CS 111
Introduction to Computer Science

Fall 2015

Lecture 3: Sep 10, 2015

Lecture Material

- Slides/code posted in Sakai under
  - Resources -> Venugopal – F15
  - Each lecture has its own folder (e.g. Sep 1), with PDF of slides, and/or Java programs we go over in class
- Notes you take in class
  - Stuff written on the blackboard (occasionally) will not be posted in Sakai, so make sure you take notes

The Programming Process

1. Problem Analysis

   - inputs, outputs, error conditions

2. Program Design

3. Algorithm Construction

   - will use flowcharts as needed in the beginning to clarify

4. Coding

   - will use a programming language (Java)

5. Testing

   - test case construction, debugging

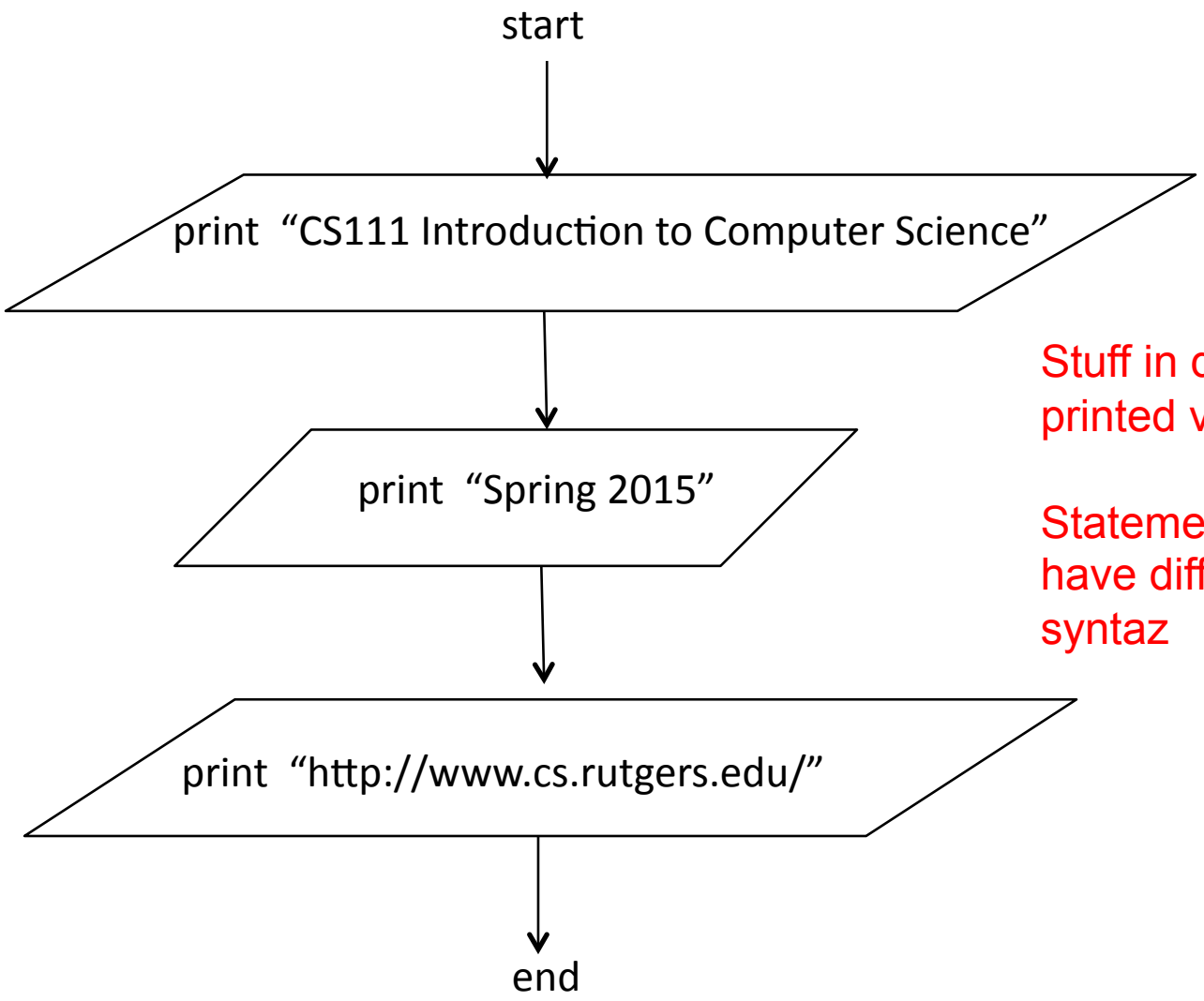
DESIGNING PROGRAM LOGIC

(USING FLOWCHARTS IF NEEDED)

PROGRAM LOGIC BLOCKS

- Sequence of actions – “straight line”, executed one at a time
- Decisions/Branching – “conditional execution”, e.g. if some condition is true do something else do another thing
- Repetition – “looping”
- Subprograms – modules that perform useful functions that can be written separately and used from many places within the program.

