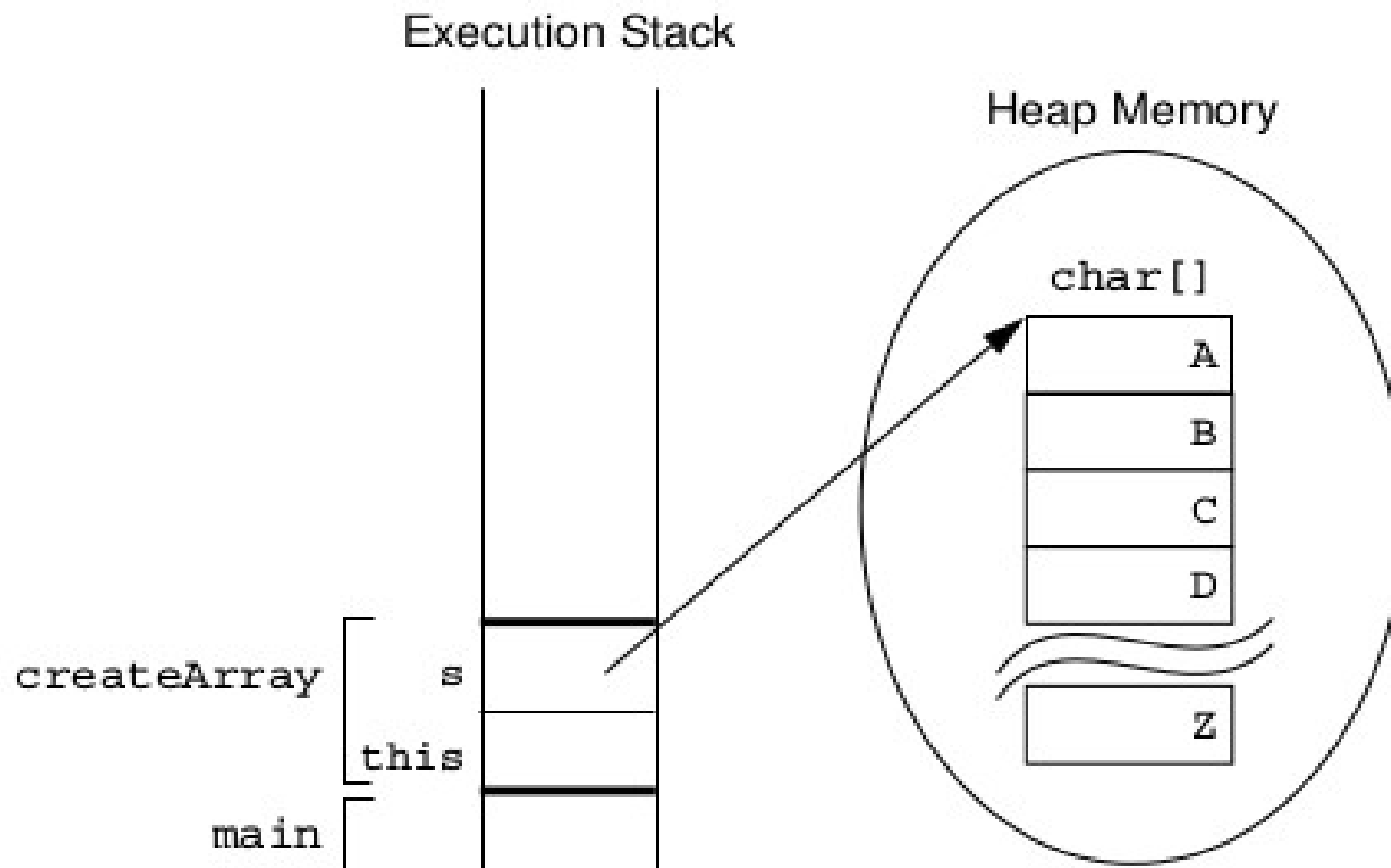
# Creating Arrays

Use the new keyword to create an array object.

For example, a primitive (char) array:

```
public char[] createArray() {  
    char[] s;  
    s = new char[26];  
    for ( int i=0; i<26; i++ ) {  
        s[i] = (char) ('A' + i);  
    }  
    return s;  
}
```

# Creating an Array of Character Primitives



# Creating Reference Arrays

Another example, an object array:

```
public Point[] createArray() {  
    Point[] p;  
    p = new Point[10];  
    for ( int i=0; i<10; i++ ) {  
        p[i] = new Point(i, i+1);  
    }  
    return p;  
}
```

# Initializing Arrays

- Initialize an array element.
- Create an array with initial values.

```
String[] names;
```

```
names = new String[3];
```

```
names[0] = "Georgianna";
```

```
names[1] = "Jen";
```

```
names[2] = "Simon";
```



# Multidimensional Arrays

- Arrays of arrays:

```
int[][] twoDim = new int[4][];
```

```
twoDim[0] = new int[5];
```

```
twoDim[1] = new int[5];
```

```
int[][] twoDim = new int[][4]; // illegal
```

- Array of four arrays of five integers each:

```
int[][] twoDim = new int[4][5];
```

# Array Bounds

*All array subscripts begin at 0:*

```
public void printElements(int[] list) {  
    for (int i = 0; i < list.length; i++) {  
        System.out.println(list[i]);  
    }  
}
```

# Using the Enhanced for Loop



- Java 2 Platform, Standard Edition (J2SETM) version 5.0 introduced an enhanced for loop for iterating over arrays:

```
public void printElements(int[] list) {  
    for ( int element : list ) {  
        System.out.println(element);  
    }  
}
```

# Array Resizing

- You cannot resize an array.
- You can use the same reference variable to refer to an entirely new array, such as:

```
int[] myArray = new int[6];
```

```
myArray = new int[10];
```

# Copying Arrays

*The System.arraycopy() method to copy arrays is:*

//original array

```
int[] myArray = { 1, 2, 3, 4, 5, 6 };
```

// new larger array

```
int[] hold = { 10, 9, 8, 7, 6, 5, 4, 3, 2, 1 };
```

// copy all of the myArray array to the hold

// array, starting with the 0th index

```
System.arraycopy(myArray, 0, hold, 0, myArray.length);
```

# Stay connected

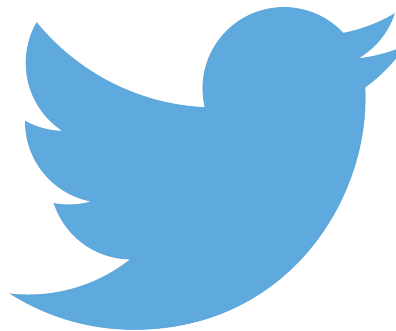


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