Exam 2

- Is cumulative = topics from midterm 1 will be asked again
- We will expect proficiency on old topics
  - Proficiency = can solve more difficult problems and/or faster
- 40 minutes for midterm 2.
- Questions that students struggle the most:
  - For loops (loop table)
  - Built-in variables
  - Mathematical expressions

Where to practice

1. Archived Problems - Project Euler
2. For Loop [87 exercises with solution]

Ask in Piazza if you need more practice problems

Extra credit opportunity :

- *Share on Piazza (folder **extra_credit**) the material that you use to study with the rest of the class for 0.5 extra credit point!*
- *Come up with your own problems based on the assigned readings for 1 extra credit point!*

Today

- We released PA5
- Work with Laptops
- We will learn how to stop the program.
- We will do more practice exercises. Ask me questions. Stop me if you need more time at any step.
- Send ICA to Gradescope. Save and submit after each question

Continue review from Lecture 15

Question 1

- Go to the class website -> Lecture Materials -> Oct 2nd
  - Download three_squares.pde
  - Test that the program runs well

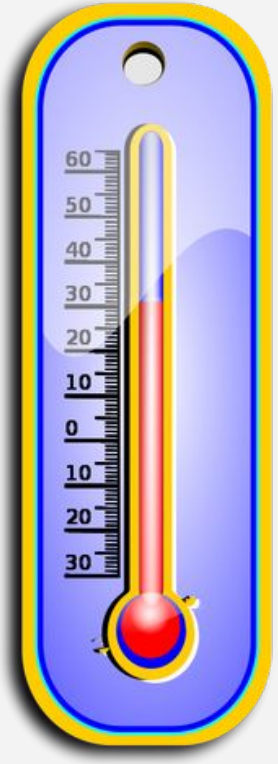
Modify the previous program so the mouse cursor is highlighted with a blue circle.
In other words, add a blue circle that follows the mouse cursor.

Please ask me questions

Temperature check

How are you feeling?

A. Very confused
B. Need a lot more practice
C. Need a little more practice
D. Just have a couple of questions
E. Feeling good



Documentation → Reference → Structure

Name

exit()

Description

Quits/stops/exits the program. Programs without a `draw()` function exit automatically after the last line has run, but programs with `draw()` run continuously until the program is manually stopped or `exit()` is run.

Rather than terminating immediately, `exit()` will cause the sketch to exit after `draw()` has completed (or after `setup()` completes if called during the `setup()` function).

For Java programmers, this is *not* the same as System.exit(). Further, System.exit() should not be used because closing out an application while `draw()` is running may cause a crash (particularly with P3D).

Example

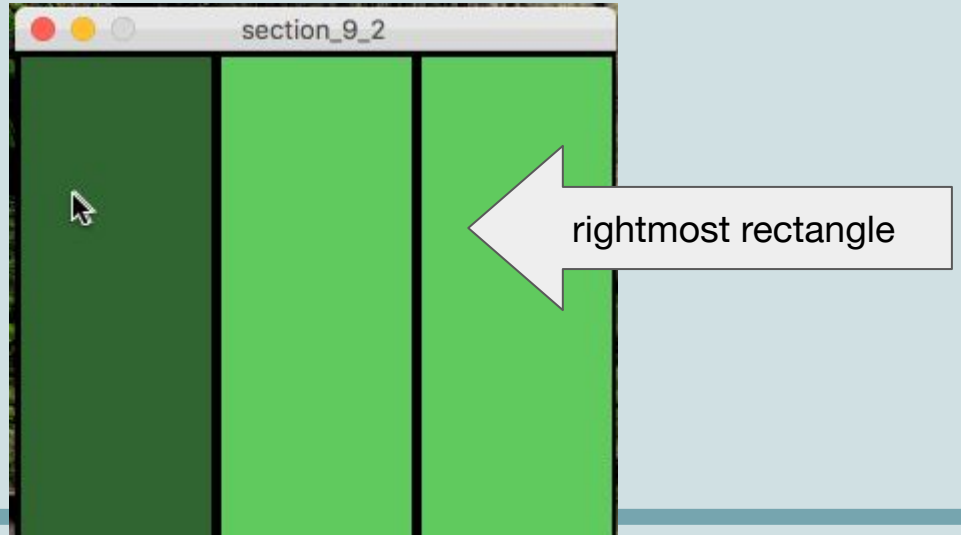
```
void draw() {


}


void mousePressed() {
  exit();
}
```

Question 2

- Modify the three_squares.pde program so it exits when the mouse cursor hovers over the rightmost rectangle



