Homework 3: Connected Component Analysis & Color Correction

Report Template

Please keep the title of each section, and note that the questions listed in Part III should be retained.

Part I. Implementation (5%):

Please provide screenshots of your code snippets, and explain your implementation.

Part II. Results & Analysis (20%):

Please provide your observations and analysis for each of the following bullets.

Task 1: Connected Component Analysis

- Two-pass Algorithm
  - Please show the original images alongside the labeled results.
- Seed-filling Algorithm
  - Please show the original images alongside the labeled results.
- (Bonus) Other Algotithms
  - Please show the original images alongside the labeled results.
- Compare and discuss the above result.

Task 2: Color Correction

- White Patch Algorithm
  - Please show the original images alongside the results.
- Gray-world Algorithm
  - Please show the original images alongside the results.
- (Bonus) Other Algotithms
  - Please show the original images alongside the results.
- Compare and discuss the above result.

Part III. Answer the questions (5%):

1. Please describe a problem you encountered and how you solved it.

2. What are the advantages and limitations of **two-pass** and **seed-filling algorithms** for object segmentation in images, and in which scenarios are they most appropriate?
3. What are the advantages and limitations of the **white patch** and **gray-world algorithms** for image white balance, and in which scenarios are they most appropriate?