

# Lab1 – Corner Stitching

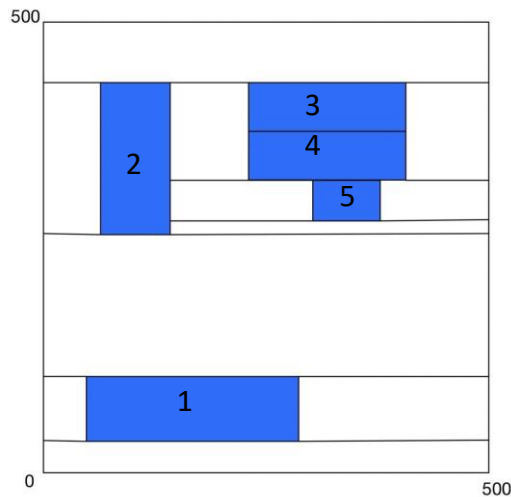
## Deadline: 2021/10/18

### Lab1 Introduction

This is an exercise lab to review corner stitching data structure.

You have to organize the space tiles as **maximal horizontal stripes**. This means that no space tile has other space tiles immediately to its right or left and every space tile must be as wide as possible.

### Input



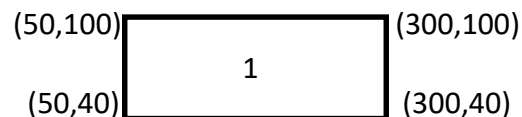
### Example (input.txt)

```
500 500 //outline width, outline height
1 50 40 250 60 // block number, coordinate of lower-left corner, block width, block height
2 55 250 50 150
3 250 355 170 45
4 250 310 170 45
5 320 265 75 45
P 10 20 //P, X coordinate of the point, Y coordinate of the point
P 60 80
```

### Explanation of the Input

1. The first line gives the outline size and the coordinate of lower-left corner is (0,0).
2. The next line to the last line:
  - If the first word of the line is **"P"**, the line defines coordinate of the point.
  - If the first word of the line is **not "P"**, the line defines the block number, coordinate of lower-left corner, block width and block height.

Figure of the second line:



Note: All the values in input file are integer.

All the given blocks are rectangles.

All the given blocks will not overlap or beyond the outline.

## Output

### Output Format (output.txt)

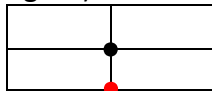
```
16 // number of tiles
1 0 4 // block number, the number of adjacent block tiles, the number of adjacent space tiles
2 0 6
3 1 3
4 2 4
5 1 3
0 0 // the lower-left corner's coordinate of tile where the point is located
50 40
```

### Explanation of the Output

1. The first line outputs the number of tiles within the outline.
2. The next line to the fifth line outputs each block number, the number of block tiles adjacent to the block and the number of space tiles adjacent to the block **in block number ascending order**.
3. The seventh line to the last line outputs each lower-left corner's coordinate of tile where the point is located **in input order**.

Note:

If the point is located at the edge or vertex of the rectangle (black point on the figure), please outputs the lower-left corner's coordinate of lower-right tile (red point on the figure).



## Environment

1. Linux (Please make sure your code is available on our linux server. If it cannot be executed, .zip file, you will get zero point!!)
2. Makefile and Readme should be provided

## Evaluation

1. You **MUST WRITE YOUR OWN CODE**. Copying codes may result you to **FAIL** this course.
2. For each case, the run time limit is up to **1 minute**. It will be regarded as “failed” if you use more than 1 minute.
3. Naming rule.
  - A. Name of the binary after “make” – Lab1
  - B. Execution procedure: ./Lab1 [input]
  - C. Name of the output file – **output.txt**
  - D. Not following specified naming rule will receive zero mark
3. Late submission will **NOT** be accepted.
4. Hidden cases will be evaluated

### **Submission**

Please upload the following materials in a .zip file (e.g. Student\_ID.zip) to New E3 by the deadline, specifying your student ID in the subject field. (If your submission file is not .zip file, you will get zero point!!)

1. Source code (.cpp, .h).
2. Makefile
3. Executable binary.
4. A Readme file (Information to how to make and execute your code.)