CS 111
Introduction to Computer Science

Fall 2015

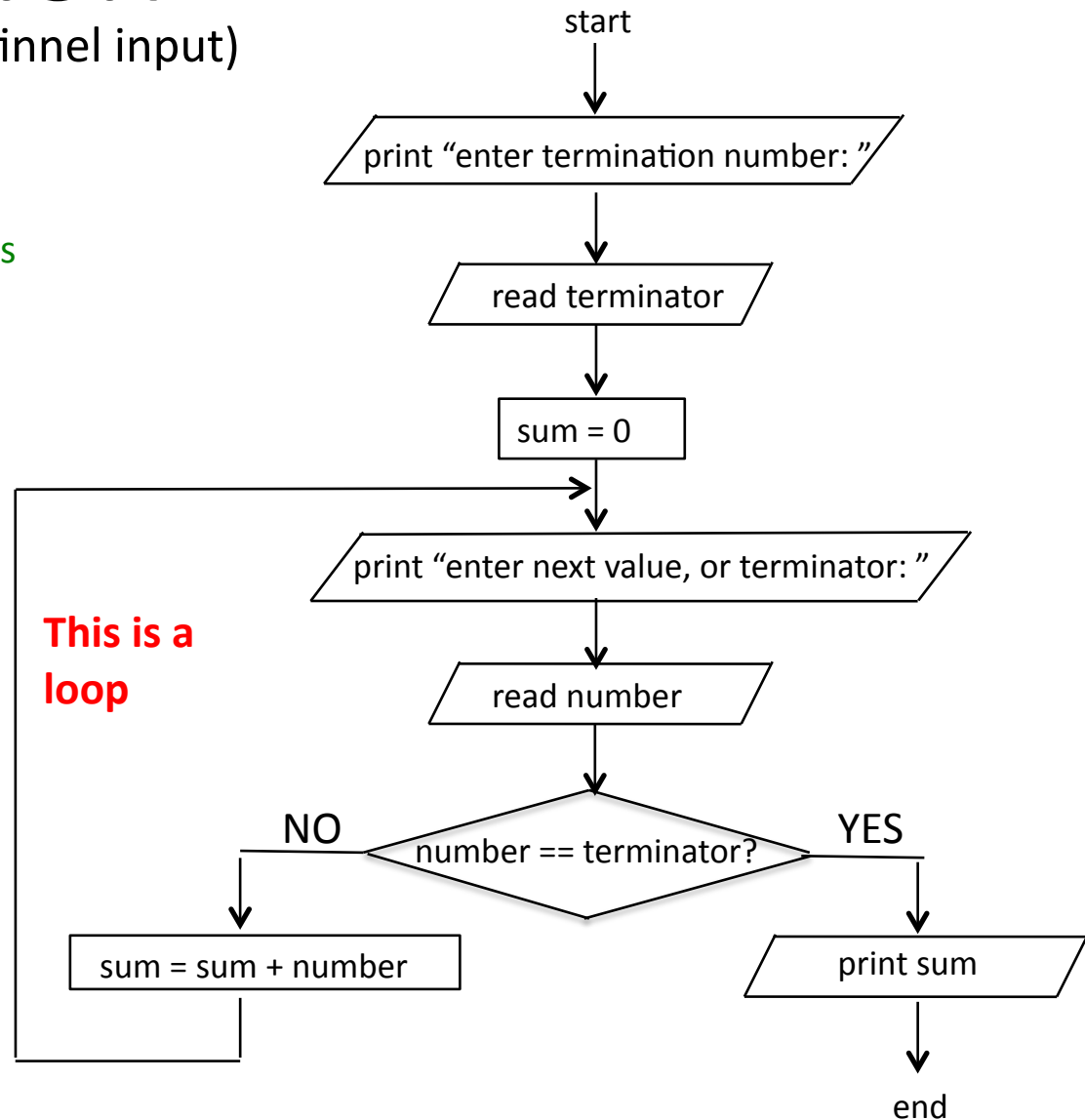Lecture 8: Oct 1, 2015
(Loops)

REPETITION
(Terminated by sentinnel input)

Read a bunch of numbers entered by user, terminated by a special number (called sentinnel) which flags the end of input (but is itself NOT an input value). Compute and print the sum of all input values.

TESTING

Input	Expected
-1, 2, 55, 10, -1	67
-99 ,86, -16, -99	70
55, 55	?

HOW WOULD YOU ENHANCE THIS TO COMPUTE AND PRINT AVERAGE?

start

print "enter termination number: "

read terminator

sum = 0

print "enter next value, or terminator: "

read number

This is a loop

number == terminator?

