Each image is pre-processed to reduce the resolution, condensing a cell in one pixel, while maintaining its basic shape to avoid collisions. (Fig 1)

for each cell in image
  for each pixel in cell
    if at least one pixel is true **then**
      corresponding grid cell is true

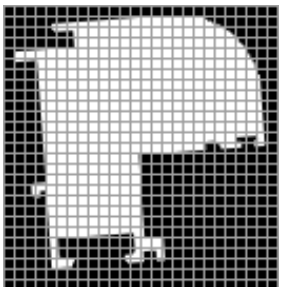


Figure 1: Grid overlay

(a) Original image (b) Image grid

Figure 2: A mask before and after being processed

Due to the reduced complexity, every check on profile collision is made on grids.

To achieve the greatest possible profile density, each one must be placed on the highest-value free position.

For instance, if the real-world case scenario requires profiles to be stacked on the lower edge, the highest-value point would be the bottom-left corner, decreasing while traversing the image horizontally first, then vertically. (Fig 3)

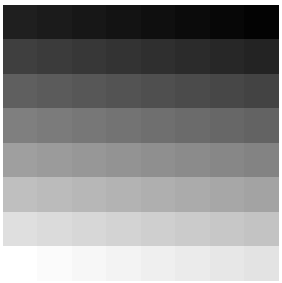
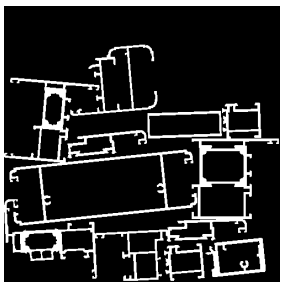


Figure 3: Value of positions

for each grid to place
  if grid collides with existing grid on Result grid **then**
    move to next highest-value point
  else
    place profile on the Result image/grid at the corresponding coordinates

(a) Result grid



(b) Result image

Figure 4: Output