Piekļuves darbs Programmēšanas II eksāmenam

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# Problem analysis

Fairly often people may need to calculate, for example, area of one’s own room to estimate how much it would cost to cover it. To do this, we first need to calculate some area - but how? One good way is to take cross products of every single pair of vectors, all of them must share one single starting point and every pair has to have ending points at neighboring corners of the polygon. To make this easier and faster, author decided to make this program.

# Specification

Program takes one polygon as input and outputs area of it in a file (units are not important). Along with area, it outputs set of dots which make up the polygon. The input is of following format:

*x1 y1  
x2 y2  
…  
xn yn*

It describes polygon with *n* angles, with every pair of coordinates being a point in the polygon. Every pair of consecutive points define side of polygon. It is assumed that starting point of polygon lies in the origin of coordinate axis. Output file should contain area of resulting polygon and points in order they were given, the format is not regulated, however file should be human-readable.

# Development plan

The development plan was fairly simple. Due to area calculation technique, it was only natural that polygon was to be made of vectors. So, plan looked something like this:

1. Implement vectors;
2. Implement way to store polygon;
3. Implement input;
4. Implement output;
5. Implement area calculation;

# Unit tests

After program was finished, unit tests were written and program itself was debugged. Debugging process stopped after most of the major bugs were eliminated.

# User’s walkthrough

To launch program, open command-line interface in the same folder as main.py file and launch it with python. Program takes flag “-m” or “--manual” to indicate that points will be entered manually, otherwise flag “-i” or “--input” must be provided with path to file which holds points of polygon.

# License

The license chosen is CC BY, because it is not really important for author what is done with the code, as long as reference to the original author is included in other people’s code. But to be honest, code itself is not that good to be used in any real-world application, which further decreases need in any non-permissive license.

# Source code