Midterm notes

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1. Object and Classes

- Anything that is a noun can be a ’class’
- Abstraction mean to have a user intercate with an item at an high level
- Classes have a default constructor with no parameters and with parameters
- classes have mutators which changes the class: void SetName(string name){this->name = name;}
- They have Accessor’s: int getNum(){ return number; }
- You can also define member operators inline
- To define a memeber not inline:

```
"type" "class_name"::"name"(parameters)
{
    "arguements"
}
```

The Rule of Three: Copy-constructor:

- Destructor-call: the Destructor of all the objects class-type memebers
- Copy constructor: construct all the pointers with a deep-copy
- Copy assignment operator: is when you overload the "=" operator

Ex:

```
MyClass::MyClass(const MyClass& origClass) {
    cout << "Copy constructor called" << endl;
    dataObj = new int; //Allocate sub-Object
    *dataObj = *(origClass.dataObj);
}
```

Back to normal bullet-points

- you can overload member functions by parameters

2. Exception’s

- usually in an if statement you put throw "error type"("string")
- Then you put the code in the try {} statement
- and catch the thrown Exception in a catch statement like so: catch ("error type" &"name"){ "name".what; }
- Put the more specific Exception before the more general ones

3. Pointers

- Pointer point to memory location, declared like so:

int *objPtr = nullptr;

- You can dereference with * to access the value at that location
- the **new** operator allocates memory that constructs variables during run time
- The member access operator: dereference’s then access the member function
- -> = (*a).b
- the **delete** operator is the oppsite of the new operator it deallocates a memory block pointed to by a pointer

Memory regions:

- Code:The region where program instruction are stored
- Static memory:The region whre global variables are stored
- The stack:The region where a function locals variables are allocated during function call
- The heap:The region where the "new" operator allocates memnory

Back to normal

- Watch out for memory leaks, make sure you delete you pointers

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