



CSC 108

Introduction to Computer Programming

Lecture 1

Welcome to the Course!
University of Mount Union



How To Program a Computer?

There are many answers to this question:

1.22 million pages returned for a Google search

Why so many different ideas?

Different languages, different end goals, different levels of expertise

Our assumption for this class: no prior experience, learn by doing lots of examples, hopefully in a fun way



What is Programming?

Basically, it's precisely describing how to do something

example: how to find the average of two numbers

say: 9 and 15

Step 1: add the numbers together

$9 + 15$ is 24

Step 2: divide that sum by 2

$24 / 2$ is 12

Key idea: we need to be able to do this for any 2 #'s!



What is Programming?

What's the average of 7 and 9?

Step 1: $7 + 9$ is 16

Step 2: $16 / 2$ is 8

What's the average of m and n ?

Step 1: calculate $m + n$

Step 2: calculate $(m + n) / 2$



What is a Programming Language?

Here's one definition:

A programming language is an artificial unambiguous language designed to express computations that can be performed by a machine, particularly a computer.

artificial unambiguous – made up for the purposes of specifying instructions unambiguously (with no question about the meaning of program statements)

The man saw the boy with the binoculars.

Time flies like an arrow; fruit flies like a banana



What is a Programming Language?

There are many languages that we could use to learn programming

Some professional languages have lots of structure to do even the simplest task

We would like a language that is easy to learn yet powerful enough to allow us to write interesting programs

This semester, we'll use a language called **Processing**



Processing



Developed starting in 2001

Version 3 released in 2015

Goal: a programming system that provides a simple program structure in an environment that encourages experimentation and extension

Write a few statements, then run program to see results

Then add a few more lines – program grows bit by bit

Shortest program: 1 statement



Processing's Way of Working: Sketching

Exploring many ideas in a short time

Write short code segments, run, then add some more

Cycle of writing, testing, improving

It's an experimental mindset

if something doesn't work, it's not the end of the world

just fix it and try again



Creativity and Specific Directions

Two types of programming assignments that we will see in this course

- 1) Write a program that does something general, with the details left for the programmer to determine

Draw a winter scene with a pine tree and two snowmen

- 2) Write a program that does a specific thing, in a specific way

Draw a bar chart that shows different data values by the height of each bar



Creativity and Specific Directions

We must learn how to work with both kinds of assignments and situations

Using creativity is important, but so is the ability to specify a program according to a fixed style

We'll do both things in this course – let's get started!



You can download the Processing software for your own computer

Processing is installed on CS Department Lab Computers

Most of the work for this course can be completed during class time

Lab activities are to be completed in class & demonstrated to the instructor

Programming Assignments may need to be completed outside of class time

Software download instructions are given in Chapter 2 of the text so you can install it on your own computer



Try the examples in Chapter 2

Launch Processing on your computer

Launch a web browser, navigate to the CSC 108 page,
and click the “Textbook” button

Try Examples 2-1 and 2-2

Actually copy the text from the book’s example and paste it into
the editor window of the Processing Development
Environment (PDE)

Then click the Run Button (arrow pointing to the right)



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