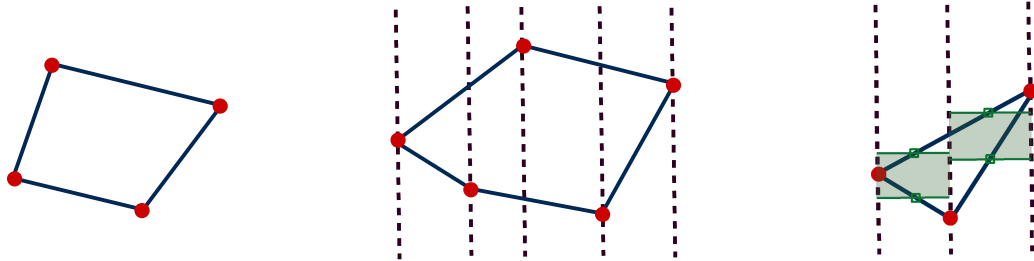


AUIS ENGR 244 (Engineering Computing), Course Assignment 3

Deadline:¹ November 8, 2017 (7:30 PM); Tutorial Discussion: November 15, 2017



On the AUIS LMS (“Moodle”) as well as the ENGR 244 course website,² a ZIP archive is available which contains a Code::Blocks project with functions for polygons. There, as discussed in our lectures, data describing a polygon are passed to the respective functions as

- **int** n , which gives the number of points (corners of the polygon),
- **double*** x , which is an array containing n double elements, the x coordinates,
- **double*** y , which is an array containing n double elements, the y coordinates.

For the present purpose assume that these data describe a polygon which is

- **valid**, i.e., there are no intersections between lines connecting adjacent points,
- and **convex**, so that in particular, any line which goes through the polygon intersects it at exactly two points.

The Code::Blocks project already contains a small, incomplete part of a function

```
double area(int n, double* x, double* y).
```

It is your task to **complete this function** such that it returns the **area of the polygon**. Note that

- you may assume here that the polygon is valid and convex;
- there are two Coding Sessions before the deadline:
 - Wednesday, November 1, 18.00 – 19.30, room B-B1-08;
 - Wednesday, November 8, 18.00 – 19.30, room B-B1-08.

¹ Submissions on paper, or by mail to martin.horsch@auis.edu.krd, by groups of two or three people, can be handed in until the end of the **Coding Session** on November 8. The present assignment contributes 3.5% to the overall grade.

² <http://home.bawue.de/~horsch/teaching/engr244/>