Study Guide 1

What has to happen for an element to be inserted into an array? What is an alternative that uses dynamic memory? How does this work?

Slide 3-11, 12

What starts a linked list and what is this value if the list is empty? How do you add an item to the front of a linked list? What are the four steps to this?

Slide 13, 14-19

What is the difference between a linked list and an array? If an array is fixed size then how does a vector resize?

Slide 20

Describe the general representation of a linked list. How can you tell if a linked list is empty? If you delete a node (single item list) what should you remember to do? What if you are adding a node? How do you know if there is only one item in a list?

Slide 22, 25, 26, 27

What should the head always point to? What should the tail always point to?

Slide 28

What is a good way to implement a linked list and why is this a good method?

Slide 29

Why should you never use head to traverse the list? Instead of using head, what should you use? When do we know that we’ve reached the end of the list?

Slide 33, 34, 37

A linked list is what type of structure? What are some other of these structures? What is a doubly linked list? What are the pros and cons to a singly vs doubly linked list?

Slide 40, 42, 43

What is a binary tree (what does is look like and what is its parts comprised of)?

Slide 45

What is a destructor and why is it used? When is it used? Describe the destruction process. What all happens to an object when the destructor is called (3 things)? What is the responsibility of the destructor?

Slide 47, 48, 49

What are the 2 basic expectations of the copy assignment? What happens with the pointers if the copy assignment is called and why is this a bad thing?

Slide 53, 55

What is a shallow and deep copy and what are the differences between them?

Slide 56, 57

How do we make a copy constructor and what is a copy constructor for? What are the various syntax for using the copy constructor? What is the general syntax for the copy constructor?

Slide 59, 60, 62

What is the copy assignment and why is it needed? How is the copy assignment used? What is the syntax for making the copy assignment (might be best to look at the homework)? What are the differences between the copy constructor and the copy assignment?

Slide 65, 67, 68, 69