**Homework 1: 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?