CSE8A: Introduction to Programming in Java
Fall 2013
Prof. Christine Alvarado

https://sites.google.com/a/eng.ucsd.edu/cse-8a-fall-2013/home
What is Computer Science?

1. In a sentence or so, what is computer science? Or, what are some major aspects of CS?

2. Try to describe one thing that you think that a researcher in computer science might study.
CS  !=  programming

"not equal to"
CS != programming

programming : CS ::

surfing : San Diego

machining : engineering

grammar : literature

equations : mathematics

a vehicle, not a destination
Computer Science is...

The science of using and processing large amounts of information to automate useful tasks and learn about the world around us (using a computer)
Why do we like computer science?

• Because computers can do *cool things*!

http://www.youtube.com/watch?v=6NclJXTIugc

(Just one example of the cool things computers can do!)
Expect it to be...

Thrilling!
And..
Expect it to be…

Thrilling!
And…

The most frustrating thing you’ve ever done!
What to expect

• Devoting 8-10 hours a week to this class

• Learning a profession
  – Requires practice and application

• Me to be your guide and mentor in understanding concepts
  – Not a regurgitator of what’s in the book

• You to be actively involved in building and assessing your understanding in class
  – Not sitting and passively copying things down

• Questions
  – Who has been in a class of 150+ people before?
What does it take to be a Computer Scientist?
What people **THINK** is required to be a Computer Scientist
What it *actually* takes to be a computer scientist

• A passion to solve problems
• Attention to detail
• An organized approach to start early and seek help
• A commitment to understanding
• A thick skin to deal with frustration
• Patience with yourself
• Curiosity to try new things
What is “Media Computing”? 

• Media Computing = 

Media + Computing
Working With Media
CS = Study of Information

- Computers store information
- Computer programs describe how to manipulate and modify information

“Information” → Remove Green → Remove Background → Modified Information
About me

• Christine Alvarado (alvarado@cs.ucsd.edu)
  – PhD MIT (Pen-based Computing)
  – Undergrad: Dartmouth College
  – Second year at UCSD!
About This Class

You must attend class
You must prepare for class
You must participate in class
iClickers: You must bring them

• Buy an iClicker at the Bookstore

• Register it following instructions in the Syllabus
Peer Instruction

Identify your group and introduce yourself.
About This Class: Class sessions

• What must you do to prepare for each class?
• What happens if you have to miss one class?
• What happens if you miss more than 6 classes?
• When are the reading quizzes given?
• True or False: the reading quiz questions are provided before class
About This Class: Class sessions

• What must you do to prepare for each class?
  A. Nothing, just make sure to come to class on time
  B. Do the reading/pre-class assignment and make sure you know the answer to the reading quiz questions
  C. Make sure you have done the PSA.
About This Class: Class sessions

• What happens if you have to miss (only) one class?
  A. Nothing, just make sure to get the notes from a friend
  B. You will lose participation points from your overall grade
  C. Your grade will drop ½ letter grade
About This Class: Class sessions

• What happens if you miss more than 6 classes?
  A. You will fail the class
  B. You will lose a letter grade
  C. Nothing as long as you keep up with the material
About This Class: Class sessions

• When are the reading quizzes given?
  A. During lab
  B. At the beginning of class
  C. At the end of class
About This Class: Class sessions

• True or False: the reading quiz questions are provided before class
  A. True
  B. False
About this class: PSAs

• When are the problem solving assignments (PSAs) due?

• What should you do when you finish the PSA?

• What are the rules for working with a partner on a PSA?

• I need an extension on a PSA. What should I do?

• It’s Friday morning and I don’t know where to start on my PSA. What should I do?
About this class: PSAs

- When are the problem solving assignments (PSAs) due?
  
  A. Tuesdays at the beginning of class
  B. At the beginning of lab
  C. Tuesdays at midnight
About this class: PSAs

• What should you do when you finish the PSA?

  A. Print a copy and turn it in

  B. Submit it electronically and then complete a tutor interview ASAP

  C. Just submit it electronically
About this class: PSAs

• What are the rules for working with a partner on a PSA?

A. You may not work with a partner
B. You must work with a partner and you can split up the work.
C. If you choose to work with a partner, you must do the homework together at the same computer
About this class: PSAs

• I need an extension on my PSA. What should I do?
  A. Turn it in up to 24-hours late if you and/or your partner have at least one slip day remaining.
  B. Ask your professor for an extension.
  C. Turn it in on time, even if it is incomplete
About this class: PSAs

• It’s Friday morning and I don’t know where to start on my PSA. What should I do?
  
  A. Go to the Friday discussion section
  B. Go to the tutor hours
  C. Post a message to Piazza
  D. Any of the above
About this class: Labs and Exams

• Do I have to be registered for both CSE 8A and CSE 8AL?

• What happens if I am more than 5 minutes late to lab?

• Can exams be made-up or rescheduled?
About this class: Labs and Exams

• Do I have to be registered for both CSE 8A and CSE 8AL?
  
  A. Yes
  
  B. No
About this class: Labs and Exams

- What happens if I am more than 5 minutes late to lab?
  
