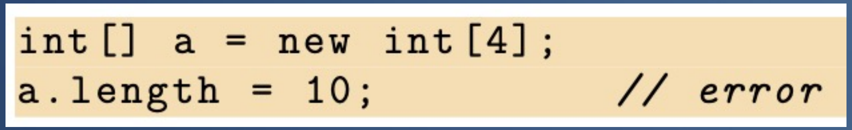
ARRAYS CLASS

Java Arrays API

@ Dr. Jessica Young Schmidt and NCSU Computer Science Faculty

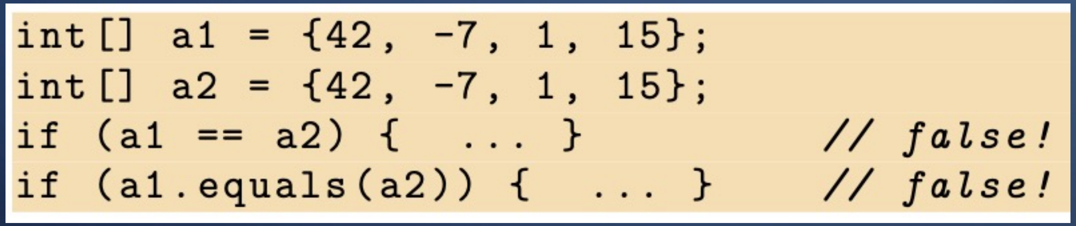
LIMITATIONS OF ARRAYS

- You cannot resize an existing array



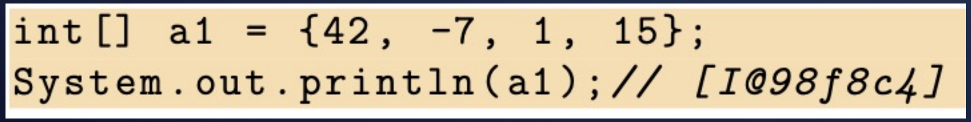
```
int[] a = new int[4];
a.length = 10;          // error
```

- You cannot compare arrays with == or equals



```
int[] a1 = {42, -7, 1, 15};
int[] a2 = {42, -7, 1, 15};
if (a1 == a2) {  ... }          // false!
if (a1.equals(a2)) {  ... }     // false!
```

- An array does not know how to print itself

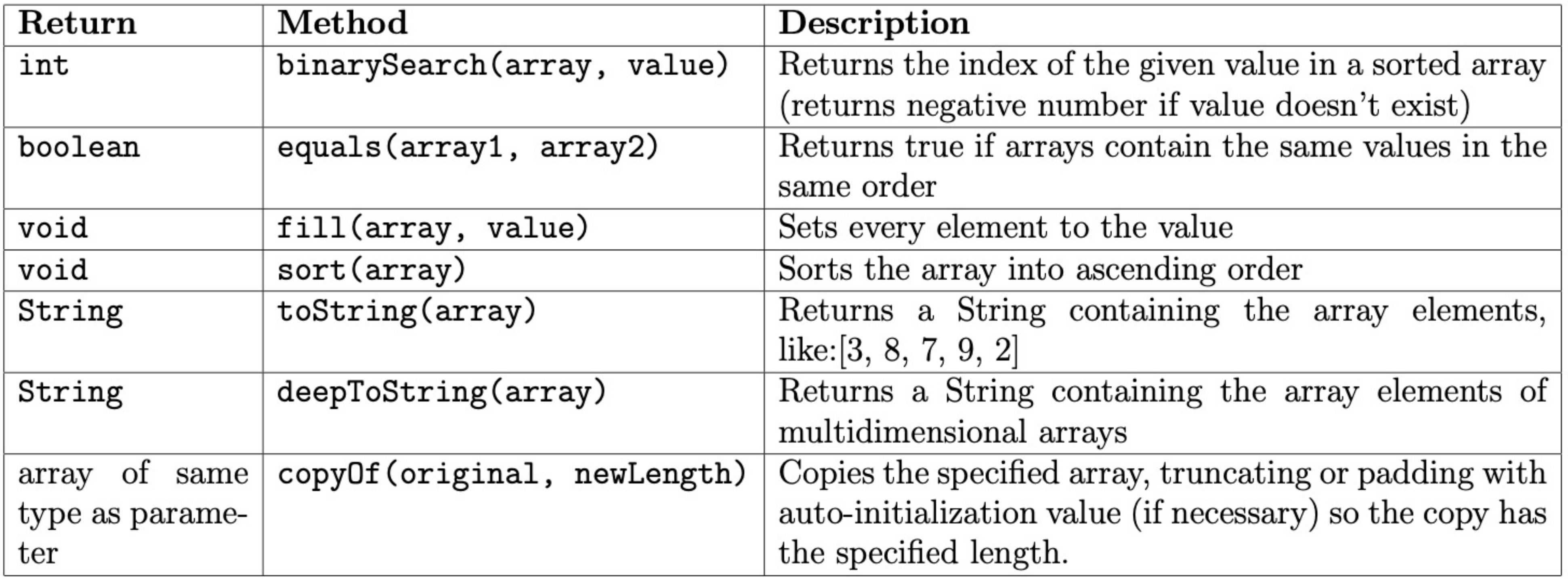


```
int[] a1 = {42, -7, 1, 15};
System.out.println(a1);// [I@98f8c4]
```

