C++ Programming – Lecture 7

Manager Functions

- Compiler provides 4 manager functions:

  0-Arg Constructor - Empty
  Destructor - Empty
  Copy Constructor - Contains code to copy contents of one object into another
  Overloaded = operator function - Contains code to copy contents of one object into another

- If an object contains a pointer, we must use new in constructor to set up this pointer.
- If we use new in the constructor, we must define our own destructor to ensure proper deletion of object.
- If we use new in the constructor, we must define our own copy constructor to properly copy (deep copy) one object into another.
- If we use new in the constructor, we must define our own overloaded = operator function to properly copy (deep copy) one object into another.
- If we use new in constructor and rely on compiler provided copy constructor and overloaded = operator function, then while copying one object into another shallow copying will take place.

Overloaded Operators

- Three cornerstones of OO programming:

  Encapsulation - Hides complexity of interaction of data and related functions inside a class.

  Polymorphism – Same function exists in multiple forms. As a result, a call to a function is bound to the appropriate version of the function based on the arguments being passed to it.

  Inheritance - Promotes reuse of existing code.

- Overloaded pre-increment and post-increment operators are distinguished by passing a 0 to the post-increment operator function.
- It is possible to overload << operator to display contents of an object.
- While overloading << we have to use a friend function since ostream object has no knowledge about the Comp class.
- While overloading << we must receive cout object by reference. This prevents making a copy of cout object in the overloaded operator function.
- While overloading << we must return a reference to cout object so that we can use cascading while printing multiple Comp objects.
- cout is superior to printf() since it can print objects (by overloading <<), whereas printf() would need multiple format specifiers to print an object's contents.