Printing Data/Information (Output)



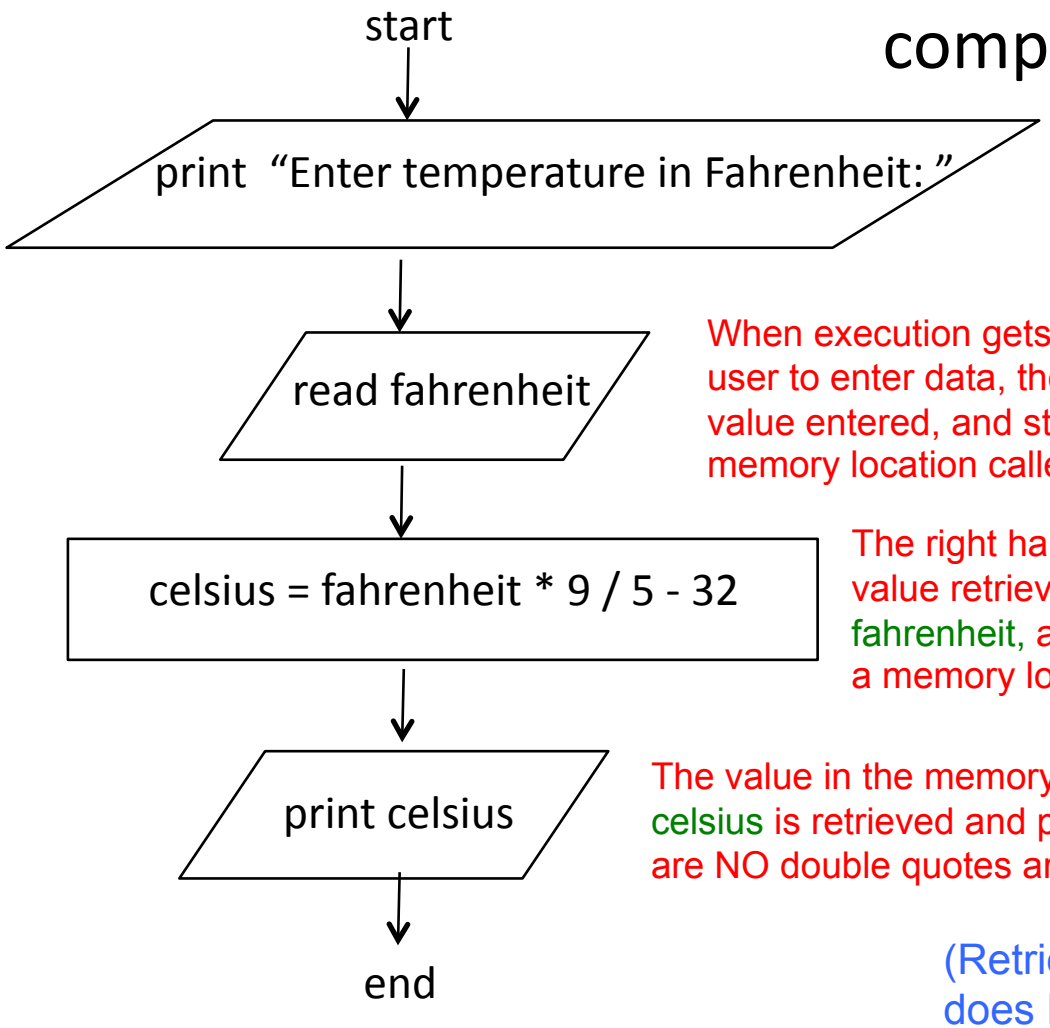
Stuff in double quotes printed verbatim

Statements in Java will have different/more formal syntaz

USING ECLIPSE TO WRITE AND RUN PROGRAMS

(See Sakai Eclipse Page for Setup)

Fahrenheit to Celsius conversion: Printing (output), reading (input), computing (processing)



When execution gets here, it waits for user to enter data, then reads the value entered, and stores it into a memory location called fahrenheit

The right hand side is computed, using value retrieved from the memory location fahrenheit, and the result is stored in a memory location called celsius

The value in the memory location celsius is retrieved and printed. Notice there are NO double quotes around celsius

(Retrieval from fahrenheit and celsius does NOT wipe out the values – they are still there, and can be reused as many times as needed.)