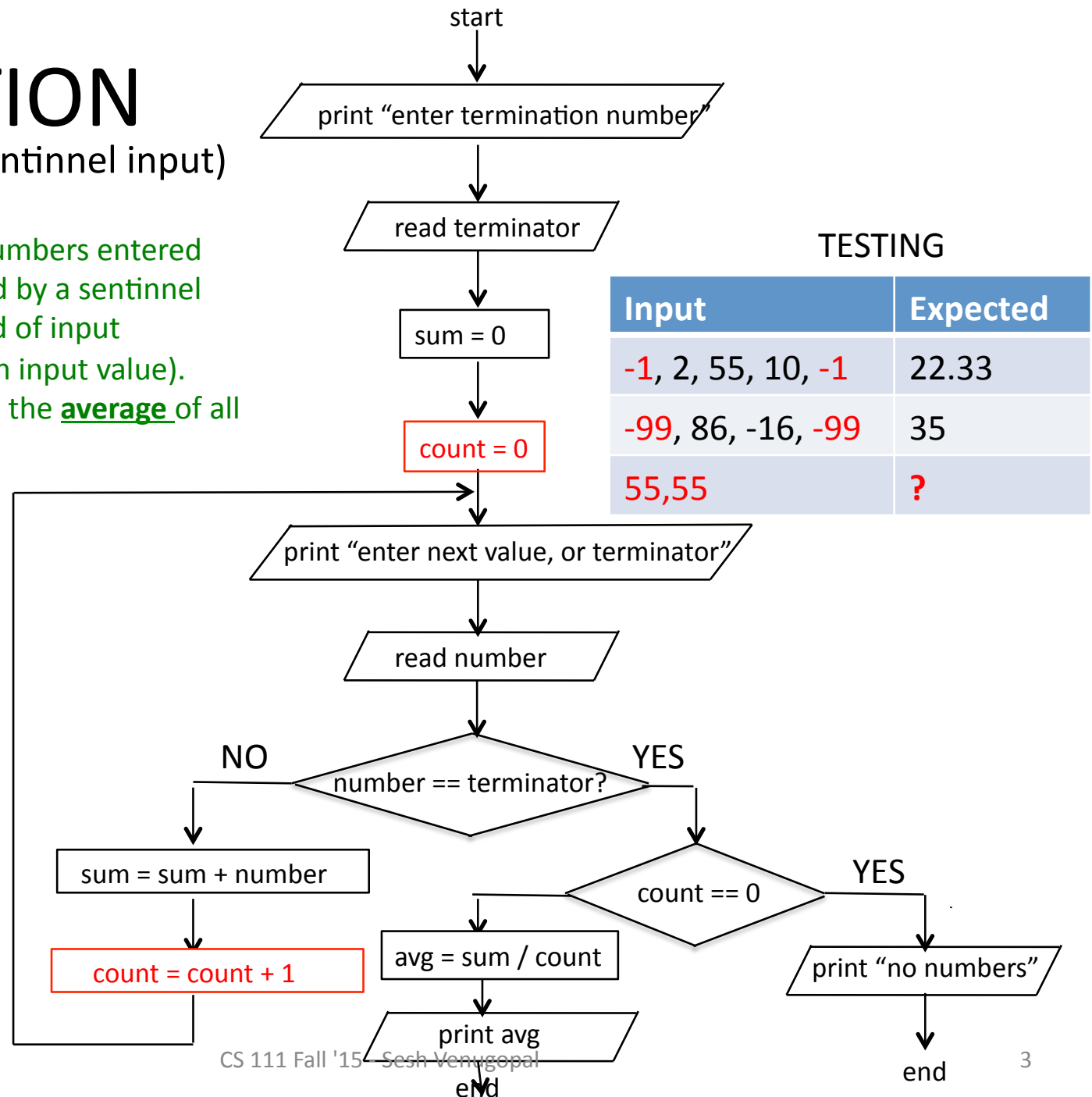NO → sum = sum + number

YES → print sum → end

REPETITION
(Terminated by sentinnel input)

