



# Get Agile with Creative Computing

## WELCOME!

Say  
Hello!

Drop a note in the chat of your favorite  
creative medium outside of coding.



# GET AGILE WITH CREATIVE COMPUTING



# Let's Collaborate!

- ▶ MS Director of Learning, Innovation, and Design  
The Harker School (San Jose, CA)
- ▶ CSTA Equity Fellow
- ▶ CSTA Board Member
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- ▶ CSTA San Mateo County/Silicon Valley
- ▶ Artists, Futurist, Storyteller



**Dr. Abigail Joseph**

THE INNOVATION DOCTOR

@drabigailjoseph

# Agenda

## Agile Framework

Values and principles for good design.



## Creative Computing

Creating student agency by blending arts and coding.



## Java Programming + Agile

Transforming a competitive programming course environment to be more inclusive.

Self-efficacy, collaboration, and communication

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# Agile Framework

Everything I know about Agile I learned from [@Jennifer\\_Manly](#)





I don't know who needs to hear this, but...

Grades are an extrinsic motivator.

Points are an extrinsic motivator.

"Winning the game" is an extrinsic motivator.

...and extrinsic motivators don't necessarily  
(and honestly, pretty rarely) build intrinsic  
motivation.

@jennifer\_manly



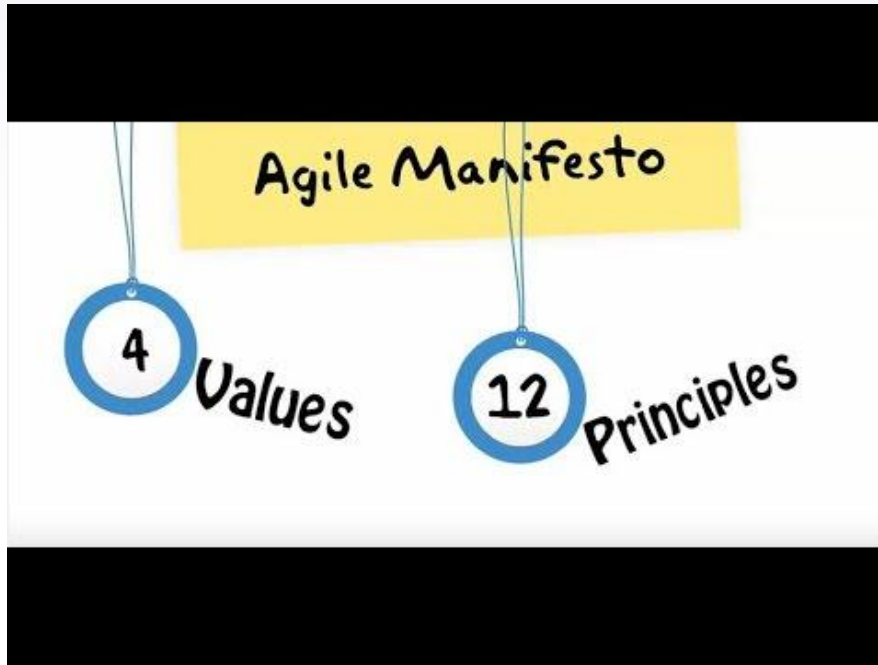
# What is Agile Education?

- ▶ Prescriptive → Iterative
- ▶ Content → Culture
- ▶ Evaluation → Visible Feedback and Reflection
- ▶ Control → Trust
- ▶ Competition → Collaboration

@jennifer\_manly



# ► What is Agile?



Processes to consider

- Scrum
- Kanban



# Agile Resources

[2021 CSTA Annual Conference Videos](#) (CSTA+ Member Benefit)

- ▶ Agile for Authentic Learning - Jen Manly
- ▶ Agile Escape Room - Sean Glantz

[Singapore Institute of Technology Scrum in Action](#) (video series)

[A Brief Overview of the Scrum Framework](#) (video)

[What is Kanban?](#) (video)



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# Creative Computing

CS+Art == So much fun!



