

The background of the slide features a light gray circuit board pattern with various traces and circular components. A solid dark gray horizontal band runs across the middle of the image, serving as a background for the text.

# CMSC 131

Fall 2018

# Announcements

- Project #5 due on Thursday

# Corner Cases

What are corner Cases?

What corner cases can you think of for FancyWord?

- Constructor is passed a null reference
- Length of string is 0.

[Let's test this to see if we find any more bugs...]

# Arrays of Array References

Since arrays are objects, can we make an array containing a list of other Arrays?

Let's draw the memory diagram for this.

We will call this a “ragged” two-dimensional array.

## Code for Ragged 2-D array

```
int[][] a = new int[3][];  
a[0] = new int[4];  
a[1] = new int[2];  
a[2] = new int[3];
```

How do we access each box?

What does `a.length` represent?

What expression returns the length of a particular row?

Let's write the usual loops that iterate over this structure.

**Example: `RandomRaggedArray.java`**

# Shortcut

If you know the initial values:

```
int[][] a = { {7, 9, 1}, {0, -1}, {1, 4, 3, 9} };
```

# Rectangular 2-D Arrays

Shortcut:

```
int[][] a = new int[3][4];
```

[Rows are automatically instantiated.]

**Example:** RectangularArray.java

# What about Objects?

Suppose we want a 2-D collection of Cats?

Let's write the code that creates this.



# Java Interfaces

What is a Java Interface?

Example: Tours.Java, TourGuide.java, Tourist.java, etc.