Drawing Squares

1 Introduction

In this activity you will manipulate a matrix in order to draw different colored squares on a blank image.

2 Objective

The goal of this activity is to create a function, named *square*, that will draw squares of various sizes and colors on a blank (all white) image that is 100-by-100 pixels in size.

Assume that your Python function will accept as inputs the positive integers x, y, and *side* along with the string *color*. The values x and y will determine the position of the top left corner of the square. The value *side* will determine the length of the side of the square. The string *color* will be either `'red'`, `'green'`, or `'blue'`. It is guaranteed that $0 \leq x, y, side \leq 99$ and that $0 \leq x + side, y + side \leq 99$ (that is, it is never the case that the side of the square will go beyond the boundary of the image).

3 Example

The functions

```
square(2,4,50,'red')
square(60,74,20,'green')
square(20,40,50,'blue')
```

generate the following image.

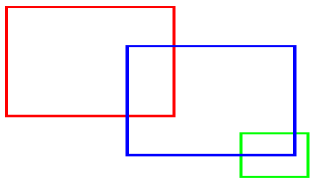

Figure 1: Example image using the *square* function three times.

4 Additional Notes

Your function should change the appropriate entries of the matrix *canvas* in the included Jupyter notebook so that the squares with the right positions, sizes, and colors appear after the image show command.

5 Grading Criteria

This project is worth a total of 10 points:

- (3 points) Introduction and Discussion - Introduce the problem and explain how your algorithm/function works.
- (5 points) Algorithm and Implementation - The algorithm designed and implemented in Python solves the problem.
- (2 points) Neatness and Timeliness - Your write-up is neat, clear, and turned in on time. The assignment must be typed (as a Jupyter notebook) and completed by 11:59pm on December 2nd.