# ► What is Creative Computing?



- Creativity
- Agency
- Computing

# Creative Computing Resources

Creative Computing Educators

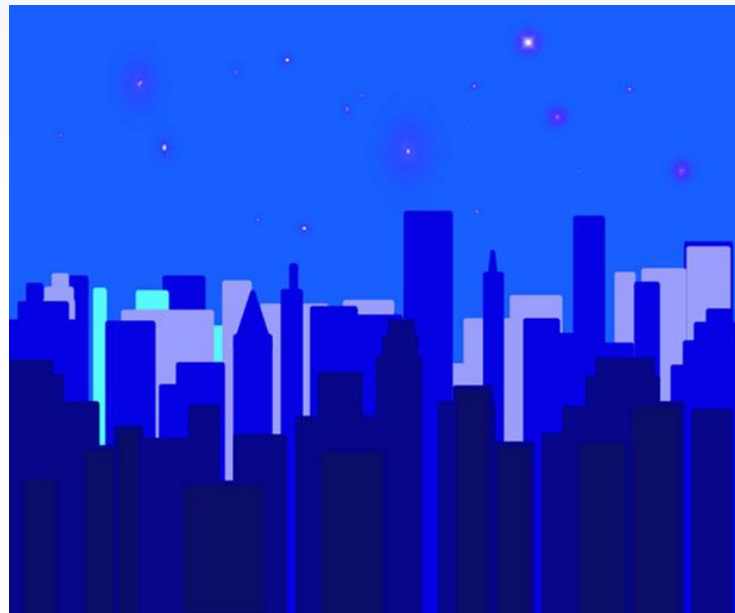
- ▶ Saber Khan [@saberikhan](#)
- ▶ Angi Chau [@angichau](#)
- ▶ Dr. Emily Thomforde [@thegrene](#)

[Harvard's Creative Computing Curriculum](#)

[CCFest](#) - Creative Coding Festival

[Processing Foundation Projects](#)

[OpenProcessing.org](#)



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# Java Programming + Agile

When Agile meets a middle school Java  
Programming elective with Processing



# Why Agile?

Create a positive Computer Science classroom



# Java Programming (Processing) V1.4

## Lecture

Variables

Function

Loops

Arrays

Objects

## Activities

Hello Processing! (Hour of Code)

Mini-Challenges

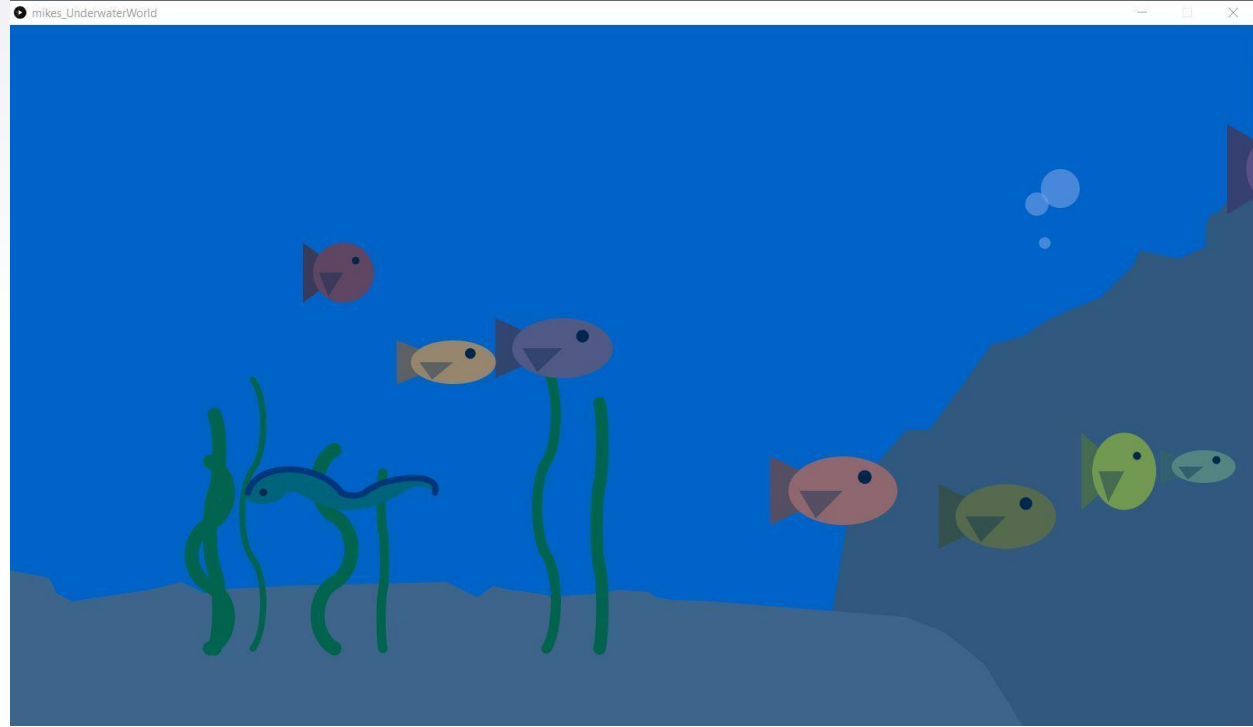
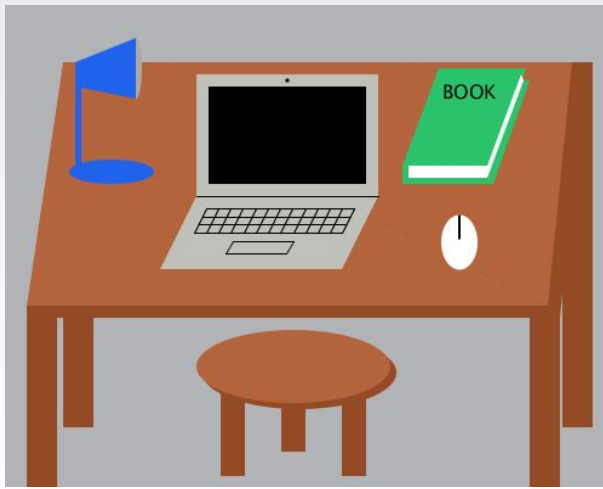
## Projects

