MAT 101 — Introduction to Computer Programming (C++)

Handout #20, April 19, 2005

Today's tasks:

1. Criteria for Recursive Functions that Return a Value (p567)

    (a) No infinite recursion

    (b) The stopping cases return correct values

    (c) If the recursive calls return the correct value, then the final value returned by the function is the correct value.

2. Iteration vs. Recursion p574–575

    (a) What is the Difference?

    (b) Which is Faster? (in execution? to implement?)

    (c) Why use Recursion?

    (d) Why use Iteration?

3. The Binary Search (Recursion and Arrays) p 568–575

    (a) Sorted Arrays

    (b) Pass the Indices (first, last)

    (c) Find the Middle (first + last)/2

    (d) Check for the key in the Middle

    (e) Search Lower or Search Upper

    (f) Stop when first greater than last (base case)

4. hw9 due Thursday (choose, pr 2 page 581)

5. Quiz #2 - Classes next time