

## CSCI 1101B INTRODUCTION TO COMPUTER SCIENCE



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## Logistics and Organizational Info

- Introductions  
[sbarker@bowdoin.edu](mailto:sbarker@bowdoin.edu)
- Course web page:  
<http://www.bowdoin.edu/~sbarker/1101>
- Questions about dates, times, policies, etc...
  - Check the website first!

## First Question...

# What is computer science?

## Study of computers?

- “Computer science is no more about computers than astronomy is about telescopes, biology is about microscopes or chemistry is about beakers and test tubes. Science is not about tools, it is about how we use them and what we find out when we do.”  
– Michael Fellows & Ian Parberry





# How to Cook an Egg

- Step 1** For Over-Easy or Over-Hard Eggs: HEAT 2 tsp. butter in nonstick skillet over medium-high heat until hot.
- Step 2** BREAK eggs and SLIP into pan, 1 at a time. IMMEDIATELY reduce heat to low.
- Step 3** COOK SLOWLY until whites are completely set and yolks begin to thicken but are not hard, 5 to 6 minutes. SLIDE turner under each egg and carefully FLIP it over in pan. COOK second side to desired doneness. SPRINKLE with salt and pepper. SERVE immediately.
- Step 4** For Basted Eggs: COOK as for Over-Easy or Over-Hard Eggs, but use 2 Tbsp. butter. COOK until edges turn white. Begin BASTING eggs with butter from pan. COVER pan between basting and CONTINUE COOKING until whites are completely set and yolks begin to thicken but are not hard.
- Step 5** For Steam-Basted Eggs: COOK as for Over-Easy or Over-Hard Eggs, but use 1 tsp. butter or a light coating of cooking spray. COOK until edges turn white. ADD 1 tsp. water to pan. Cover pan tightly. CONTINUE COOKING until whites are completely set and yolks begin to thicken but are not hard.

# An Example Algorithm

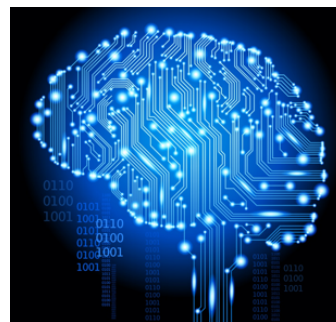
- Input: two numbers
- 1. Name the larger number **X**, smaller number **Y**
- 2. Divide **X** by **Y** and name the remainder **R**.
- 3. If **R** is not 0, then reassociate **X** with the current value of **Y**, reassociate **Y** with the current value of **R**, and go back to step 2.
- 4. Output the current value of **Y**.

## Not all algorithms are equal...

- Even if they give the right answer!
- Example: multiply a number by 20
  - Using only addition for arithmetic
- Both **design** and **study** of algorithms

## Really Hard Problems

- Write an essay about...
  - The process of evolution
  - The Civil War
  - [your topic here]



- Computers only as **smart** as the algorithms we design for them

# Why Learn to Program?

Everybody in this country should learn to program a computer... because it teaches you how to think

Steve Jobs, co-founder and CEO of Apple Inc. (1955 - 2011)



# Programming Languages



## Course Goals

- Develop computational thinking
  - Humans, not computers
  - Applicable to many disciplines
  
- Learn fundamental skills of programming
  
- Gateway to all other CS courses!