

CS 113 – Computer Science I

Lecture 0 – Course Introduction

Adam Poliak

01/17/2023



Agenda

- Introduction
 - Algorithms & Programming
- Administrative/logistics
- Hello World
- Terminal & the command line
- Basic output
- Folders and Directories
- Data Types & Variables

What is Computer Science?

Reading as part of HW00 (due Monday night)

Computer Science: Not about Computers, Not Science

Kurt D. Krebsbach

Department of Mathematics and Computer Science, Lawrence University, Appleton, Wisconsin 54911

Abstract—*This paper makes two claims about the fundamental nature of computer science. In particular, I claim that—despite its name—the field of computer science is neither the study of computers, nor is it science in the ordinary sense of the word. While there are technical exceptions to both claims, the nature, purpose, and ultimately the crucial contributions of the beautiful discipline of computer science is still widely misunderstood. Consequently, a clearer and more consistent understanding of its essential nature would have an important impact on the awareness of students interested in computing, and would communicate a more informed perspective of computer science both within academia and in the larger society.*

first computer scientists, and that his method for computing the greatest common divisor (*GCD*) of any two positive integers is regarded as the first documented algorithm. As Donald Knuth—author of the discipline’s definitive multi-volume series of texts on algorithms—states: “We might call Euclid’s method the granddaddy of all algorithms, because it is the oldest nontrivial algorithm that has survived to the present day” [3]. Knuth’s version of Euclid’s *GCD* algorithm [4] is shown in Figure 1.

E1.	[Find remainder.]	Divide m by n and let r be the remainder. (We will have $0 \leq r < n$.)
E2.	[Is it zero?]	If $r = 0$ the algorithm terminates; n is the answer.

Computer Science in this course

- Break down problems into solvable components
- Learn how to instruct and command a computer to solve a complex problem

Algorithms ! = Programs

- Programs: implementation of algorithm that a computer understands
 - Unambiguous
 - Expressive
 - Communicate a lot of ideas
- Semester goals:
 - cover primary types of instructions
 - Combine & organize instructions to develop complex programs
 - In Java
 - But ideas go beyond one single programming language

Logistics

- Course webpage:
 - <https://cs.brynmawr.edu/cs113/>
- Gradescope:
 - Submitting assignments
- Piazza:
 - Course communication
 - Useful links will be posted there

Assignments

Learning by doing!

- Homeworks
- Labs

Assessments

- Midterms
 - March 2nd
 - April 13th
 - flexible grading policy
- Final Exam

Course Staff



Prof. Adam Poliak

- 1st year at BMC, spent last 2 years at Barnard
- Taught CS113 in Fall 2022 (last semester)
- Office Hours: TBD
- Research:
 - Natural Language Processing
 - Computational Text Analysis
 - Data Science

Course staff

- Teaching Assistants:
 - Maha Attique (BMC '25)
 - Amina Ahmed (BMC '25)
 - Renata Del Vecchio (BMC '25)
 - Jadyn Elliot (HC' 25)
 - Grace Choe (BMC '25) – developing autograders
- TLI student consultant
 - Abhi Suresh (BMC '24)

Teaching Assistants

- Office hours: Monday – Thursday 6-10 PM EST (Park 231)
- All of them have taken CS 113, and other CS courses

Our job is to help
you succeed!

A simple java program

```
1 // A java program to print a message
2 public class HelloWorld {
3
4     public static void main(String[] args) {
5         // Prints out message to standard output
6         System.out.println("Hello World!");
7     }
8 }
-
```


Compiling

- Converting java file (.java) to a file that the computer understands (.class, this is called a binary file)

```
javac filename.java
```

