Tutorial 4

• Loops

• Debugging Tips
Loops: for loops & while loops

- Using a loop to solve a problem is called iteration.

- while is similar to if statements but while repeatedly “loops back” and executes the statement until the expression is false.

- General format of a while loop:

```java
setup statement(s)
while (expression) {
    body statement(s)
    update statement(s)
}
```

- for loops are a “condensed” version of a while loop.
esrever: Exercise

Write the following C program: (use iteration)

// This program continuously reads in ints from input
// and prints them out in reverse order

- There is a simple I/O test "test1.in" and "test1.expect"

For example:

// IN:
123
// OUT:
321
Debugging Tips

• Use trace statements:
  – Print out the values of variables.
  – Print out statements to show control flow.

• Automate:
  – Write your own tests!

• Simplify:
  – Comment out parts that aren’t a likely cause.
  – Remove components until you isolate the problem.
  – Writing modular code helps immensely.
Checkerboard - Exercise

Write the following C program: (use iteration)

// This program reads in two integers (height, width)
// and prints a checkerboard with those dimensions

- There are some I/O tests on Seashell

Example: 4 × 4 checkerboard

// IN
4 4

// OUT
#.#.  
#.#.  
#.#.  
#.#.  

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