Read a bunch of numbers entered by user, terminated by a sentinnel which flags the end of input (but is itself NOT an input value). Compute and print the **average** of all input values.
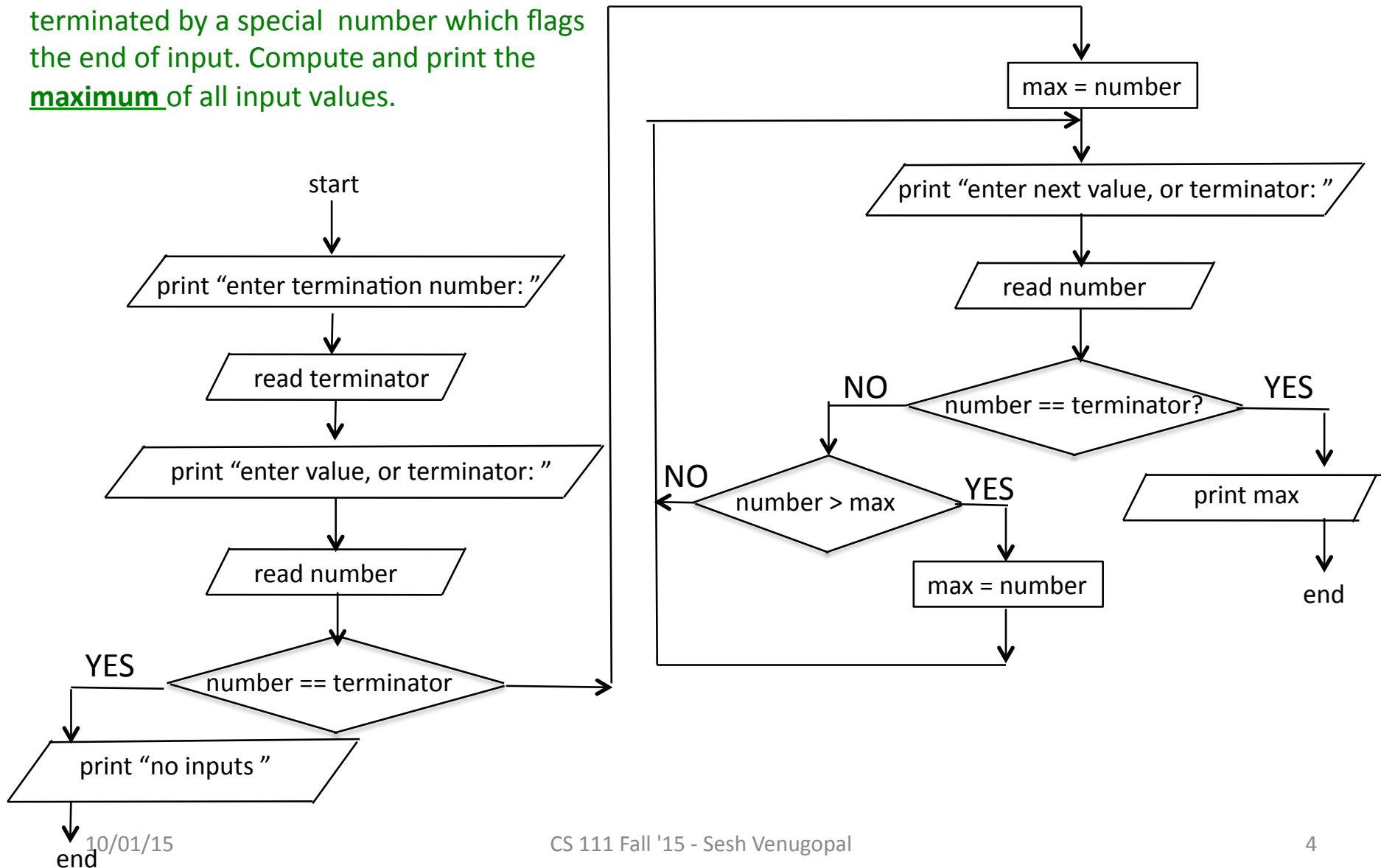
Find maximum of a bunch of inputs

start

print "enter termination number"

read terminator

sum = 0

count = 0

print "enter next value, or terminator"

read number

number == terminator?

NO → sum = sum + number → count = count + 1

YES → count == 0

YES → print "no numbers" → end

count == 0 (NO) → avg = sum / count → print avg → end

TESTING

Input	Expected
-1, 2, 55, 10, -1	22.33
-99, 86, -16, -99	35
55,55	?

Find Maximum

Read a bunch of numbers entered by user, terminated by a special number which flags the end of input. Compute and print the **maximum** of all input values.

start

print "enter termination number: "

read terminator

print "enter value, or terminator: "

read number

number == terminator

YES → print "no inputs "

end

max = number

print "enter next value, or terminator: "

read number

number == terminator?

