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)

```c
// 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:

```
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
#.##.
.##.#
##.#.
.##.#