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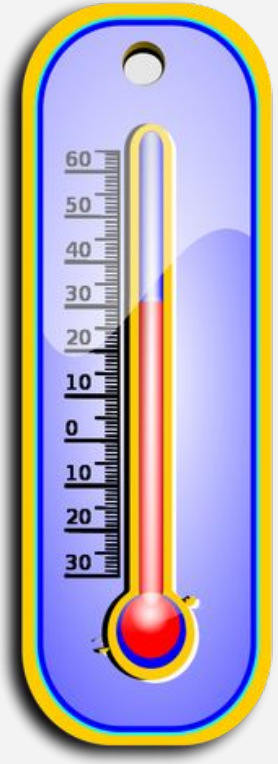

Print versus Print**ln**

print("prints a message without a new line after the message");

print**ln**("prints a message and a new **line** after the message");

Question 3. Practice loops

Write a program to find the first 10 natural numbers

Sample Console Output:

```
The first 10 natural numbers are:
1 2 3 4 5 6 7 8 9 10
```

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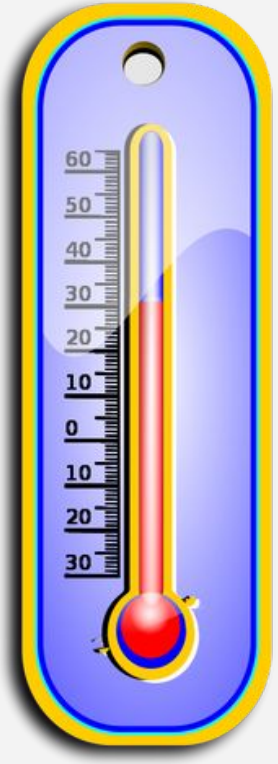

Question 4. Practice loops

Complete the following program so it prints the following pattern. The number of pairs of zeros and ones should be given in variable n

```
int n = 4; // Variable 'n' indicates the number of 01 that would be printed

println("This program prints a pattern of n collated zeros and ones");
println("-----------------------------------------"); // Display a separator line
println("Here we print a row of ", n, " zeros and ones");  // Display the value of n
```

Sample Console Output:

```
This program prints a pattern of n collated zeros and ones
-----------------------------------------
Here we print a row of  5  zeros and ones
01010101
```

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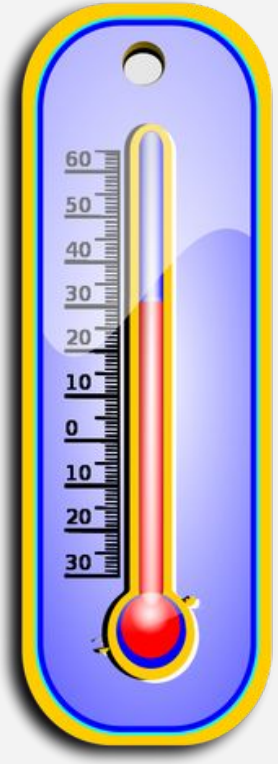

Question 5. Practice loops

Complete the following program so it prints the following pattern. The number of “-*-” decorations should be given in variable n

```
int n = 5; // Variable 'n' indicates the number of 01 that would be printed
```

Sample Console Output:

```
This program prints a pattern of n decorations
----------------------------------------
Here we print a row of  5  decorations
-*-  -*-  -*-  -*-  -*-
```

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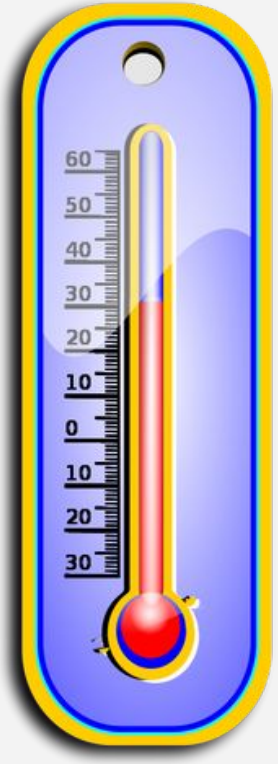

Question 6. Practice Basic Animations

Write a program that shows a red circle moving from the top left corner to the bottom right corner of the canvas.

