Drawing

2D Coordinates
Statements
Commenting
Sequential Control Flow
Chapter 3, Examples 3-1, 3-2, 3-3, 3.4, 3-5, 3-6, 3-10, 3-11
Skip Exercises 3-7, 3-8, 3-9

activate clicker:
hold ON/OFF, wait for power light to flash, enter 2-letter room code

What kind of error is this?
Announcements

- Clicker responses to be processed today
  - check if you received marks tonight

What do you need to draw a picture?

- Something to draw with
- A method to draw shapes
- Something to draw on
- A plan of your drawing
Setup a Drawing Canvas

Syntax:

Brackets are required

Style:

Semicolons are required

Define the function to write our algorithm

Create a drawing area with a width and height

Make the drawing area a certain colour

The code to make our drawing goes here

```
function setup() {
    createCanvas(100, 100);
    background(220);
}
```

Syntax:

Brackets are required

```
function setup() {
    createCanvas(100, 100);
    background(220);
}
```

(demos)

```
function setup() {
    createCanvas(100, 100);
    background(220);
}
```

“setup” is a special function name used by p5

https://editor.p5js.org/cs105/sketches/NkJs2dQiM
How to specify a location?

- At the mall?
- In a city?
- On an ocean?

e.g. (21.3° N, 157.8° W)
Pixels

function setup() {
  createCanvas(100, 100);
  background(255);
}

...
Function Call Statement

```
point(x, y)
```

```
line(x1, y1, x2, y2)
```

https://editor.p5js.org/cs105/sketches/NkJs2dQiM
Coding Style when Calling Functions

point(10, 20);

One space after commas in function arguments:
✗ point(10,20);

No space between function name and opening bracket:
✗ point (10, 20);

No space before the semicolon at the end of a statement:
✗ point(10, 20) ;

No space after opening bracket or before closing bracket:
✗ point( 10, 20 );

https://editor.p5js.org/cs105/sketches/uYlgbdkpS
Which code draws this picture?

A. line(50, 10, 1, 80);
B. line(10, 50, 10, 90);
C. line(50, 10, 50, 90);
D. None of the above

Reference Sheet

- We provide a language reference sheet in exams.
- Don't memorize function syntax, understand their semantics: what functions do and what parameters mean
triangle(x1, y1, x2, y2, x3, y3)

quad(x1, y1, x2, y2, x3, y3, x4, y4)

https://editor.p5js.org/cs105/sketches/NkJs2dQiM

sailboat

https://editor.p5js.org/cs105/sketches/iCmF693Ps
Commenting Code

- Code comments provide information that is not otherwise available from reading the code
- Comments are often a message to your “future self”
  - in CS 105, comments are a message to lab instructors, marking TAs, professor, etc.

```javascript
// draws a sailboat

// left sail
triangle(48, 10, 48, 60, 15, 60);

// right sail
triangle(50, 10, 50, 60, 75, 60);
```

(p5+ (live demos))

```javascript
rect(x, y, width, height)

ellipse(x, y, width, height)
```

https://editor.p5js.org/cs105/sketches/NkJs2dQiM
p5® Exercise

man with hat

https://editor.p5js.org/cs105/sketches/DEetu9rg_

cat

https://editor.p5js.org/cs105/sketches/6gWGb-lkv
Trace Through: Sequential Control Flow

// sequential control flow demo
function setup() {
  createCanvas(100, 100);
  background(220);
  line(99, 0, 0, 99);
  ellipse(50, 50, 40, 40);
  rect(25, 25, 50, 50);
}
// sequential control flow demo

function setup() {
  createCanvas(100, 100);
  background(220);
  line(99, 0, 0, 99);
  ellipse(50, 50, 40, 40);
  rect(25, 25, 50, 50);
  HALT
}
// sequential control flow demo

function setup() {
  createCanvas(100, 100);
  background(220);
  line(99, 0, 0, 99);
  ellipse(50, 50, 40, 40);
  rect(25, 25, 50, 50);
  HALT
}
// sequential control flow demo
function setup() {
  createCanvas(100, 100);
  background(220);
  line(99, 0, 0, 99);
  ellipse(50, 50, 40, 40);
  rect(25, 25, 50, 50);
  HALT
}
function setup() {
  createCanvas(100, 100);
  background(220);
  line(99, 0, 0, 99);
  ellipse(50, 50, 40, 40);
  rect(25, 25, 50, 50);
  HALT
}
Which code draws this picture?

Example

https://editor.p5js.org/cs105/sketches/1-uBo1P3v
Coding Train Video: Basics of Drawing

- [https://thecodingtrain.com/Tutorials/1-p5js-basics/1.3-basics-of-drawing.html](https://thecodingtrain.com/Tutorials/1-p5js-basics/1.3-basics-of-drawing.html)