CS 225: Lecture 2

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Memory Management

Types of Memory Storage

- **Stack** - Local Variable Storage. Exists only in the function or scope (for-loop, while-loop, etc.)
- **Heap** - Dynamic Storage. Persist until deleted, we must manually delete it. (**New** variable). Example - int* bruh = new int[5].

Parameters

- Pass by **value** - local copy of the original. Stores it on the stack. (addID(ID id))
- Pass by **pointer** - a pointer address to the heap, function can directly edit the variable. This creates a new pointer to the original variable. (addID(ID* id))
- Pass by **reference** - pass the actual variable, function can edit this. No new pointer is being made. (addID(ID& id))

Rule of Three

In general, when defining variables and needing any of the bottom listed classes, it's suggested that you define all.

1. Destructor - Called when we need to delete object
2. Copy Constructor - Make new object as a copy of the existing one
3. Copy Assignment Operator - Copy variable X to new variable Y

Pointers

Const references, can't change passed reference. Const functions, can't change member variables.