

Lab 6 – OJ

Greedy Algorithms (part 2)

CS208 Algorithm Design and Analysis
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Question 1: TV Breaker

- Recently, Bob bought a TV. The TV can be considered as a string S .
- A TV is called wonderful if its string contains at least one amazing feature.
- There are n amazing features in total, and each one of the features is a string $f!$. Alice is very jealous of Bob's TV, so one day she goes to Bob's home and starts breaking the TV.
- Alice can only do one hitting for one time, each hitting she can choose one character of the TV string and make it become space. Now what she wants is to make Bob's TV become no wonderful. That is, after all her hittings, the TV will not contain any one of the amazing features.
- Alice doesn't want to be very tired, so please help her find the minimum times of hits to achieve her goal.
- The alphabet of the strings consists of characters with ASCII in decimal from 33 to 126.

Input:

sustechcs208television

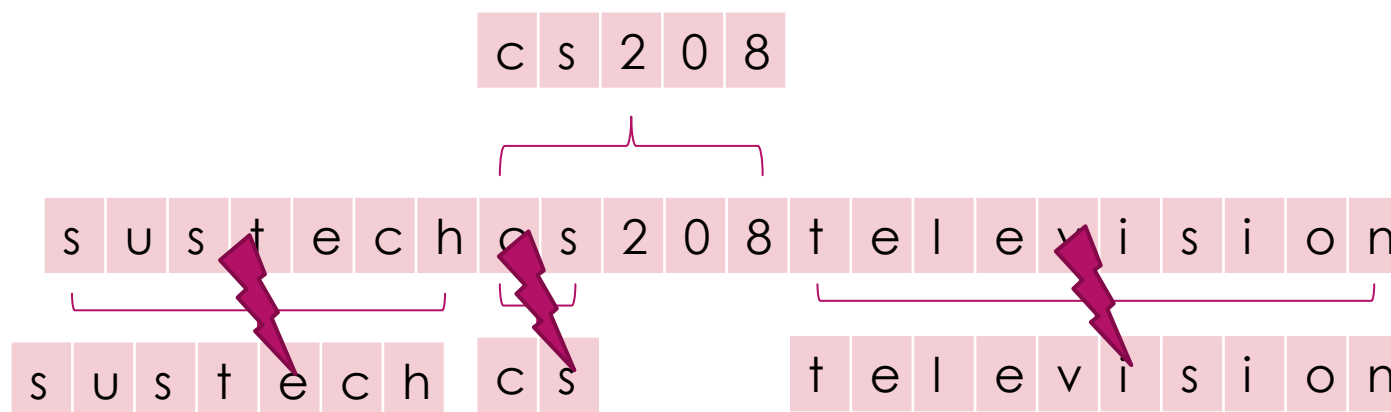
4

cs

television

cs208

sustech



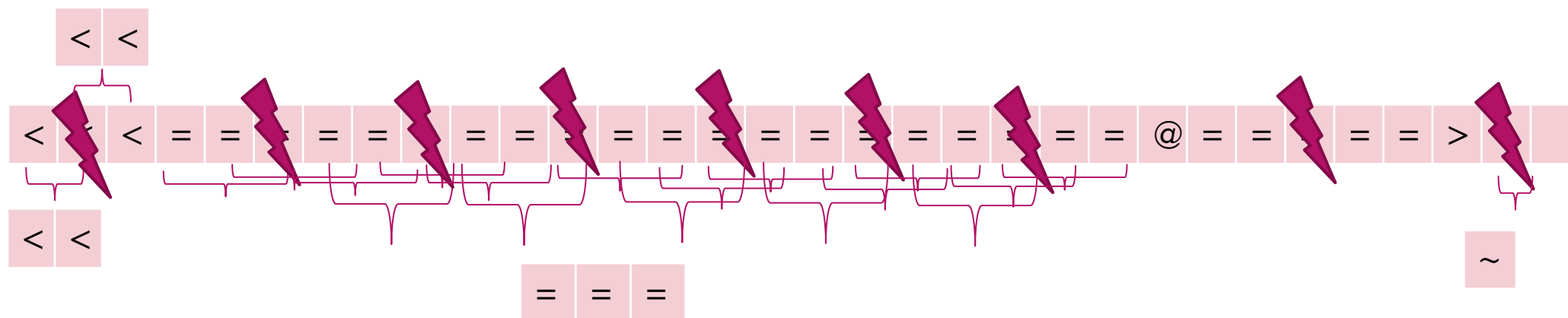
break any character in "sustech"

break any character in "cs"

break any character in "television"

Output:

3

$$\begin{array}{ccc} \text{---} & \text{---} & \text{---} \\ \text{---} & \text{---} & \text{---} \end{array}$$


9

Question 2: Fruit

- Little Liu has a farm where he grows n types of fruits. Each type of fruit can be sold for a certain price v_i , but only within a specific time frame from l_i to r_i . Little Liu can only sell one type of fruit at a time.
- Your task is to calculate the maximum amount of money he can earn from his plantation.
- Note: $n \leq 5000$, $1 \leq l_i \leq r_i \leq 10^9$, $1 \leq v_i \leq 10^9$

