

COS125 - Precept 6 (Arrays I)

1 Code Tracing 1

Please draw diagrams that represent what the following code is doing.

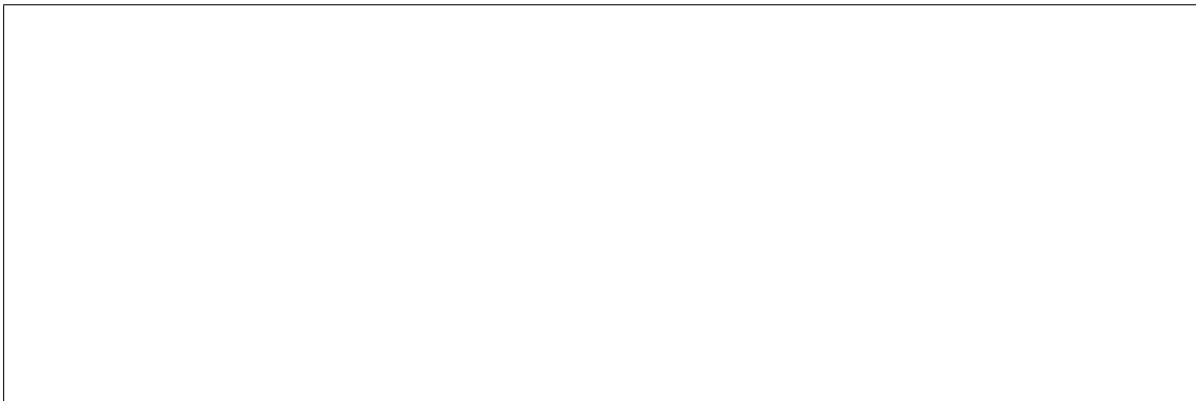
```
int[] a = new int[5];  
int n = a.length;
```



```
a[2] = 10;  
a[3] = 30;
```



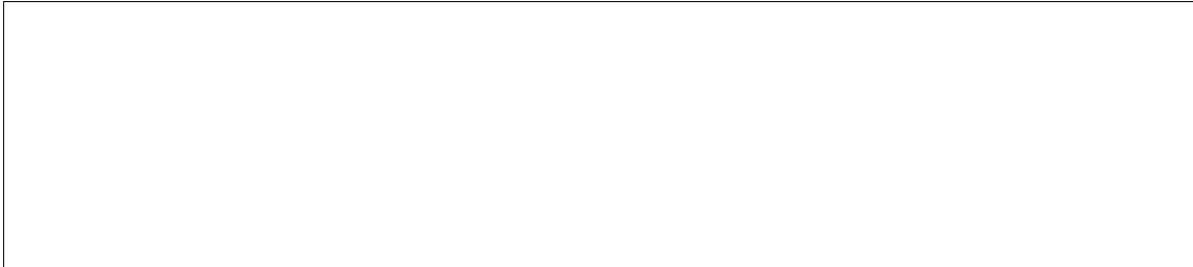
```
boolean result = true;  
for (int i = 0; i < n - 1; i++) {  
    if (a[i] > a[i + 1])  
        result = false;  
}
```



2 Code Tracing 2

Please draw diagrams that represent what the following code is doing.

```
String[] b = {"A", "B", "C", "D", "E"};  
int n = b.length;
```

A large empty rectangular box intended for drawing a diagram that represents the state of the program after the first code block.

```
for (int i = 0; i < n / 2; i++) {  
    String temp = b[i];  
    b[i] = b[n - i - 1];  
    b[n - i - 1] = temp;  
}
```

A large empty rectangular box intended for drawing a diagram that represents the state of the program after the second code block.

3 Sound Loop

Please write a program `SoundLoop.java` that takes two command-line arguments: the path of an audio file and an integer `n`. The program then creates and plays new array that copies the audio samples `n` times, one after another.

For example, running the following code should play the same audio as in `heartbeat-loop.wav`.

```
> javac-introcs SoundLoop.java
> java-introcs SoundLoop heartbeat.wav 10
```

4 args is an array (of String)!

Please write a program `Maximum.java` that takes any number of `int` command-line arguments and finds the index of the maximum command line argument entered by the user.

Below, we show a couple of sample executions:

```
> javac Maximum.java
> java Maximum 0 -125 6 125 -1
3
> java Maximum -12
0
> java Maximum
-1
```

5 Bonus: Unique

Please write a program `Unique.java` that takes any number of `int` command-line arguments and verifies whether the user input a list of unique arguments.

Below, we show a couple of sample executions:

```
> javac Unique.java
> java Unique 0 -125 6 125 -1
true
> java Unique -12 1 1
false
> java Unique
true
```