Introduction to Computing

CS 101 - Spring 2018
Professors Briggs and Grant
What is Computer Science?

programming

designing logic chips

building computers

algorithms

artificial intelligence

operating systems

networking

human-computer interaction

making art

data bases

bioinformatics

robotics

games

making art

bioinformatics
What is Computer Science?

Creating things AND
Solving problems  AND
The study of complexity:

identify problems
figure out if processes to solve them exist
design processes that solve them
evaluate the solutions
Algorithm

A set of steps or rules describing a process to achieve some goal
Recipe for making pancakes

INSTRUCTIONS: Combine the flour, sugar, baking powder, baking soda and salt in a large bowl.

Lightly beat the eggs with the buttermilk, milk and melted butter.

Just before you are ready to make the pancakes, add the liquid ingredients to the dry ingredients all at once, stirring just long enough to blend. The batter should be slightly lumpy.

If you want to add fruit or nuts, stir them in now, or you may sprinkle them on the pancakes while they are on the griddle.

Heat a lightly oiled griddle or heavy skillet over medium-high heat (375 degrees on an electric griddle).

Pour 1/4 cup batter per pancake onto the griddle or skillet, spacing the pancakes apart so they do not run together. When bubbles appear on the surface of the pancakes and the undersides are lightly browned, turn and cook for about 2 minutes longer, until lightly browned on the bottom.

Serve immediately on warmed plates with the topping of your choice. Serves 4 (yields about 24 four-inch pancakes.)
Walk 1.4 miles, 29 min
Use caution - may involve errors or sections not suited for walking

- 276 Bicentennial Way
  Middlebury, VT 05753
  1. Head west on Bicentennial Way toward College St
     0.4 mi
  2. Turn left onto College St
     0.8 mi
  3. At the traffic circle, take the 1st exit onto Main St:
     128 ft
  4. Turn left onto Park St
     430 ft
  5. Take the pedestrian overpass
     0.1 mi
  6. Turn right onto Maple St
     Destination will be on the left
     82 ft

- Noonie Deli
  137 Maple St, Middlebury, VT 05753
Algorithm
A set of unambiguous steps or rules describing a process to achieve some goal
Compiled code [C, C++, Java (sort of), etc.]

Source code → Compiler → Application

Compiled code:
- Source code: plain text file
- Object code

Interpreted code [Python, Javascript, Ruby, PHP, etc.]

Source code → Interpreter

Interpreted code:
- Source code: plain text file
- Interpreter

Diagram:
- Compiled code flow: Source code → Compiler → Application
- Interpreted code flow: Source code → Interpreter
Python

Modern, general-purpose, high-level programming language
Free, “industrial-strength”

```python
a, b = 0, 1
while b < 1000:
    print(b, end=' ')
    a, b = b, a+b
```

1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987
Homework 1

• Download Thonny application or use the 505 lab computers (see help times below)

• Experiment with Python expressions

• Assignment description on go/cs101

• Submit via online script

• Due Wednesday 2/21 @ 11:59pm

• For help go to MBH 505 Mon 1:30-5; Tue 1:30-5; Wed 12-2:30; Thur 12-1:30