Purpose of the Algorithm

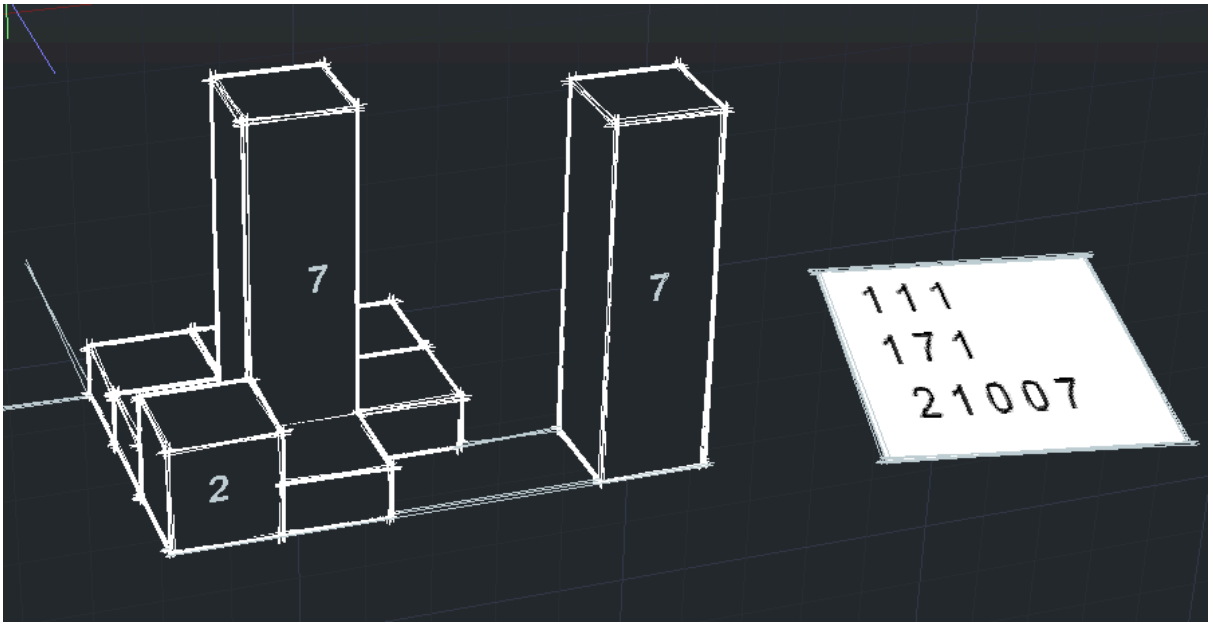
The algorithm is designed to calculate the capacity of a 3D terrain, which the user specifies in a text file named "dane_wejsciowe.txt". The program answers the question, "How much liquid can the given terrain structure hold?"

1. Example of .txt File Structure + Visualization

In the file "dane_wejsciowe.txt", the terrain can be represented in the following way:

1 1 1
1 7 1
 2 1 0 0 7

visual:



result is 0 j^3

Because with such a terrain structure the liquid has nowhere to stop and will just spill over the sides, we assume that everything exceeding the boundaries of the terrain entered by the user has a height of -10. It is important that the file structure doesn't have to be a regular matrix. The program is designed to handle a varying number of numbers in each row.

Method of Terrain Initialization

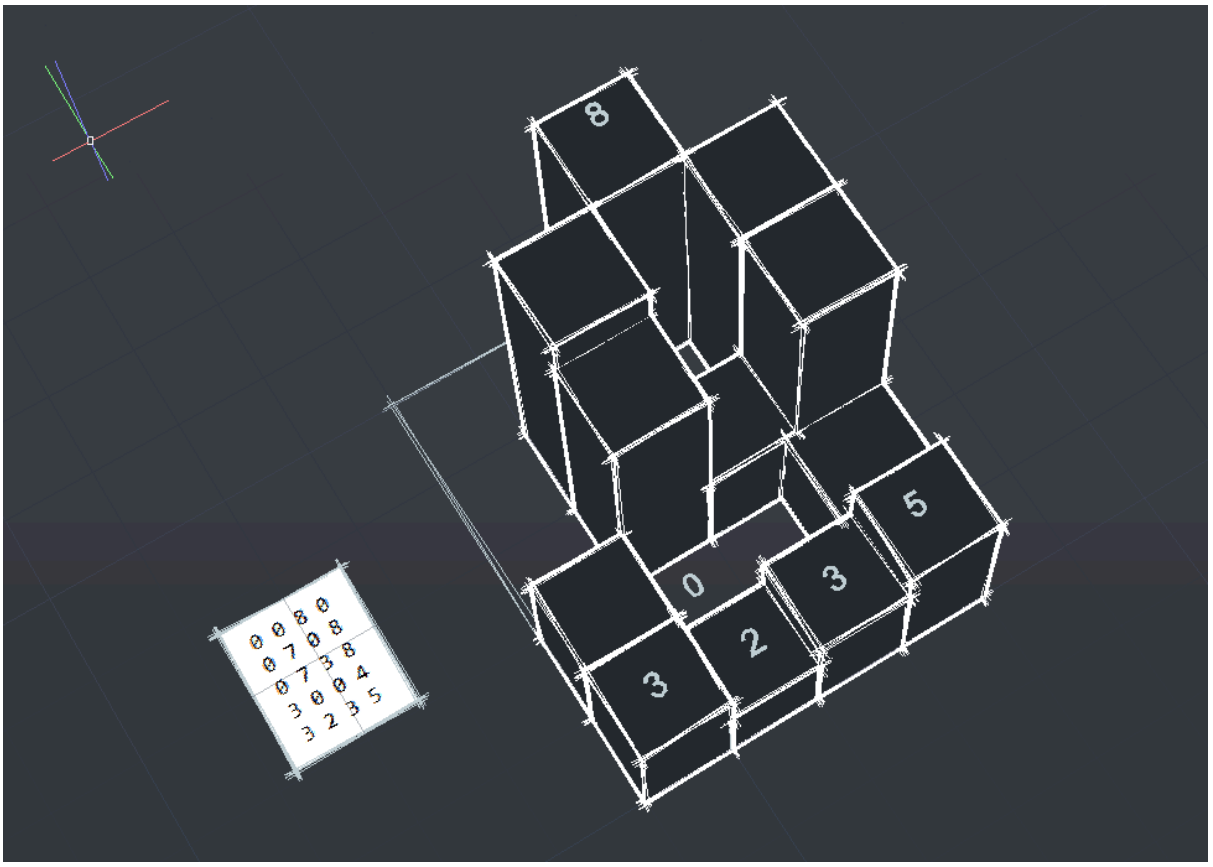
is presented as a set of numbers. Each number in the file "dane_wejsciowe.txt" represents the height of the terrain at a specific point. The first number in the file (in the first row and first column) is located at position X=0, Y=0, and its value determines the height Z.

Example 2. Structure of txt File + Visualization

In the file 'dane_wejsciowe.txt', the terrain can be represented in the following way:

0 0 8 0
0 7 0 8
0 7 3 8
3 0 0 4
3 2 3 5

visual:



The result is 7 cubic units.

The resulting matrix looks as follows:

```
0 0 0 0
0 0 3 0
0 0 0 0
0 2 2 0
0 0 0 0
```

The program has no limitations; we can calculate areas of terrain of any size.

Data Entry Rules

do not enter numbers less than zero. numbers are separated by a space.