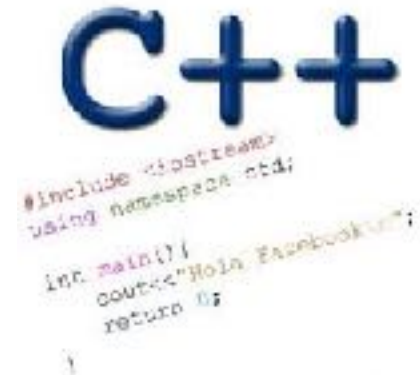


# RULE OF THREE

# LINKED LISTS CONTD

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Problem Solving with Computers-II



Read the syllabus. Know what's required. Know how to get help.

CLICKERS OUT – FREQUENCY AC

# How difficult do you find the course so far?

- A. Too easy
- B. Easy, I sail through the labs with little effort
- C. Moderately easy/difficult – I have to apply concepts and can complete the labs and homeworks with moderate effort
- D. I understand the material but my partner does everything --- I don't really have the confidence to code.
- E. I am really struggling and feel underprepared for this class

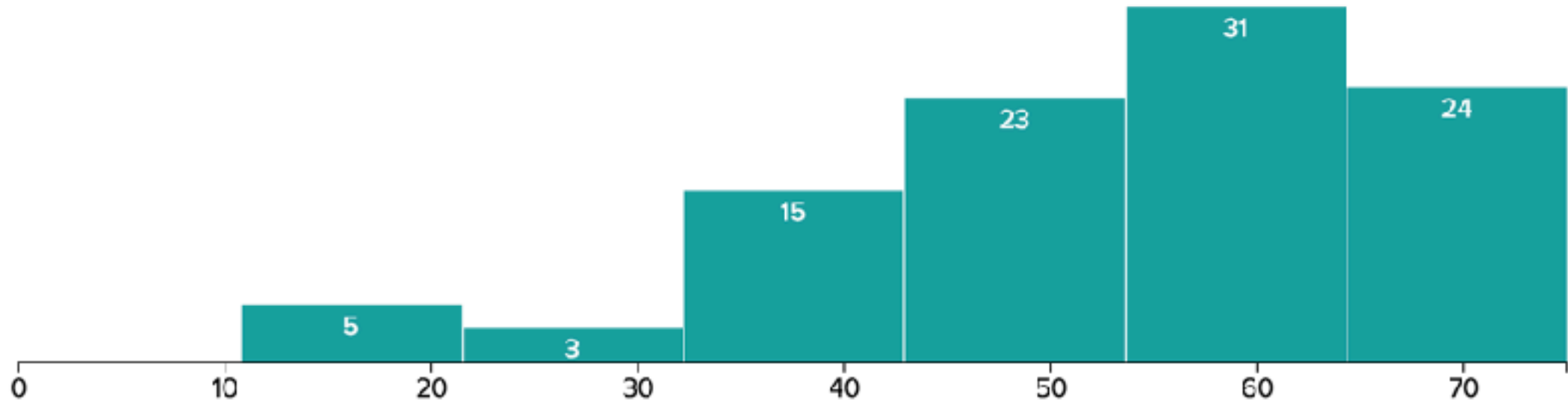
# Results of the CS 16 final exam

- **MEDIAN: 75.33%, MAXIMUM:98.67%, MEAN: 70.79%, STD DEV: 19.2%**

Review Grades for **h01-b CS 16 Final exam**

● REGRADE REQUESTS  
OPEN

● GRADES  
PUBLISHED



Please also see the lecture notes at this link:

**`https://ucsb-cs24-w18.github.io/lectures/lect07/`**

# Destructor

The destructor is invoked when the object is removed from memory

```
void foo(){  
    IntList list1;  
    IntList *p = new IntList;  
}
```

How many times is the destructor invoked for the above code?

- A. Never
- B. Once
- C. Twice

# Copy constructor

```
IntList list1;           //default constructor is  
invoked  
//Copy constructor is invoked in all cases below:
```

```
IntList list2(list1);  
IntList list3 = list1;  
IntList *p = new IntList(list1);
```

- The copy constructor creates and initializes a new instance to be the copy of another instance of the class
- A class always has a default copy constructor which may be overloaded
- Why overload the copy constructor

# Overloading the copy constructor

- Which of the following classes that you have implemented is a good candidate to overload the copy constructor
  - A. Statistician class from PA1
  - B. IntList (implemented in class)

# Copy assignment

```
IntList list1, list2; //default constructor is invoked
```

```
//Copy assignment is invoked below:
```

```
list1 = list2;
```

- The copy assignment should result in list1 having a copy of the data of list2
- A class always has a default copy assignment which may be overloaded
- Why overload the copy assignment?



# RULE OF THREE

If a class defines one (or more) of the following it should probably explicitly define all three:

1. Copy constructor
2. Copy assignment
3. Destructor

# Value semantics: Copy assignment and copy constructor

Value semantics means treating objects as values and creating copies when passing them around

Value semantics is generally used in these two cases:

- Copy assignment
- Copy constructor

# Next time

- Run time analysis