

PROJECT REPORT

Shopping With Coupons

ZHAO MENGLEI

ZHOU HAOWEN

PU YUANCAN

DECEMBER 1, 2025

Contents

1	Introduction	1
2	System Design and Algorithms	1
2.1	Data Structure Selection	1
2.2	Algorithm Design (Greedy Strategy)	1
2.3	Pseudocode	1
3	Testing and Evaluation	1
3.1	Test Sample	1
3.2	Test Results	1
3.3	Analysis	1
4	Complexity Analysis and Discussion	1
4.1	Time Complexity	1
4.2	Space Complexity	1
4.3	Discussion	1
5	Declaration	1
A	Source Code	2

1 Introduction

Guideline: This section should provide an overview of the problem.

2 System Design and Algorithms

2.1 Data Structure Selection

Guideline: Discuss how data is stored.

2.2 Algorithm Design (Greedy Strategy)

Guideline: Explain the logic.

2.3 Pseudocode

Guideline: Provide high-level pseudocode.

3 Testing and Evaluation

3.1 Test Sample

Guideline: List your OS and Compiler version.

3.2 Test Results

Guideline: Present a table of test cases.

3.3 Analysis

Guideline: Briefly analyze the results. Mention that the program passed the sample and handled large inputs within the time limit.

4 Complexity Analysis and Discussion

4.1 Time Complexity

Guideline: Analyze the mathematical complexity.

4.2 Space Complexity

Guideline: Analyze memory usage.

4.3 Discussion

Guideline: Discuss any trade-offs or why a simple $O(N^2)$ loop would fail.

5 Declaration

A Source Code