  A. You get a 0 for the entire lab
  
  B. You get a 0 for participation, but you may still earn credit for the quiz
  
  C. Nothing, as long as you can still complete the lab in the remaining time.
About this class: Labs and Exams

• Can exams be made-up or rescheduled?
  A. Yes
  B. No
About this class: Academic Integrity

• You are working on one of the PSAs with your partner. You are stuck on a tricky problem, so you ask your friend who has taken CSE 8A before for help. Your friend shows you his solution, which you look at, but then put away before going back to your solution. Is this cheating?

• You and your partner are working together on a PSA, but she has to go to work. You stay and finish up the assignment without her and then submit it. Is this cheating?
You are working on one of the PSAs with your partner. You are stuck on a tricky problem, so you ask your friend who has taken CSE 8A before for help. Your friend shows you his solution, which you look at, but then put away before going back to your solution. Is this cheating?

A. Yes

B. No

You may not look at code that is a solution to the problem you are solving.
You and your partner are working together on a PSA, but she has to go to work. You stay and finish up the assignment without her and then submit it. Is this cheating?

A. Yes
B. No
About this class: Getting help

• What is the best way to get help with a bug (error) in your program?

• What is not allowed in a (public) post on Piazza?

• Under which circumstances should you directly email your instructor?
About this class: Getting help

• What is the best way to get help with a bug (error) in your program?
  
  A. Post your code on Piazza
  B. Go to tutor hours in the lab
  C. Go to the instructor’s office hours
  D. Send your instructor an email
About this class: Getting help

What is not allowed in a (public) post on Piazza?

A. Personal information such as your age, student ID or weight.
B. Code that is provided in the book or in class.
C. Code you have written for an assignment.
D. Questions directed at a specific tutor or instrutor.
About this class: Getting help

• Under which of the following circumstances should you directly email your instructor?

A. To make arrangements for exam accommodations due to a disability, AFTER you have made arrangements with the OSD.

B. To request a regrade on an exam question

C. To request a regrade on your PSA.

D. To request an extension on a PSA.
About This Class: Getting Help

• What are all the resources for getting help in this class?
PSA 1: Due next Wednesday!

```java
public AgentNode getClosest(double distance, AgentNode list) {
    // get the head of the deer linked list
    AgentNode head = list;
    AgentNode curr = head;
    AgentNode closest = null;
    Deer thisDeer;
    double closestDistance = 999;
    double currDistance = 0;

    // loop through the linked list looking for the closest deer
    while (curr != null) {
        // check if the deer is closer than the closest deer
        thisDeer = (Deer) curr.getData();
        if (thisDeer != null) {
            double currentDistance = thisDeer.getDistance();
            if (currentDistance < closestDistance) {
                closest = curr;
                closestDistance = currentDistance;
            }
        }
        curr = curr.getNext();
    }
    return closest;
}
```
PSA 1: Due next Wednesday!
Using Dr. Java

```java
public static void main (String[] args)
{
    // This is some starter code, but it has errors. You will need to fix these errors and then add your code to draw your name. Be sure to remove this comment once you've fixed the errors and started adding your own code.
    World w = new World();
    Turtle jose = new Turtle(200,100,w); //Creates a turtle

    //Make a U shape
    jose.forward(55);
    jose.turn(90);
    jose.forward(30);
    jose.turn(90);
}
```

Write your code here.
Using Dr. Java

```java
public class DrawName {
    // The line below is magic, you don't have to understand:
    public static void main (String[] args) {
        // This is some starter code, but it has errors. You will
        // fix these errors and then add your code to draw your
        // name here. Be sure to remove this comment once you've
        // fixed all the errors and started adding your own code.
        World w = new World();
        Turtle jose = new Turtle(200, 100, w); // Creates a turtle
        // Make a U shape
        jose.forward(55);
        jose.turn(90);
        jose.turn(90);
        jose.forward(30);
        jose.turn(90);
    }
}
```

Compilation completed. The following files were not compiled: 

Messages appear here

DEMO
public class DrawMyName {
    // The line below is magic, you don't have to understand it (yet)
    public static void main (String[] args) {
        // This is a comment
        World w = new World();

        // Creates a turtle in w at (x,y) (200,100)
        Turtle jose = new Turtle(200,100,w);

        // Make a U shape
        jose.forward(55);
        jose.turn(90);
        jose.forward(30);
        jose.turn(90);
        jose.forward(45);
        jose.forward(10);
        jose.turn(90);
    }
}

Don’t worry about details (yet).
The big picture is:
• jose is a Turtle
• He can move around the screen responding to specific commands in order
• You arrange those commands to make him draw what you want him to
For next class

• Go to the course web site: https://sites.google.com/a/eng.ucsd.edu/cse-8a-fall-2013/home

• If you haven’t already: buy a book and a clicker, and register your clicker at iClicker.com (see instructions on the syllabus)

• Do the reading for Tuesday’s class

• Make sure you know the answers to the reading quiz questions

• BRING YOUR CLICKER TO CLASS

• Either
  – Start PSA1 OR
  – Plan a few hours on Tuesday or Wednesday to do PSA1