CSC 133
Object-Oriented Computer Graphics Programming

Course Introduction

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California State University, Sacramento

SACRAMENTO STATE

Who is your teacher?

It's me. ~~Mario~~! ~~Dio~~!

Dr. Kin Chung Kwan (KC)

Joined CSUS in 2023 (Just 1 week)

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Office: Riverside Hall 5016

Office Hour: Tue 9am-12nn

It is over this week

This Course

A course of

- Computer graphics
- More on Object-Oriented (OO) Programming
- IMO: Introduction to **Application Development**

Goal

- Gain experiences on larger scale programming

WARNING

A hard course!
Lots of programming!

Course Outline

From the Course Title

Object-Oriented Computer Graphics Programming

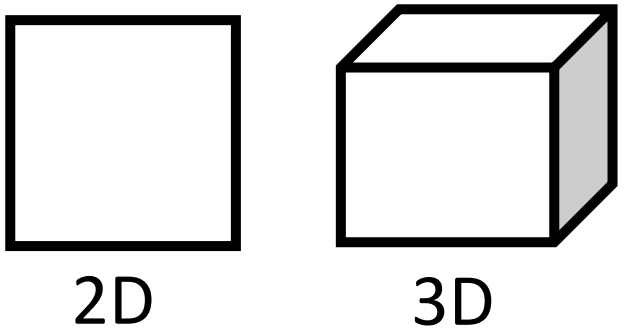
Two Cores

Object-Oriented Programming

- OO concept “A PIE”
- Design pattern

Computer Graphics

- Mainly 2D



Want 3D?

Take CSC155 in the future

CSC 155. Advanced Computer Graphics. **3 Units**
Prerequisite(s): CSC 133.
Term Typically Offered: Fall only

Modeling, viewing, and rendering techniques in 3D computer graphics systems. Topics include modeling systems and data structures; polygonal and parametric surface representation; transformations, windowing, clipping and projections in 3D; hidden surface removal algorithms; techniques for realism such as shading, shadows, highlights, and texture; fractals and procedural models; introduction to animation; hardware support for computer graphics; and the application of graphics principles to virtual reality systems and 3D games.

CSC133 Course Outline

1. Codename One (CN1)
2. Object-Oriented Concepts
3. Design Patterns
4. Graphical User Interface
5. Animation & Sound
6. Transformations
7. Lines and Curves
8. Developing application

Codename One

A tool to develop mobile application

Object-Oriented Concepts

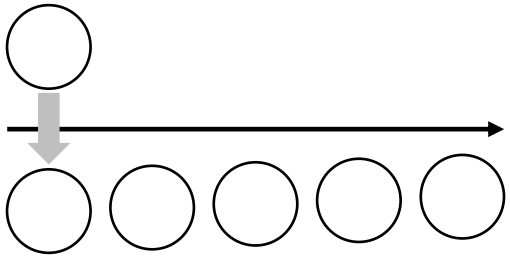
Why do we want OO?

Learn

- Understanding how OO works?
- How to be good OO programmer?
- In Java

Design Patterns

How to design your code in OO?



Learn

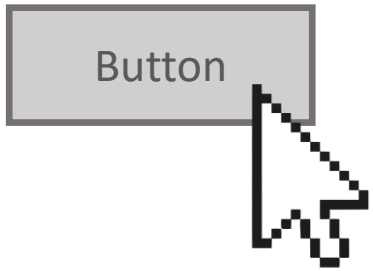
- Types of Design Patterns
- Specific Patterns
- MVC Architecture

Graphical User Interface (GUI)

Users need to control your program

Learn

- Learn basic display technology
- Input methods
- Colors / buttons / menu bar

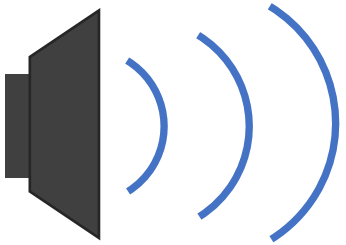


Animation & Sound

Applications without animation and sound are boring!

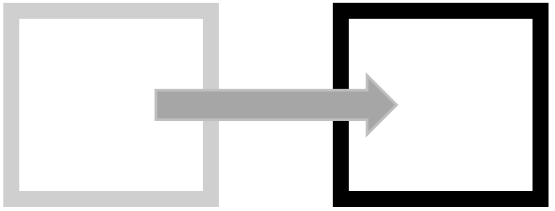
Learn

- Basic concepts of animation and sound
- Time frame, sound files format
- Adding animation and sounds in CN1



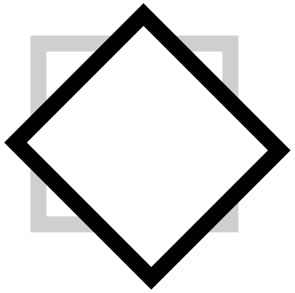
Transformation

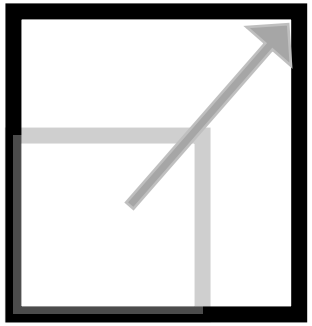
Changing the position and orientation in math