Not A Still Life

Build A House

Underwater World

“Final Project”





# Java Programming V2.2 (Processing + Scrum + Repl.it)

## Agency

Learning goals with choice of learning path

- ▶ Videos
- ▶ Interactive websites
- ▶ Articles
- ▶ Tutorials

## Individual Projects

Small individual projects

- ▶ Sprint 1 - Avatar Identity
- ▶ Sprint 3 - Pattern Play

## Team Projects

Group projects (Teams of 3-4) that combine individual efforts

- ▶ Sprint 2 - Team Spirit
- ▶ Sprint 4 - Data Visualization

# Course Essential Question

How can we use data and storytelling to provide communities with a better understanding of a particular event in history?



# ► Sprint Goals: Sprint 1 (Individual)

## Avatar Identity/ Java (Shapes, Variables, Simple Animation)

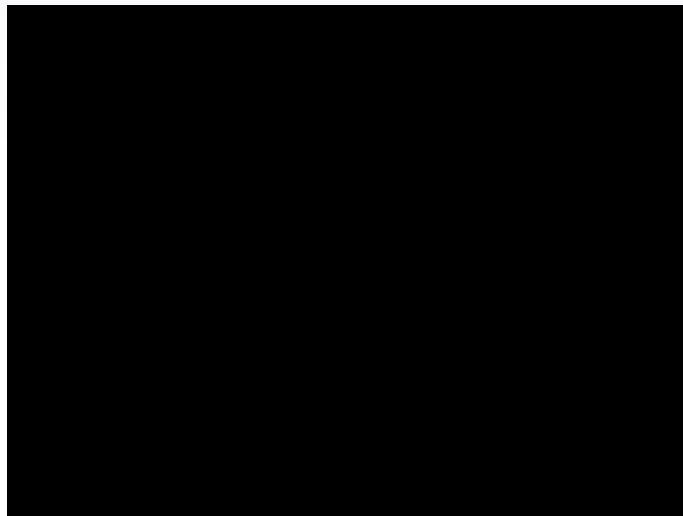
- Create an avatar to represent your identity.



