PIC 10B Discussion
Week 1

Professor: Michael Lindstrom
TA: Thomas Tu
In Class Demonstration

• War, the card game
• A unique variant: ties decided by suit
• Output:
  • Each turn, the cards that were played
  • End of the game: who won and how many turns the game lasted
Classes

• Classes define types for new objects and methods they share
  • Objects sharing a class are called members of that class
• Functions attached to object types are member functions a.k.a methods
• Constructors: methods run after the object is first allocated
  • Initializer lists
• Other member functions: Inherited by all members of the class
Public/Private Member Functions

- Public – can be called from anywhere
- Private – can only be called from within the object
- Security: Assign the minimum permissions possible
  - Avoid public object variables – use getters and setters instead
  - If a method does not need to be public, make it private
Const Correctness

• Const member functions: cannot change object
  • Const objects can only call const functions
  • Non-const objects can call both const and non-const functions
  • When possible, declare as const

• Const function arguments – cannot be changed by function
  • Mostly matters if passing references, because of scope

• Const references as arguments
  • Good for keeping function call overhead down
Stack vs. Heap Memory

- Example of stack in Visual Studio
- Order of construction and destruction of multiple objects
  - LIFO – Last In First Out
- Heap – was it covered on Wednesday?
- Example of heap in Visual Studio
  - Memory must be deallocated