Learn

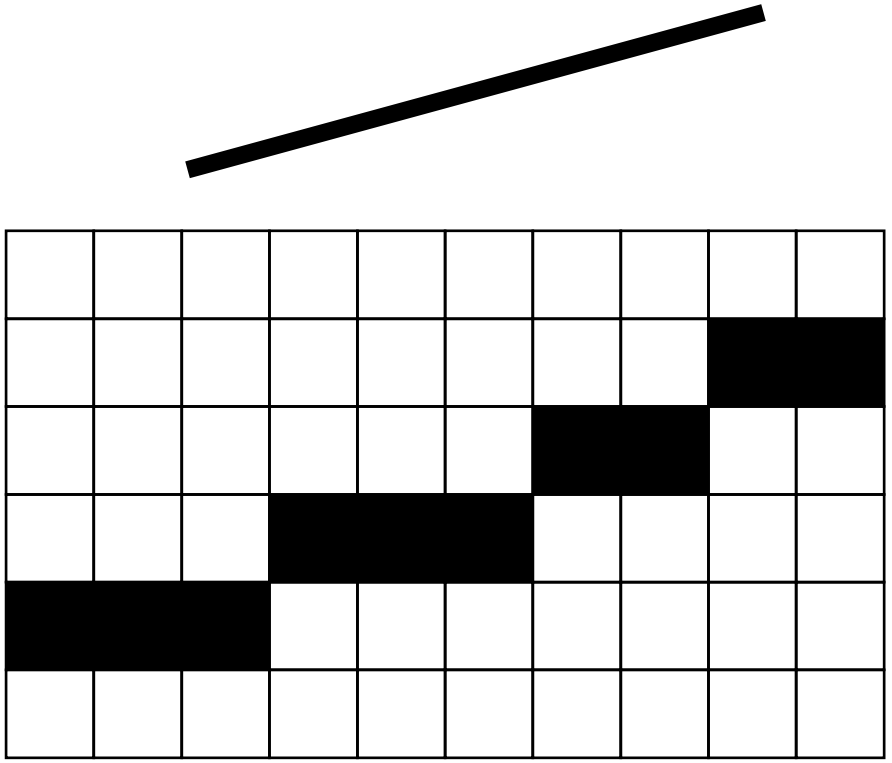
- Affine Transformation
- Coordinate system
- Viewpoint





Line and Curve

How drawing works in pixels?



Learn

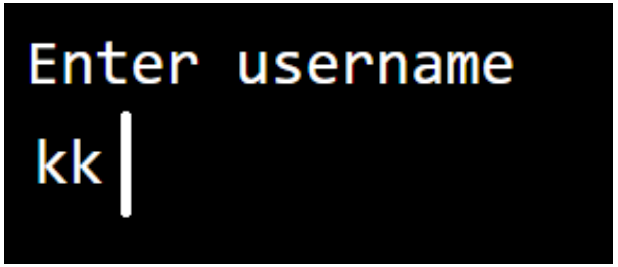
- Pixels
- Drawing Lines
- Drawing Curves

Developing Applications

What else do you need?