# ► Sprint Goals: Sprint 2 (Team)

## Team Spirit (Mouse and Keyboard Input)

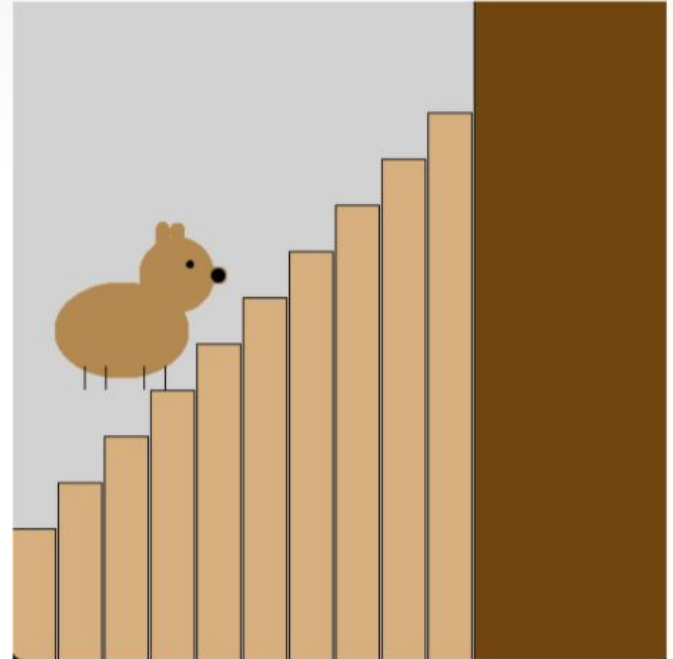
- ▶ To foster team spirit by coming up with a team name, logo, motto, song, and spirited program.
- ▶ Learn to use mouse presses and keyboard presses to create interactive programs.
- ▶ Combine individual Avatar Identity programs into one larger program.



# ► Sprint Goals: Sprint 3 (Individual)

## Pattern Play/ Java (Conditionals and Loops)

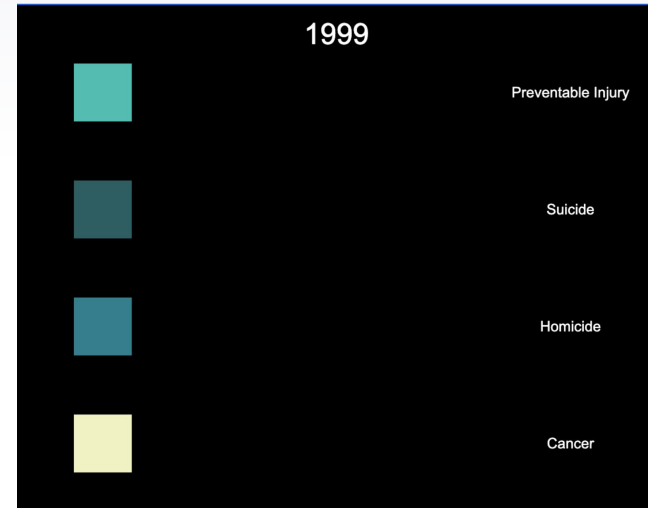
- Create patterns using loops
- Create buttons for the user to interact with the program



# Sprint Goals: Sprint 4 (Team)

## Data Visualization (Functions, Arrays, Objects)

- ▶ To tell a data story to educate others
- ▶ To understand how data can be manipulated and displayed in a program.
- ▶ Learn and understand functions, arrays, and object programming concepts.
- ▶ Combine individual pattern display programs into one large Data Visualization program.



# Java Programming

## Processing

- ▶ Processing IDE (Java)  
download from [Processing.org](https://processing.org)
- ▶ Exciting New Look  
and Navigation

## Repl.it - [Teams for Education](#)

- ▶ View student work in progress
- ▶ Group project collaboration



# Scrum Process

[A Brief Overview of the Scrum Framework](#) (video)

## Individual Projects

Google Slides Workboard

- ▶ Backlog
- ▶ Workboard
- ▶ Learning Documentation

[Example](#)

## Team Projects

Google Jamboards Workboards

- ▶ Backlog
- ▶ Scrum Board
- ▶ Scrum Meeting Reflections
- ▶ Sprint Review
- ▶ Sprint Retrospective

[Example](#)

## Sprint Goals and Features

Google Document

- ▶ Sprint Goals
- ▶ Sprint Deliverables
- ▶ Features (Product Backlog)
- ▶ Details (acceptance criteria)

[Example](#)



# Documentation and Reflection

## Google Site Portfolio

- ▶ Describe project
- ▶ Embed Repl.it programs
- ▶ Reflect on process

## Sprint 1- Avatar Identity

### Sprint Overview:

We were supposed to learn more about the code in Processing and eventually make an avatar with many shapes and colors using code. We also learned how to move the mouse. The concepts we used are showcased in the avatar.

