LAB 5 : Mobile Robot

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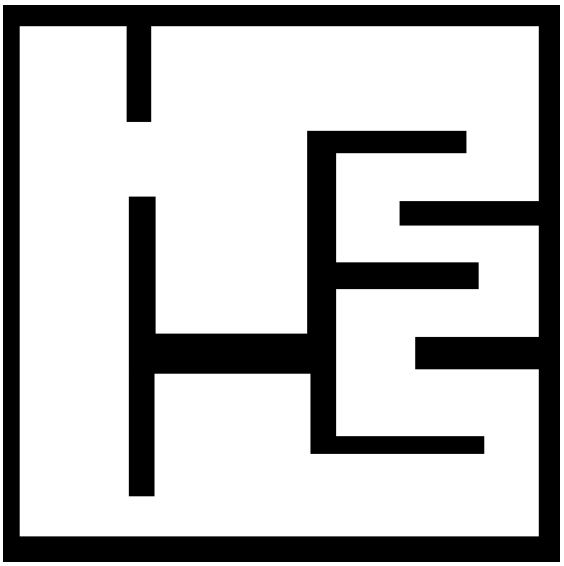
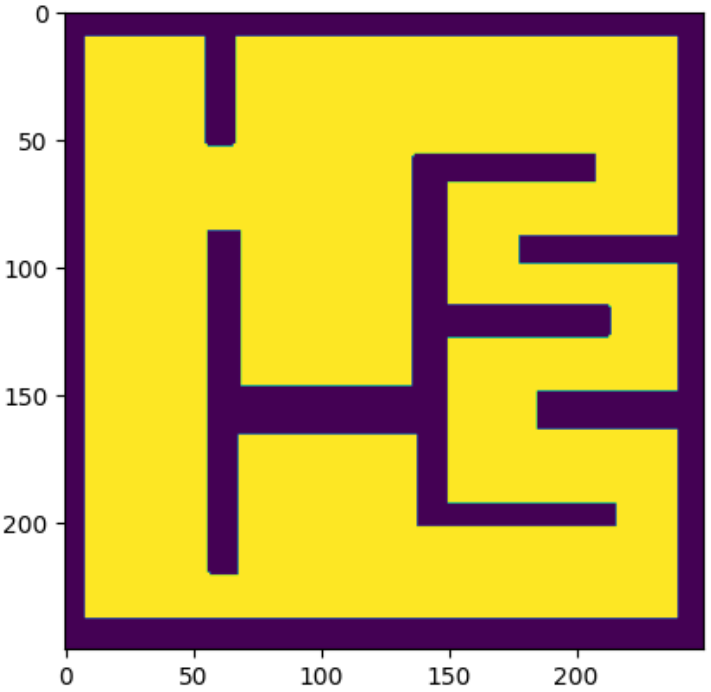
The Map :

I created the map below with a simple drawing software (GIMP). We will compute our tests and show the results through this example.



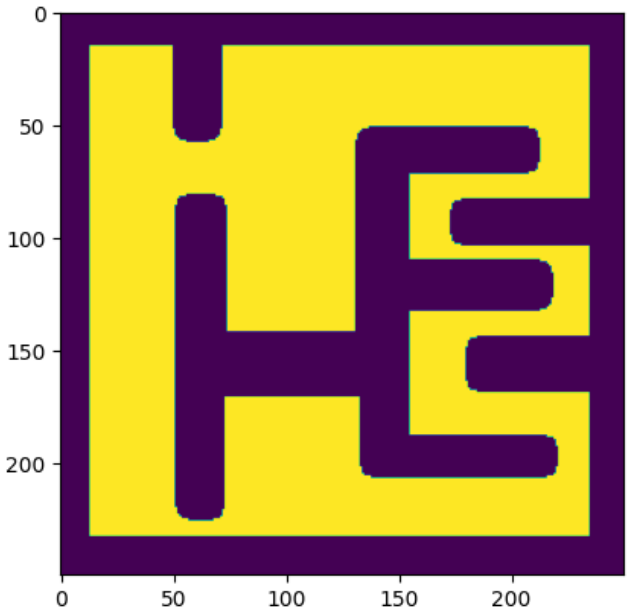
Step 1 :

First of all, an image object is constructed via the PIL library. We obtain a binary image.



