

fullName:\_\_\_\_\_ andrewID:\_\_\_\_\_ section:\_\_\_\_\_

## 15-112 F25 Quiz2

You **must write your name on this paper and hand this back** in immediately after the assessment. If we do not receive it immediately, you will receive a zero on the assessment. **Do not unstaple any pages.** All pages must be handed in intact.

Do not use your own scrap paper. You should not need it, but if you must absolutely have scrap paper, raise your hand and we will provide some. Write your andrewID clearly on it and hand it in with your quiz. We will not grade anything on scrap paper.

You may not ask questions during the quiz, except for English-language clarification questions. If you are unsure about a problem, take your best guess.

Before and during the quiz, you may not view any other notes, prior work, websites or resources, including any form of AI. You may not use calculators, phones, laptops, or any other devices. You may not communicate with anyone else except for current 112 TAs or faculty during the assessment. All syllabus policies apply.

You may not discuss this test with anyone else, even briefly, in any form, until we have released grades. Failure to abide by these rules may result in an academic integrity violation.

**Do not use sets, dictionaries, recursion, or anything else disallowed in the original problem.**

**Do not open this or look inside (even briefly) before you are ready to begin. Do not spend more than 30 minutes on this assessment.**

-----

### Important notes for the Free Response questions:

- You may not use 'align' when drawing rectangles or ovals.
- Your solution must work for any sized canvas, so use `app.width` and `app.height` properly (and do not hardcode to 400x400), though you may assume the canvas is no smaller than 400x400.
- If you think the writeup does not fully specify some behavior, just make a reasonable assumption about it (do not ask for clarifications).

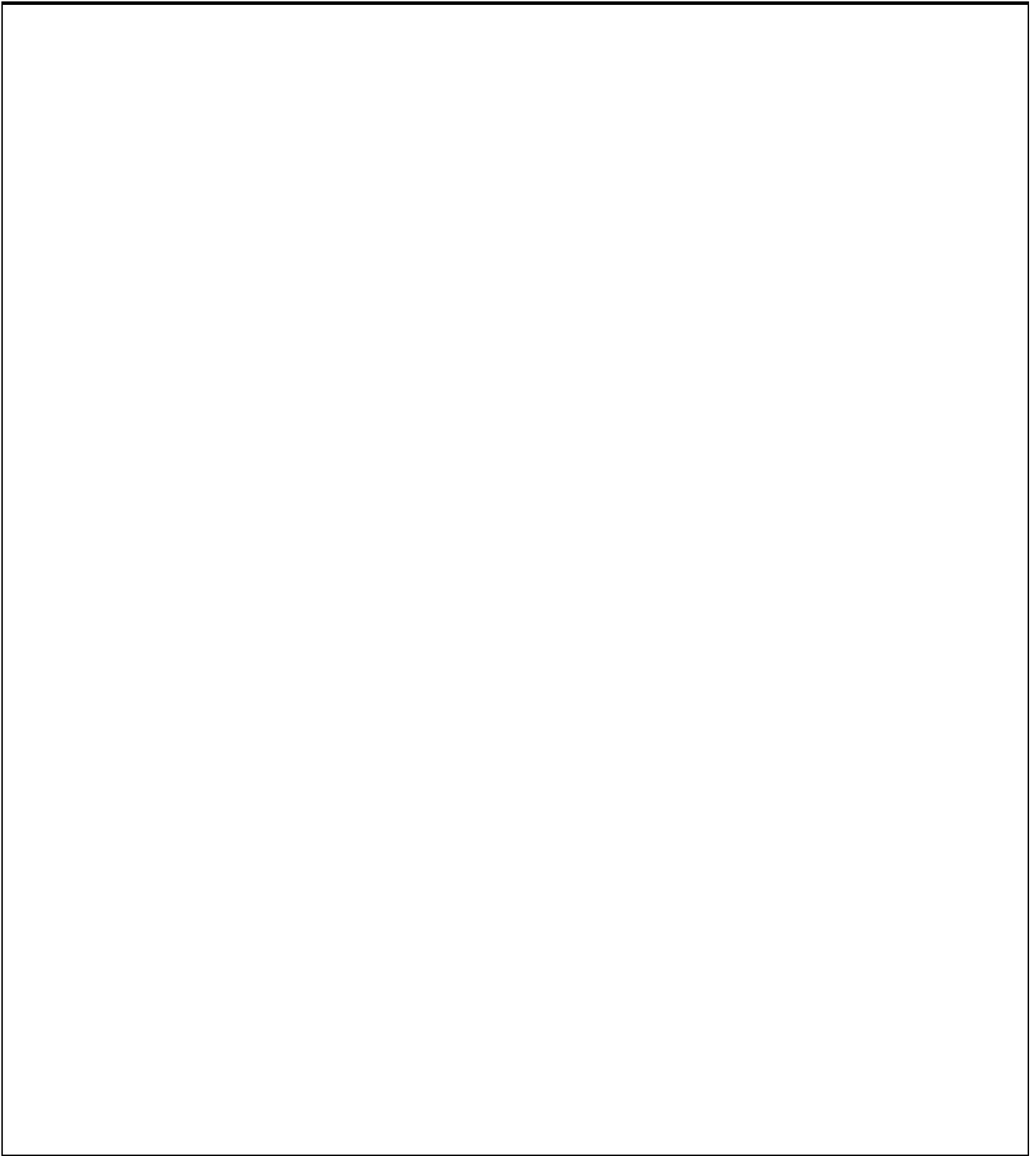
You do not have to write any imports, a main function, or call `runApp`.

## FR1 [50pts]: animation1

Write an animation such that:

1. At first, a black rectangle 200 wide by 100 tall is drawn centered on the canvas. Also, a 20x20 blue square is drawn in the bottom left corner of the canvas (so it is entirely on canvas and just touches the bottom and left edges).
2. When the user presses 's', the shape in the middle of the canvas toggles between a black rectangle and a red oval, but its center, width, and height remain the same.
3. Each time the user presses 'w', the width of the rectangle/oval increases by 50, unless that would result in a width of 400 or greater, in which case it is set to 50.
4. When the mouse moves inside the blue square in the bottom left corner, the rectangle/oval disappears, and key presses are ignored. When the mouse moves back outside of the blue square, the rectangle/oval reappears in the same shape and size as when it last appeared and key presses work as normal.

**Write your answer here and on the following page:**



## FR2 [50pts]: animation2

Write an animation that matches the animation in the video playing during the quiz.

Notes:

- The animation runs forever (so the video is played in a loop).
- Your animation need not match perfectly, but must be reasonably close.
  - Make reasonable assumptions about colors, sizes, locations, speeds, etc.
  - You may assume the app runs at 30 steps per second.
- The only two draw functions you may call are:
  - `drawLine()` (so draw lines, not rectangles)
  - `drawLabel()` (so draw the label at the top, 1 line, 2 lines, etc)

**Write your answer here and on the following pages:**