### Avatar Program

My avatar is an emoji-like circular face with the tongue out. The three colors are black, red, and yellow, and the face is one circle, the tongue is a rectangle and a circle, and the eyes are two rectangles. The backdrop is a fun, sunny grass field, and the avatar moves to random coordinates. Originally, I made it follow the mouse, but I changed it for the extra challenges.



```
/*
Program: AvatarIdentity
Author: Linda Zeng

The program is an emoji avatar with its tongue out
in random spots of the screen. The background is a
field and the blue sky, the natural habitat for the
*/

//creating and defining variables
int ellipseDiameter = 100;
int rectWidth = 20;
int rect2Length = 2;
//importing image
PImage img;


//Setting up a 400x400 canvas
void setup() {
  size(400,400);
  //uploading an image file and clearing the background
  img= loadImage("avatar_background.jpg");
  //establishing the frame rate as 2
  frameRate(2);
}
```

# Self-Evaluations

An opportunity for students to reflect on their habits as a students and provide course feedback using a Google form.

[Example](#)






## What parts of this class should I continue doing next semester?

- ▶ I feel like you should keep on doing the team sprints, since it makes us work and communicate with people we don't really know well.
- ▶ I really liked the self-paced learning. It allowed us to take our time with projects, but also ask you for help whenever necessary.


## What parts of this class should I continue doing next semester?

- ▶ You should definitely keep the final project, since it is a great way of wrapping everything up. Also, it has quite a bit of real-world function, and it feels nice to be making something others could use as a 7th grader.
- ▶ Definitely the group projects because they were very fun and helped my teamwork skills. Also, continuing the Avatar Identity and making us implement it in all of the consecutive programs was a great idea.




## During the semester you worked together with a team to create programs that combined your individual work. What did you enjoy about the process of working with a team? And why?

- ▶ I really enjoyed the fact that we helped each other and everybody in my team had good ideas. When a team doesn't work together, the journey is not enjoyable and your end result usually does not turn out as well. Helping each other improves everybody's code.
- ▶ I liked working as a team because I was able to hear opinions other than my own and most of the time, they were very helpful. Also, it's just easier working in a group because they can also look over my code to find errors that I cannot.



During the semester you worked together with a team to create programs that combined your individual work. What did you enjoy about the process of working with a team? And why?

- ▶ I enjoyed working in a team because it lets you talk to other people while you work. I really enjoy social interaction, and I think I'm more productive when there's somebody who I can talk to and laugh with while working.
- ▶ My ideas were heard and respected by my teammates. I was able to help out my team a lot and I am proud of that. I helped my teammates out by answering questions and adding comments.




## How is collaborating with others helpful in developing a computer program? What skills did you acquire while working with a team that you can take with you into other courses or situations? Why are these skills valuable?

- ▶ It is helpful because you can have multiple perspectives and a wider variety of skills. I learned how to be better at supporting and trusting, and although these are not exactly coding skills, they are important in computer science because collaboration and community matter as well, not just the physical coding. I also learned more about compiling different concepts, programs, and ideas into one large piece of work.

# How is collaborating with others helpful in developing a computer program? What skills did you acquire while working with a team that you can take with you into other courses or situations? Why are these skills valuable?

- ▶ Developing a program is an open ended question, so there is not one solution. Working as a team allows us to find the best solution out of a thousand. This is true not only for CS, but for other subjects that require creative or opinion based answers instead of one right one.
- ▶ I felt like I could communicate better after working with different people in this class. I feel like these skills are valuable, because I feel like in the future, I won't get to pick and choose who to work with.





## How is collaborating with others helpful in developing a computer program? What skills did you acquire while working with a team that you can take with you into other courses or situations? Why are these skills valuable?

- ▶ Collaborating with others is helpful when writing code because sometimes I will be stuck on a code and then my friend will help me. I acquired the skill of staying quiet sometimes because I don't always have to be the leader. This is a valuable skill because I should let people express their ideas equally to mine and not always tell people what to do.



# Creative Computing

## Agile Methodology

### New Learning

# Let's keep the conversation going!

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# Credits

Special thanks to all the people who made and released these awesome resources for free:

- ▶ Presentation template by [SlidesCarnival](#)
- ▶ Illustrations by [Sergei Tikhonov](#)
- ▶ Photographs by [Unsplash](#)