

# CS 2341:Fall 2020:Lecture 03

## Data Structures

---

Mark Fontenot, PhD

Southern Methodist University

1

## Reminders

- Homework 1 Due next Wednesday
  - 1 error (question 2) and 1 typo (question 3) were updated. Check them out.
  - Any HW Questions???
- Labs start next week.

2

## Last Class

- Reviewed
  - pointers
  - relationship between pointer offset notation `*(arr + 1)` and subscript notation `arr[1]`.
  - pointers to pointers
- Started learning about memory diagramming

3

## Today

- c-strings
- new and delete review
- Dangling Pointers & Memory Leaks
- What's a segmentation fault?
- Memory management in Classes: Rule of 3

4

## c-strings

5

## new and delete

- if new, then delete
- if new[], then delete[]
- **Don't mix single version and array version.**

6

## Dangling Pointers

- A **dangling pointer** is a pointer that points to memory that is no longer valid.
  - the memory has been released through some other pointer

```
int* x = new int[5];  
int* y = x;  
delete[] y;
```