Learn

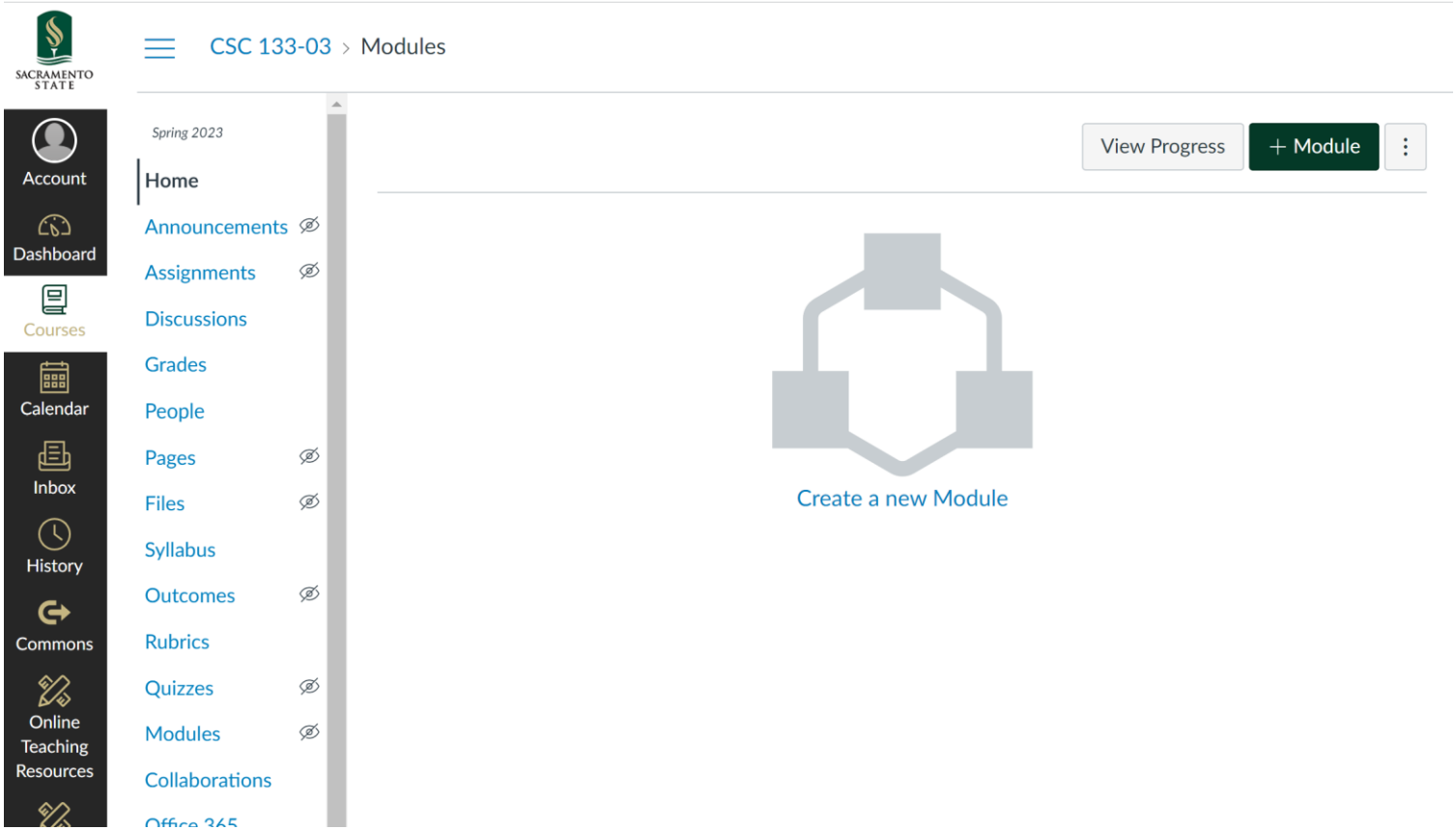
- Threading: Way to multi-task
- From simulator to physical device



Other Information

Canvas

Materials will be uploaded to Canvas



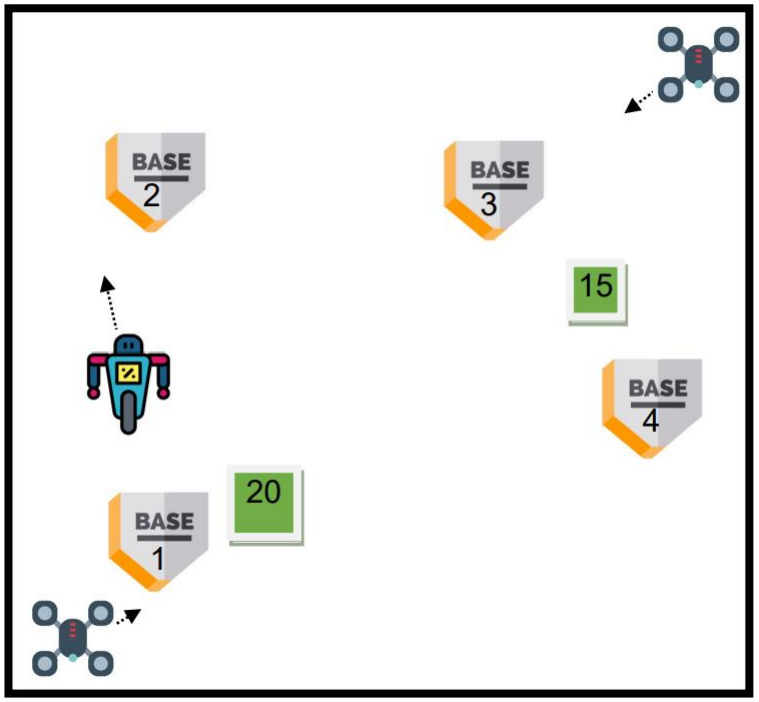
Assignments

Four Programming Assignments (65%)

- From Dr. Pinar Muyan-Ozcelik (Sec 1 & 2)
- Robo-Track

Each assignment builds on top of the previous one

- Don’t miss one



Exam

Final Exam at the end (35%)

Location, date, time: TBA

More detail will be announced later

Attendance?

I don’t take attendance.

If you enrolled but cannot attend certain section:

- you can join other section (3, 4, or 5)

Add Course?

This class is **FULL**:

- 45/30 students for section 3 and 4…
- Some students are crashing this course.

You can submit an Onbase form with

- Your transcript
- Good reasons of “Why we should add you” in detail.

We may (or may not) add **limited** students

- If and only if: you have good reasons.

Any Questions?

Free to Go!