Data Structures 9/12/2016

0145-343-001

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ANNOUNCEMENTS

Assignment Due Next Friday, 9/16: HW#1 – Concordance Table

* A ‘word’ for this assignment counts as anything before or after white spaces.

NOTES

Topic: Recursion

PowerPoint: <http://home.adelphi.edu/~siegfried/cs343/343l3.pdf>

Most common example: Factorial

X! = x \* (x-1) \* (x-2) \* … \* (x – (x-1))

* Multiplication: example of when you DON’T WANT to use recursion
* Fibonacci – example of when you WANT to use recursion

EX:

float fact(int n)

{

return (n == 0? 1: n\* fact(n-1));

}

* Here float is used instead of int or long because float can handle ridiculously large numbers
* We interpret the return statement as: if n is 0, return 1, else return n \* fact(n-1)

WARNING: Recursion is not always suitable as it involves many function calls to itself. Function calls are generally expensive in programming.