It’s my turn to analyze the system’s complexity.

First of all, we need to define a few parameters.

I will focus primarily on analyzing the space complexity of parsing process.

Converting input.txt to a list has a space complexity of O(n), price.txt to a dictionary has O(m), and promotions.txt to a list of dictionaries has O(p).

Next, I will analyze our algorithm, with a focus on its time complexity.

I constructed a recursive tree. However, unlike others, T(n-k) here refers to the remaining items after applying the k.th promotion.

Based on this, I estimate that the time complexity of T(n) is O(p^n). And by mathematical induction, we can prove it.

I will also briefly introduce our UI design. The main feature of our UI is that it offers two ways for users to input information. because the system will ultimately parse the data from the text widget during the calculation process.