



CMSC 106

Lecture Set #12 – Dynamic Memory

Set Started:
Monday, November 29, 2010



Arrow Operator: ->

- Combines
 - the * (dereference) and the
 - . (dot operator)
 - With the usually desired precedence of * then .
- Made with
 - a – (dash) followed immediately by
 - a > (greater than sign)
- Used ONLY when you have a pointer to a structure
- Use the dot operator if you have a structure



Union

- Similar to a struct EXCEPT
 - it is an "or" among the members listed
 - one of the listed is there
 - the amount of space allocated is the space needed for just the largest
- Same as a struct in that
 - you use the dot or arrow operator to get to the field
 - you can use typedef to define a new type that is a specific type of union
 - you create a variable of that type or compose it inside



Dynamically Allocated Arrays

- request space
 - malloc
 - calloc
- release that space
 - free
- prototypes:
 - void *malloc(size_t size);
 - void *calloc(size_t num, size_t size);



Dynamically Allocated Data Structures

- Linked List
 - singly linked
 - doubly linked
 - other variations
- Trees
 - binary trees
 - binary search trees
 - other variations
- Hash Tables
 - chained hash
 - other



Searching & Sorting

- Searching
 - Linear Searching
 - Binary Searching
- Sorting
 - Bubble Sort
 - Insertion Sort
 - Selection Sort
 - many others
