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### 15-112 Spring 2018 Quiz 6

Up to 20 minutes. No calculators, notes, books, or computers. Do not use recursion. Show your work!

1. (10 points) **Short Answer:** In two sentences or less, how do you add pausing as a feature to an animation?

2. (10 points) **Short Answer:** Write one line of code that could be added to `init` to make `timerFired` get called every 2 seconds. Note that by default, `timerFired` is called every 100 milliseconds.

3. (10 points) **Short Answer:** Assume you've already loaded an image in `init()` into the variable `data.icon`. Write a single line of code that would draw the image centered in the screen. You may assume `data.width` and `data.height` are provided, and that the code will be included in `redrawAll`.

4. (10 points) **Short Answer:** Say you're writing an animation that using the side-scrolling framework we taught in class. How would you find the location of a mouse-click event in the main board, instead of the part of the board shown on the canvas?

5. (60 points) **Free Response:** Using our animation framework and assuming `run()` is already written, write the `init(data)`, `timerFired(data)`, `mousePressed(event, data)`, and `redrawAll(canvas, data)` functions for an animation which has the following elements:

1. Every five seconds, a red 20x20 square appears at a random location inside the screen, moving towards the right. You may want to use `random.randint` for this.
2. All squares on the screen move continuously (in other words, their positions should update more often than every five seconds!).
3. When a square's right side hits the right edge of the screen, it starts moving left; when its left side hits the left edge of the screen, it starts moving right.
4. When the user clicks somewhere on the screen, the square that was most recently added moves to immediately be centered at that location.

**Note:** to save time, feel free to abbreviate `canvas`, `data`, and `event` as `c`, `d`, and `e`. Using short variable names also helps! You may assume `data.width` and `data.height` are provided.

**YOU MAY CONTINUE WRITING ANIMATION CODE ON THIS PAGE.**

USE THIS PAGE FOR SCRAP WORK. WORK ON THIS PAGE WILL NOT BE GRADED.