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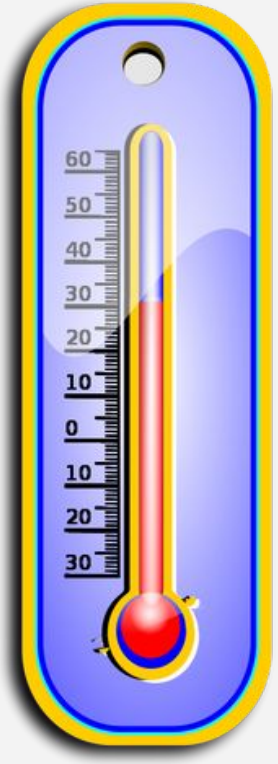
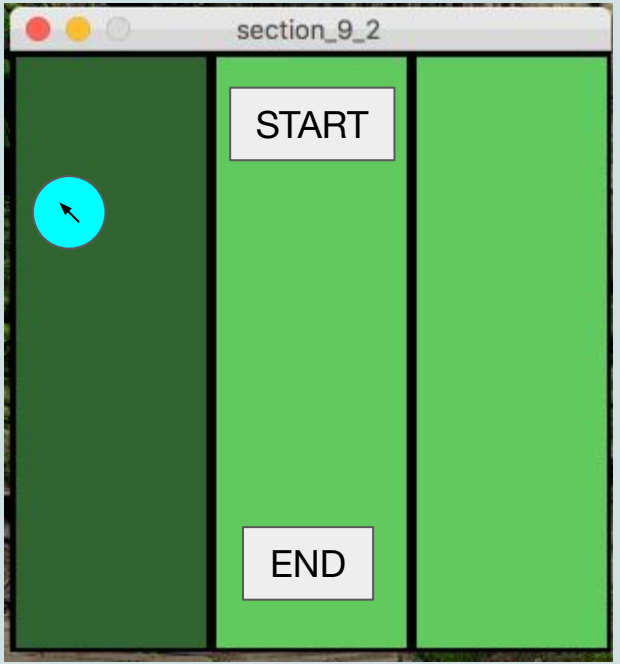


Question 7

1. Read the reference page for the function “text” https://processing.org/reference/text_.html
2. Add two text boxes and rectangles to the three_rectagles.pde program so your canvas looks like the on the right



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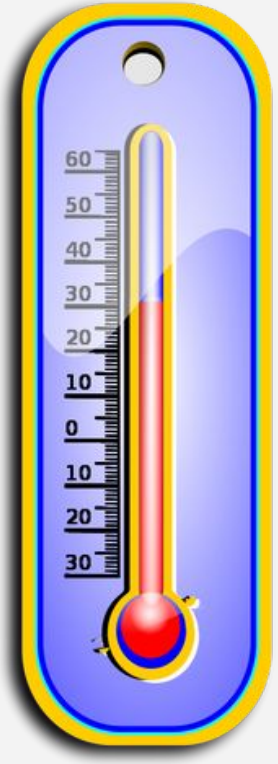
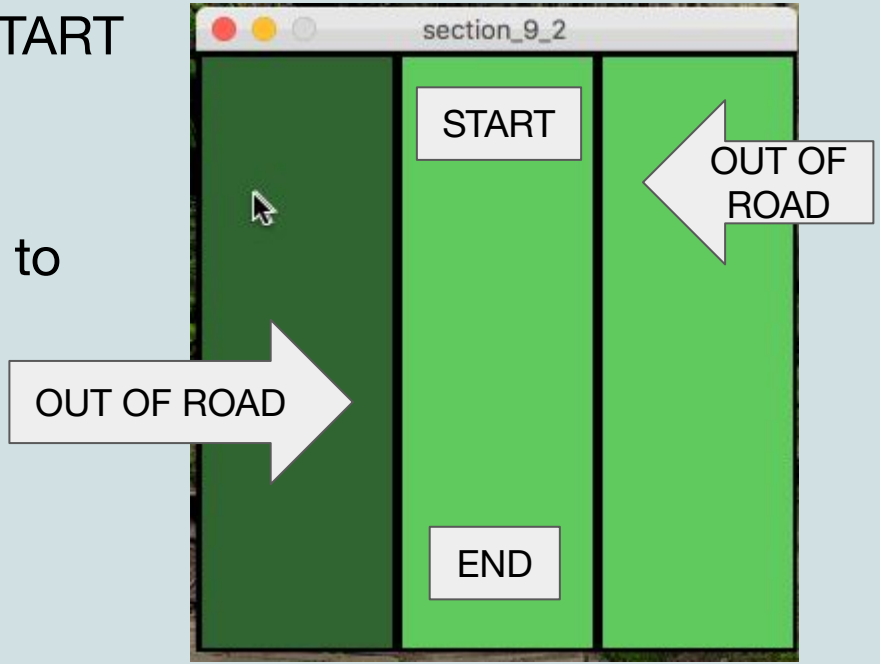


Question 8

We want to program a game that asks the user to move the mouse from the START square to the END square.

What are some steps you would do to complete this program?



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