Today

Debugging
Multi-dimensional Arrays
Thursday: Guest Lecturer - Gary Dahl
  Going over Exam results, arrays
I’m at: SIGCSE (Computer Science Education)
  The rest of this week.
Next Week: ArrayLists & Objects
What is the message?

final String END_OF_DATA = null;  //sentinel
String []list = {"An", "array", ",", "Strings", null, null};
String message = ";
for( String element : list)   //foreach loop
    if ( element != END_OF_DATA)
        message += element + " ";
System.out.println( "message: " + message);
Where is the bug?

```java
import java.util.Scanner;

public class Factorial {
    public static int factorial(int n) {
        int result = 1;
        while (n-- > 0) {
            result *= n;
        }
        return result;
    }
}
```

```java
public static void main( String []args) {
    Scanner scnr = new Scanner( System.in);
    System.out.print("Factorial of? ");
    int num = scnr.nextInt();
    int factorial = factorial( num);
    System.out.println( "Factorial of " + num + " is " + factorial);
    scnr.close();
}
```
Is 18 in this array?

int []list = {10,2,23,64,25,16,67,18,39,10};

//linear search?
//binary search?
Create Multidimensional Arrays

```java
int [ ] [ ] board;
board = new int[5][5];
board[0][0] = 99;
```
Write code to print out as a grid

```c
int [[]]grid = {{1,2,3},{4,5},{7,8,9}};
```

```
1 2 3
4 5
7 8 9
```
String RESPONSE_TABLE = {
    {
        "hello",
        {
            "How do you do.", "Hi."}
    },
    {
        "always",
        {
            "When?", "Really, always?"
        }
    }
};