- Compiler is your friend, will tell you when there are errors

Running

```
java filename
```

- Don't include the *.class

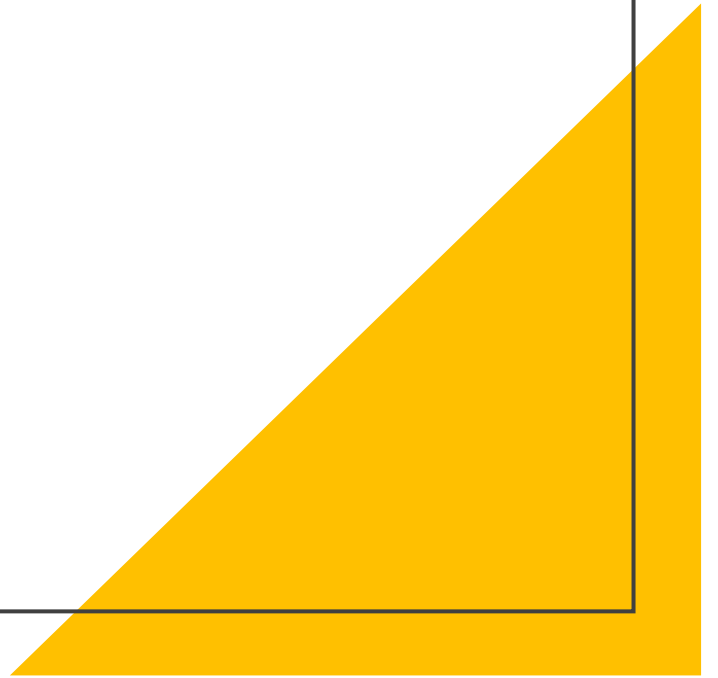
Announcements

- Assignment 00
 - Survey
 - Fortune.java
 - Due Monday 01/23

What are the errors here?

```
public clas SyntaxErrors {  
  
    public static void main(String args) {  
        System.out.println("Hello World);  
  
    }  
}
```

Linux Directory Structure



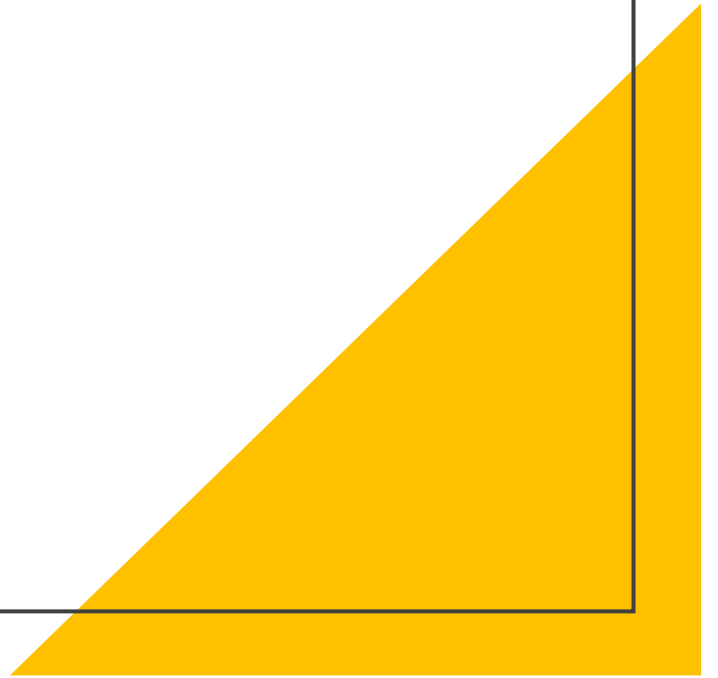
Folders & Directories

- Computer is structured as a folder-system.
 - Folders (directories) can contain files and other directories
- Organizing programs in directories
- special directories:
 - .. (double dot) - parent directory

Command line arguments

- Way to communicate to our program by passing data to our program

Storing Data



Data Types

- Way to store information in programs
- `int`: whole numbers
- `double`: numbers with decimal points
- `String`: anything between quotations

Variables - Holders for values

- `String greeting;`

- Creates a variable called “greeting” that can store a string

- `int a, b, c;`

- Creates 3 variables that can store integers

- `a = 3;`

Assignment statement

- `int d = 10;`

Declaration & Assignment statement
Best Practice!

Declaration
statements:
Do not store any value