ARRAYS CLASS

- Addresses limitations of arrays in java
- Part of the java.util package, which must be imported.
- Useful array manipulation methods

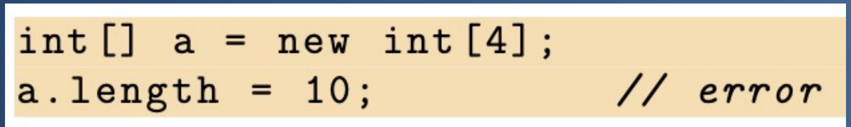
Arrays.<methodName >(<parameters >)



Return	Method	Description
int	binarySearch(array, value)	Returns the index of the given value in a sorted array (returns negative number if value doesn't exist)
boolean	equals(array1, array2)	Returns true if arrays contain the same values in the same order
void	fill(array, value)	Sets every element to the value
void	sort(array)	Sorts the array into ascending order
String	toString(array)	Returns a String containing the array elements, like:[3, 8, 7, 9, 2]
String	deepToString(array)	Returns a String containing the array elements of multidimensional arrays
array of same type as parameter	copyOf(original, newLength)	Copies the specified array, truncating or padding with auto-initialization value (if necessary) so the copy has the specified length.

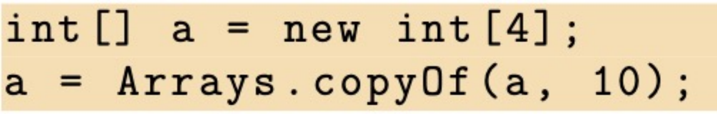
ADDRESSING LIMITATIONS OF ARRAYS

- You cannot resize an existing array



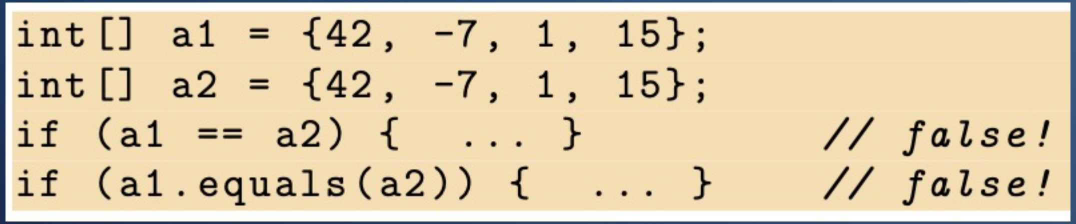
```
int[] a = new int[4];
a.length = 10;          // error
```

✓ Using Arrays.copyOf



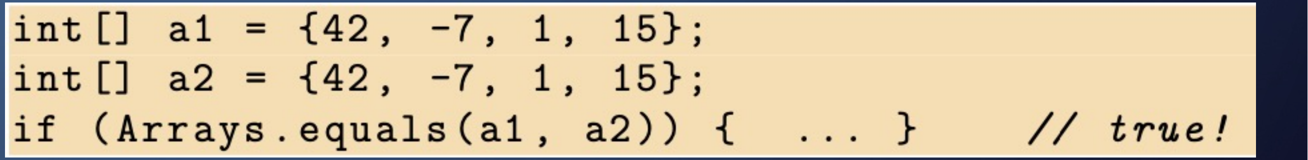
```
int[] a = new int[4];
a = Arrays.copyOf(a, 10);
```

- You cannot compare arrays with == or equals



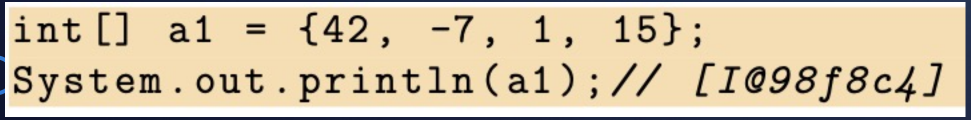
```
int[] a1 = {42, -7, 1, 15};
int[] a2 = {42, -7, 1, 15};
if (a1 == a2) { ... }           // false!
if (a1.equals(a2)) { ... }      // false!
```

✓ Using Arrays.equals



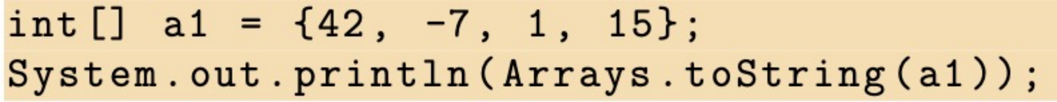
```
int[] a1 = {42, -7, 1, 15};
int[] a2 = {42, -7, 1, 15};
if (Arrays.equals(a1, a2)) { ... }     // true!
```

- An array does not know how to print itself



```
int[] a1 = {42, -7, 1, 15};
System.out.println(a1);// [I@98f8c4]
```

✓ Using Arrays.toString



```
int[] a1 = {42, -7, 1, 15};
System.out.println(Arrays.toString(a1));
```