Input:

5

1 3 4

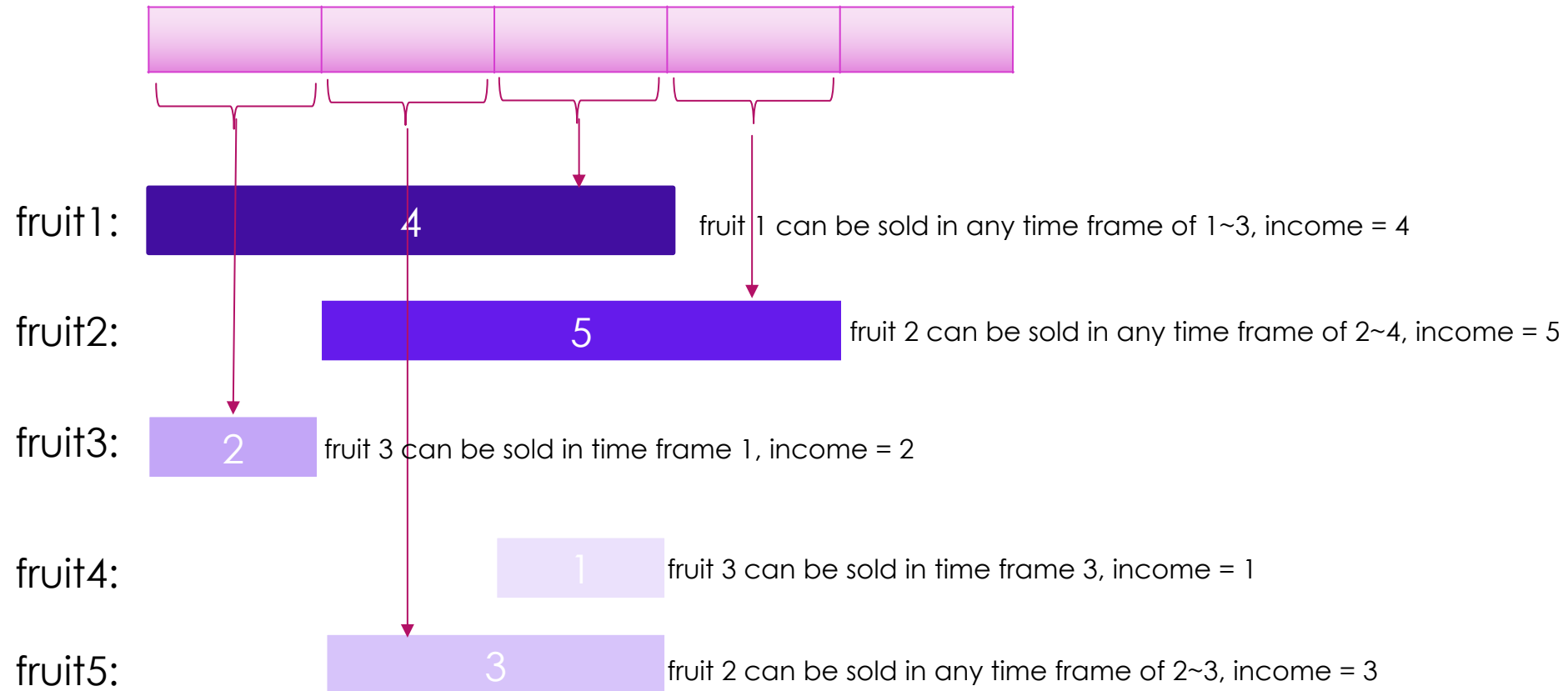
2 4 5

1 1 2

3 3 1

2 3 3

time frame: 1 2 3 4 5



time frame:



fruit1:



fruit 1 can be sold in any time frame of 1~3, income = 4

fruit2:



fruit 2 can be sold in any time frame of 2~4, income = 5

fruit3:



fruit 3 can be sold in time frame 1, income = 2

fruit4:



fruit 3 can be sold in time frame 3, income = 1

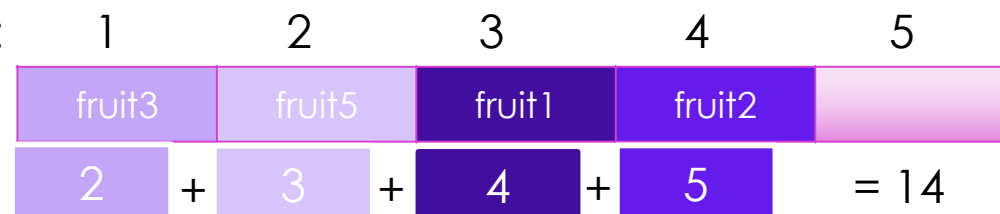
fruit5:



fruit 2 can be sold in any time frame of 2~3, income = 3



time frame:



Output:

14