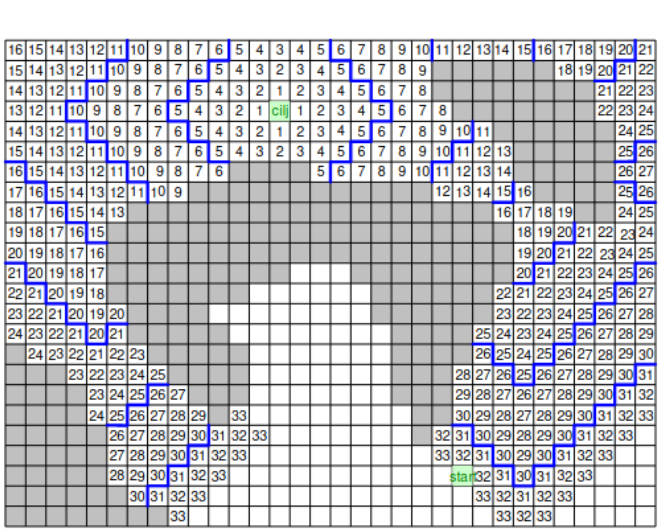
Step 2 :

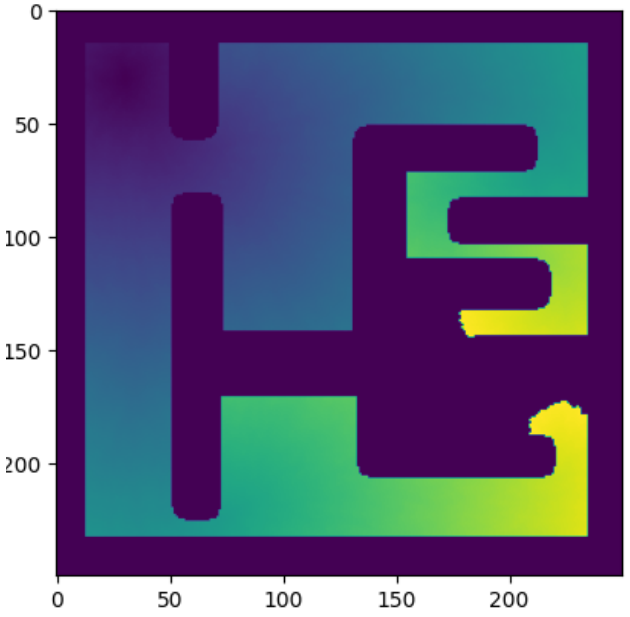
Then we dilate the obstacles to obtain the free space which we will use to compute a path.



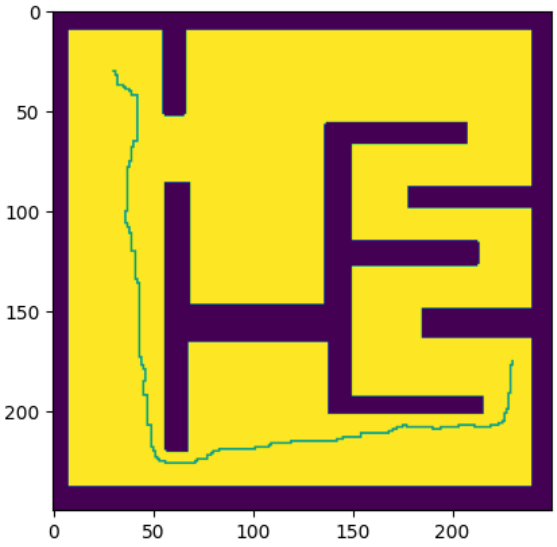
Step3 :

We implement the numerical navigation function. In my implementation, I start from the start point and add a higher value to his neighbor. I do it again with his neighbors, and so forth. We can see in my example, that the starting point was near (30,30) and the end point was near (230,230).





Step 4:
We read the path from the highest value of the grid to the value 0, which is the starting point. Then we show the final result.



Two other test: