

## Learning Goals (Today)

- Define Algorithms
- Understand Course Structure
- Develop Group Work Strategies

## Announcements / Logistics

- Apply to do research with CS profs in summer  
go/cs-summer-research & contact profs via e-mail
- Upcoming assignments (Getting to know you, participation, rough draft)
- Office Hours (this week only), Th 2:30-4:00, Fr 9-10:30
- Tutoring hours

Mon

PSet, Participation  
check-in

Thurs

Rough Draft, Quiz, Self-assessment

Which are algorithms?

A. Travel to Cambridge

Not clear.  
Which Cambridge?

B. `int i = 1;  
while (i < 5) {  
 i = i * -1;  
}`

Infinite

OK

C. function Fib(i)

- Input: integer  $i: i \geq 0$
- Output:  $i^{\text{th}}$  Fibonacci number

If  $i \in \{0, 1\}$  then return  $i$

Return  $\text{Fib}(i-1) + \text{Fib}(i-2)$

Algorithm def:

A finite, clearly defined  
sequence of instructions  
for carrying out a task.

No task

D. `public static void fun(int j) {  
 int k = 1;  
 k++;  
}`

# Plan for Semester

Frameworks:  
Paradigms

Divide &  
Conquer

Greedy

Dynamic  
Programming



Tasks:

Describe  
(pseudocode/java)

Prove  
Correct

Analyze  
Runtime

Consider  
Ethics of  
Implementations

+ NP-completeness (comparing difficulty of problems)

Learning Goal: Become a better learner + collaborator

Think of something you are good at.

How did you get good at it?

Did you ever make mistakes?

What did you do when you made a mistake?

- Revisions possible for all assignments
- Credit / No credit + feedback

Group work: in class, not graded, help to learn,

I will provide solution, in  
groups ~3 wks

- ↙ be a better team member
- ↙ by explaining
- ↙ by asking questions
- ↙ making mistakes

go/CS302A-group

go/CS302B-group