NO → number > max

YES → print max → end

number > max

NO

YES → max = number

REPETITION

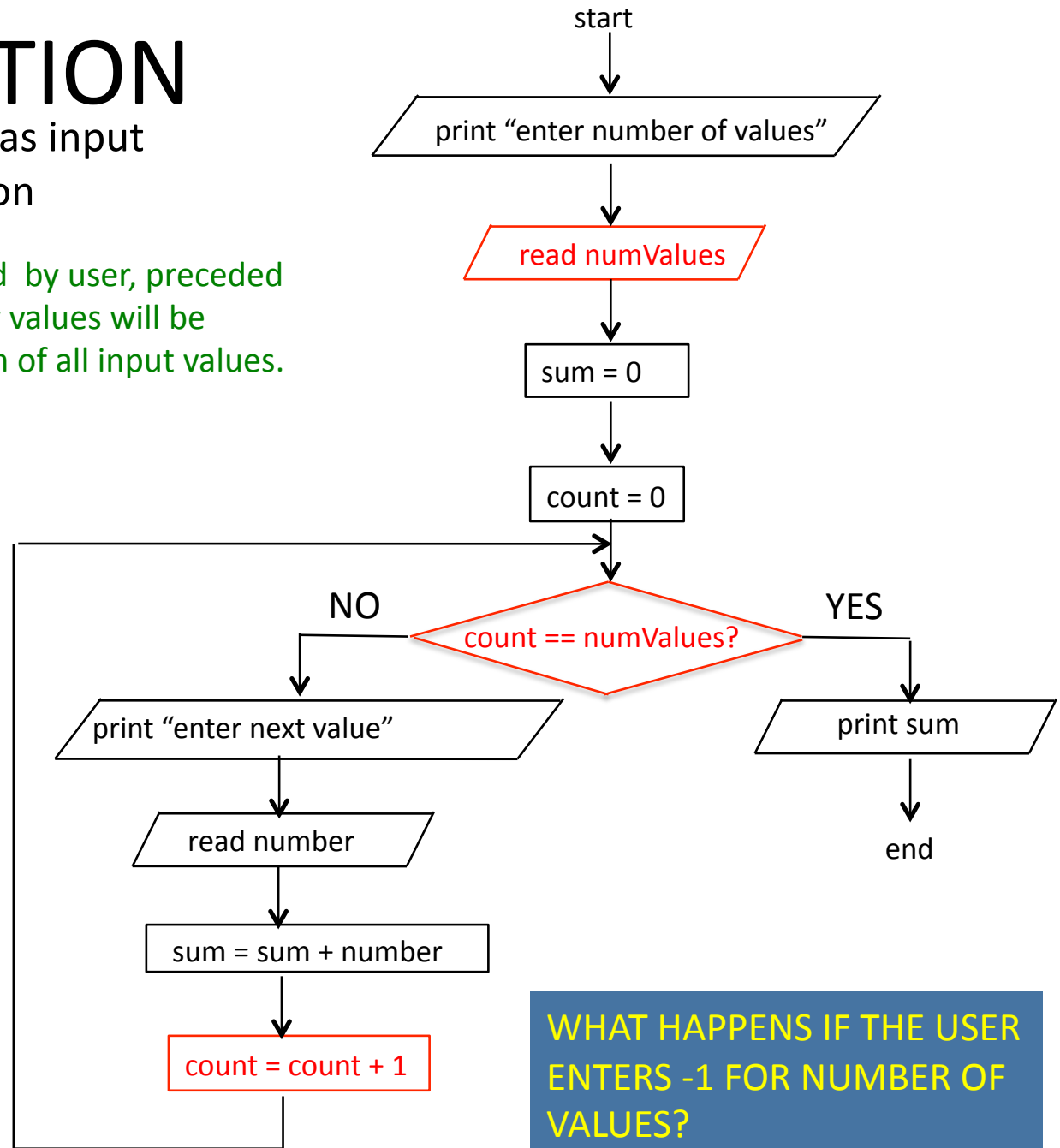Use <u>NUMBER of values</u> as input to determine termination

Read a bunch of numbers entered by user, preceded by a number that tells how many values will be input. Compute and print the sum of all input values.

TESTING

Input	Expected
3,2,55,10	67
2,86,-16	70
0	0
-1	**?**

Similarly find average and maximum

start

print "enter number of values"

read numValues

sum = 0

count = 0

count == numValues?

NO → print "enter next value" → read number → sum = sum + number → count = count + 1

YES → print sum → end

WHAT HAPPENS IF THE USER ENTERS -1 FOR NUMBER OF VALUES?