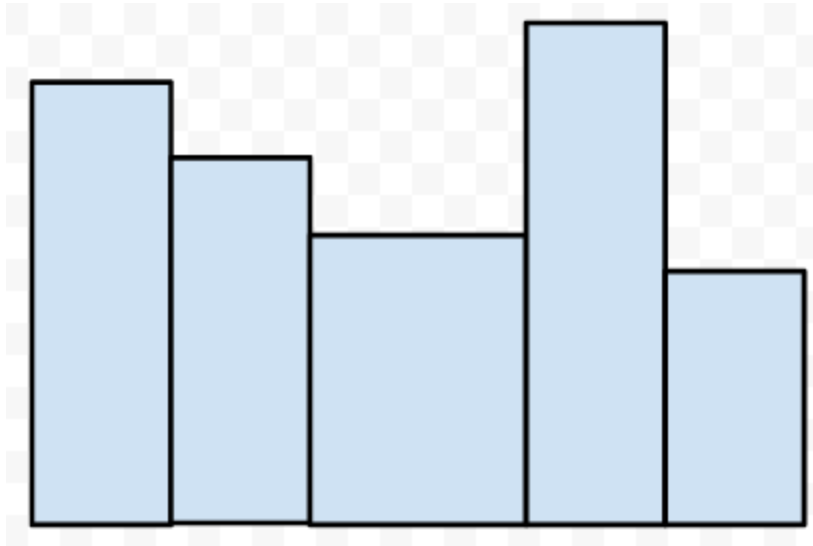Odobo Java Development Challenge

You are required to write a Java application that satisfies the following requirements:

Prompt the user for n number of rectangles to generate (5 - 15)
Generate n adjacent rectangles of random width and height that form an overall 'skyline' shape using a top-left origin co-ordinate system (example below):

(0,0)

The application then performs an algorithm on the generated shape to re-generate the exact shape with the minimum number of horizontal rectangles.
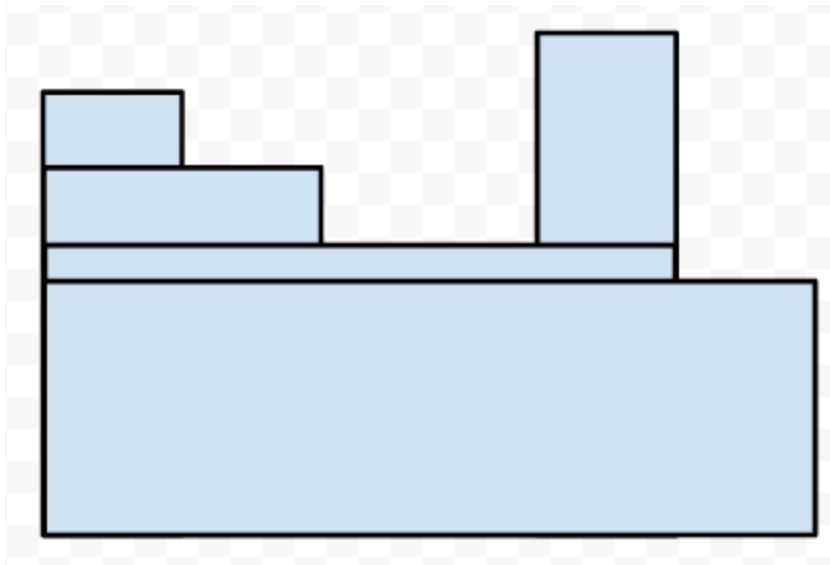
The output of the program should be a JSON file that adheres to the following structure:

Note: For the source rectangles Width in [25,75] and Height in [50, 150]

```
{
        "numRects" : 5,
        "sourceRectangles:
                [
                        { "x": 0, "y": 150, "width" : 50, "height": 100},
                        { "x": 50, "y": 150, "width" : 40, "height": 87},
                        { "x": 90, "y": 150, "width" : 70, "height": 66},
                        { "x": 160, "y": 150, "width" : 45, "height": 146},
                        { "x": 205, "y": 150, "width" : 30, "height": 54}
                ],
        "rectangles" :
                [
```

{ "x": 0, "y": 150, "width" : 235, "height": 54},
{ "x": 0, "y": 96, "width" : 205, "height": 12},
{ "x": 0, "y": 84, "width" : 90, "height": 21},
{ "x": 0, "y": 63, "width" : 50, "height": 13},
{ "x": 160, "y": 84, "width" : 45, "height": 80}
]
}

This output will passed through our visualizer application that expects this format and will (if your code works correctly) render both the vertical rectangle representation of the shape, as well as the horizontal rectangle representation of the shape. An example of the solved shape is shown below:

Please Note:
You are being evaluated on the quality of your solution, as well as your code. Please treat this exercise as an opportunity to demonstrate your skills and expertise to us in producing high quality, maintainable and reliable code.