

Criterion E: Evaluation

Evaluation of Success Criterion

1. **Criteria Met:** Designs with their dimensions and quantity can be added through a button press and user input.

The interface allows for a new row to be created on a table so the user can enter the design's height, width, and demand.

2. **Criteria Met:** The size of the sheet is selected through a drop-down menu of the four different sizes that Art Brands prints on.

There is a drop-down with 5 options of sheet size: 18x12, 19x13, 40x28, 45x31, and Custom, where the user enters a custom sheet's height and width.

3. **Criteria Met:** A yes/no answer is displayed depending on whether the designs can fit on a sheet of the given size.

The program correctly calculates whether the given designs fit on the sheet and the result is printed to a text area on the GUI.

4. **Criteria Met:** The number of sheets that need to be printed to match the number of designs requested is calculated and shown.

If all the designs fit on the sheet the maximum number of sheets needed to fulfill the order is displayed in the text area.

5. **Criteria Met:** A sheet layout with each design a unique color is displayed as proof of the designs fitting on the sheet.

If all the designs fit on the sheet a panel is displayed that shows the user where each design got placed. Each design is a different color and the panel's dimensions adjust to accurately represent the dimensions of the sheet.

Feedback from the Client

My client loved the product I made and was impressed with the speed the program completed the set tasks. Once they understood how the interface was arranged, they were able to navigate it easily to try the algorithm against some of their test cases. My client also likes how the display for the layout of the designs changed proportionally to the size given, as do each design within. They appreciated the difference in color between the designs laid out on the sheet.

Recommendations for Further Improvements

1. An issue that my client discovered was that if the number of designs exceeded 15 and they couldn't fit on the sheet, though the sum of their areas was less than that of the sheet, the program began to show signs of time being a problem as the algorithm began to take seconds and minutes to produce an output. Increasing the decision speed of my algorithm would involve identifying where my code is slowing down and reworking that section to allow users to input more designs without waiting as long for an output.

2. An extension that my client mentioned is a way to minimize the number of required sheets. This would be done by taking the design that needs to be printed the most and attempting to place it on the sheet once it is confirmed that all the designs fit. The result of the extension would be a more cost-effective layout, but the program would take twice as long to run, slowing it down even more.

Word Count: 484