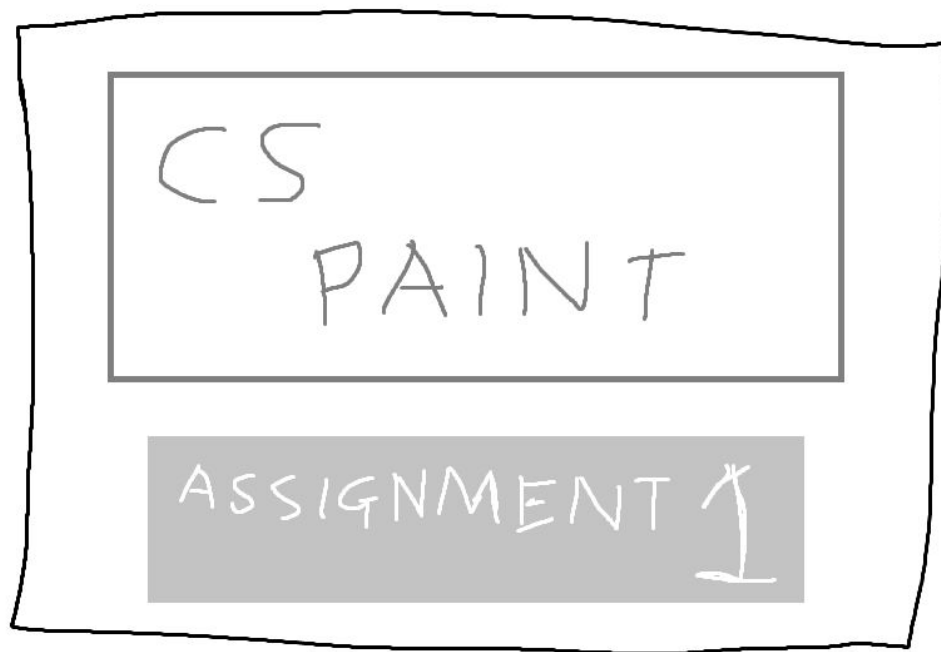# Assignment 1 - CS Paint

What is CS Paint?

It's a program for drawing . . . just like MS Paint, but more CS

- We'll have a 2D array called a canvas of pixels
- We'll create the ability to read groups of integers from input
- These commands will allow us to draw on the canvas
- The specification is on the Course Website under Assignments

The Specification

It's good to look over this and see what the tasks are

- There's starter code
- Also a set of tests to use
- Programming tasks are separated into ordered stages
- Completing stages in order is highly recommended
- Some helpful information on:
- Running `1511 canvas` for the stylistic look
- Running the reference solution to see what yours should do

What does CS Paint do?

Step by Step

- When it starts running, CS Paint waits for input (there's no prompt)
- Commands are entered as integers
- More than one line of commands can be entered
- When the commands are done, it displays a canvas with the results

Your tasks

- Read each command correctly
- Change whichever pixels of the canvas need changing for that command
- Repeat that process

How to get started - learning techniques

We've designed a lot of content to help you get started

- Some of this week's work helps with the Assignment
- The tutorial and lab has content on reading an unknown number of ints from standard input
- This lecture exercise has some 2D arrays as well as detecting when we're outside the bounds of a 2D array

How to get started - your own project

Download the Starter Code first!

- One problem at a time. It's safe to ignore Stages 2-4 when you're starting
- Even with Stage 1, work with getting some simple things working first
- Draw a single line with a single command . . . then build up from there

Submit early, submit often

Using "give" will record your submission and back up your work

- It's much harder to lose your assignment code if we have it!
- If you do lose your assignment code, CSE does keep backups of student drives . . . it's not easy to get things back, but if you have deleted something important, get in touch with us!

How will your code be tested?

Your program will be run with a series of test cases

- These tests will not be exactly the same as our autotests
- Remember to check all possible inputs you can think of
- Writing your own test files is potentially very useful

Marking

How do you earn marks in this assignment?

There's a specific marks assessment guide at the end of the Assignment Spec

- 80% is from automated test performance
- 20% from code style and readability

Performance Marks

Pass (50%)

- Partially working Stage 1
- Draw Horizontal and Vertical lines
- Show that you can loop through a single dimension of a 2D array

60% Completion of Stage 1

70% Completion of Stage 1 and 2

80% Completion of Stage 1 - 3

Performance Marks Continued

90% Stages 1 - 4 complete

100% Stages 1 - 5 complete

Completion

Each stage will be considered complete if it passes all the hidden marking tests we make for it.

The marking tests are not related to the autotests and are based on the specification

Style Marks

Free marks! . . . get them right here!

Make your code understandable and readable!

- Follow the Style Guide
- This means correct indentation and consistent use of bracketing
- Use variable names that are understandable to a reader
- Have clear comments explaining your intentions (even if the code is not functional)
- Structure your code file so that different sections are clear
- Use functions to separate repetitive code

Want more Challenge?

Extra Challenges that are worth bonus Marcs (not actual marks)

These are optional! They will require learning outside of COMP1511 to be able to implement!

- A fill command
- Drawing other shapes like circles
- Reverse engineering a drawing into a sequence of CS Paint commands
- Any other cool ideas you might have!

Questions?

Feel free to ask any questions now!

- Help Sessions have been expanded for one on one consultation if you need help with problems
- There's now a Help Session on every day of the week
- Details are on the Course Website