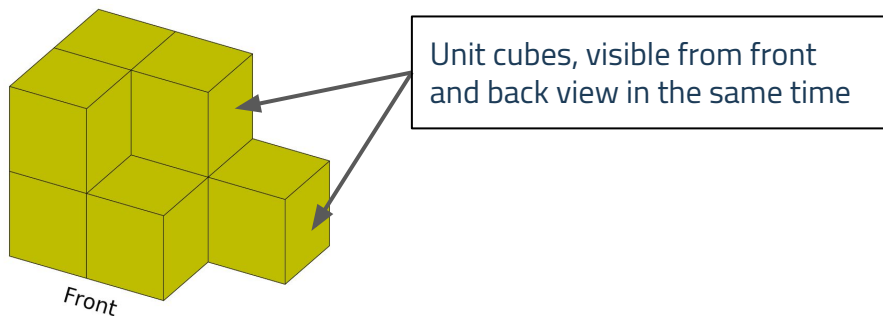# Level 3

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Task for level 3:

Asteroids are 3-dimensional objects. Measure the asteroid volumes.

For this task we assume that an asteroid is composed of connected unit cubes:

› Each unit cube is projected to exactly one image pixel cell
› There may be several unit cubes - one of them visible and the other hidden - projected to the same image pixel
› When two unit cubes of an asteroid are projected to the same image pixel cell, all unit cubes in straight line between them, also belong to the asteroid.
› **Each asteroid contains at least one unit cube that is visible, both, in its front and back view**.

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› Positive values of the image pixels now tell the distance from the asteroid surface to the image plane **measured in unit cube side lengths**.
› The volume is measured by the number of unit cubes belonging to the asteroid
› In this level, for each asteroid you are given two subsequent images - one showing the front side and the other showing the backside of an asteroid.
› For each asteroid, output the timestamp of its first occurrence along with its volume.

Unit cubes, visible from front and back view in the same time

Front

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Input format: (same as for Level 1-2)

› `input ::= imagecount NL image*`
› `image ::= timestamp rowcount colcount NL row*`
› `row ::= distance* NL`

The timestamps are unique.

The images are ordered by their timestamp.

The image sequence is made up from corresponding front/back view pairs.

> **Level 3**

Output format:

› output ::= resultline*
› resultline ::= timestamp volume NL

The resultlines must be ordered by timestamp

name	type	description
resultline		describes the occurrence of an asteriod
timestamp	integer	timestamp of first occurrence
volume	integer	number of unit cubes belonging to the asteroid
NL		new-line

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Sample input:

2

15 2 3

6 7 0

6 6 7

20 2 3

0 10 10

10 10 10

Front

Back

t=15

t=20

Sample output:

15 8

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