Experimented by applying morphological operators to try fill-in the black letters and numbers inside the numberplate that were not selected in q3.m as well as to remove false positives elsewhere. Initially experimented with different operators i.e., erode, dilate, open, close structuring element shapes and sizes.

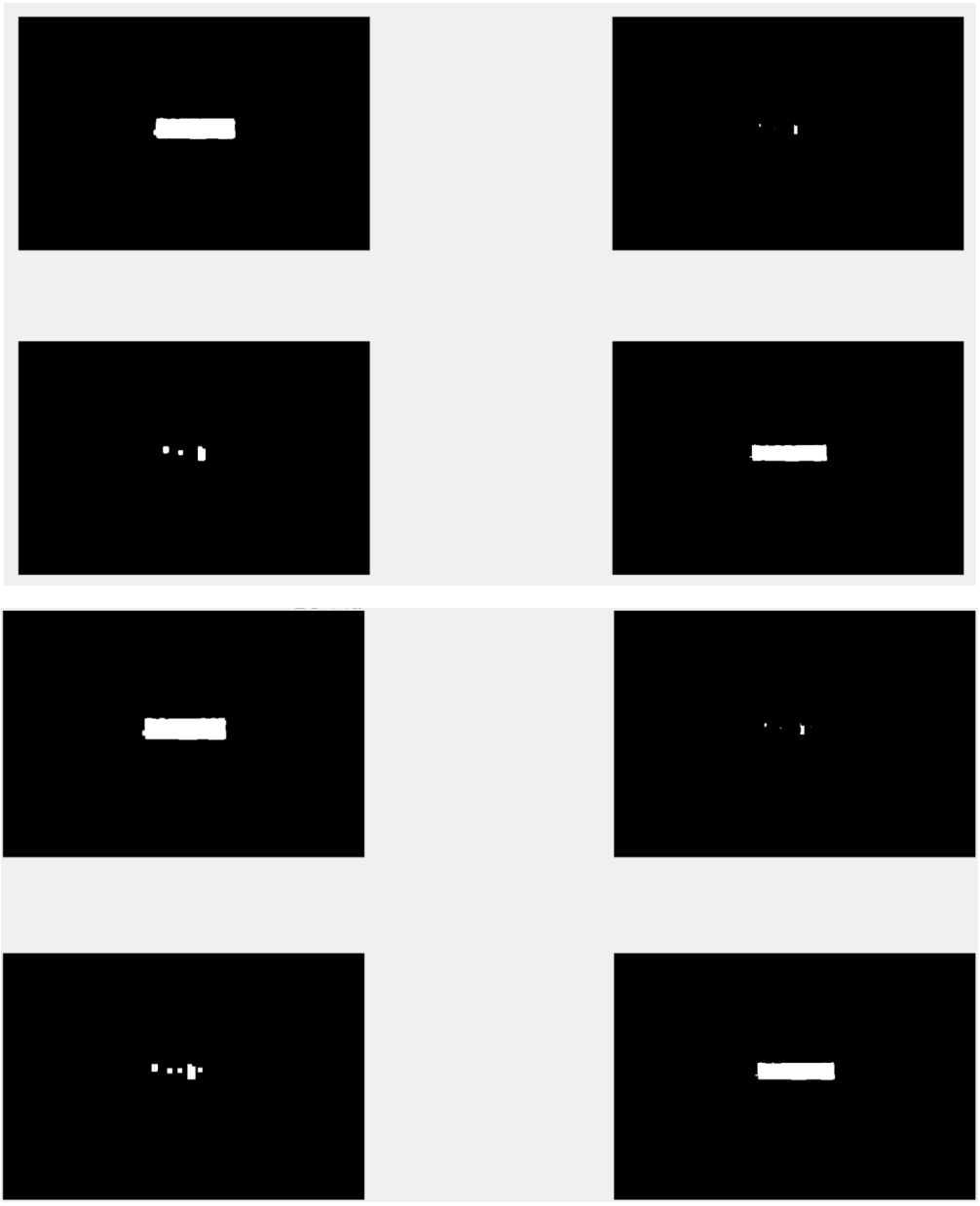

Figure 5.0.1 – Output q5.m

```
CountingClusters1 =

  struct with fields:

    Connectivity: 8
       ImageSize: [539 810]
      NumObjects: 1
    PixelIdxList: {[8546×1 double]}


CountingClusters2 =

  struct with fields:

    Connectivity: 8
       ImageSize: [539 810]
      NumObjects: 1
    PixelIdxList: {[6230×1 double]}


CountingClusters3 =

  struct with fields:

    Connectivity: 8
       ImageSize: [539 810]
      NumObjects: 1
    PixelIdxList: {[8377×1 double]}


CountingClusters4 =

  struct with fields:

    Connectivity: 8
       ImageSize: [539 810]
      NumObjects: 1
    PixelIdxList: {[6262×1 double]}
```

Figure 5.0.2 – Display q5.m

I have attempted to use all of the available morphological operators i.e. dilate, erode, open and close. The following was implemented in order to find the best of the best method available. Below I have shown every single example in Fig 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7 and 5.8 accordingly.

Figure 5.1 – DiskOne (imdilate at Size 6)

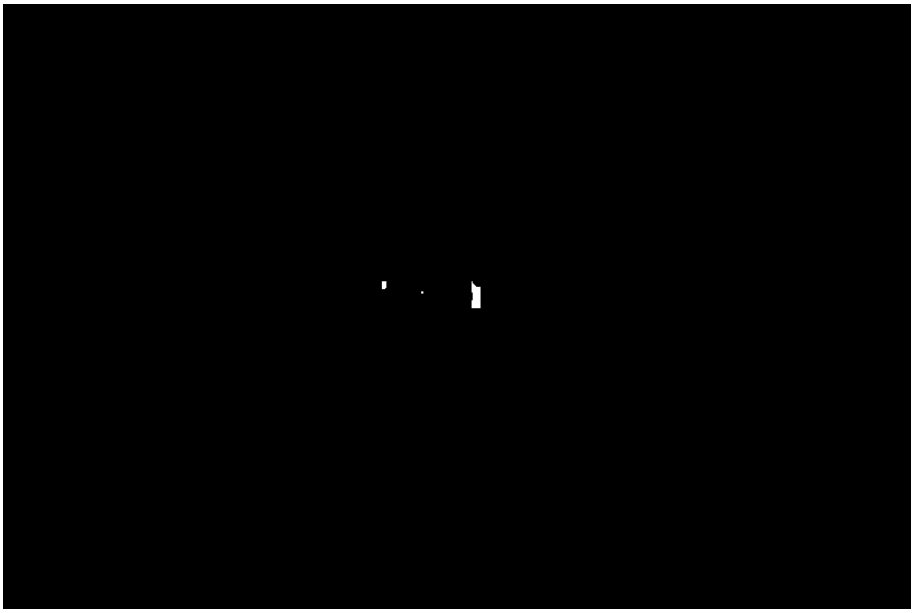

Figure 5.2 – DiskTwo (imerode at Size 6)

Figure 5.3 – DiskThree (imopen at Size 6)

Figure 5.4 – DiskFour (imclose at Size 6)

Figure 5.5 – SquareOne (imdilate at Size 10)

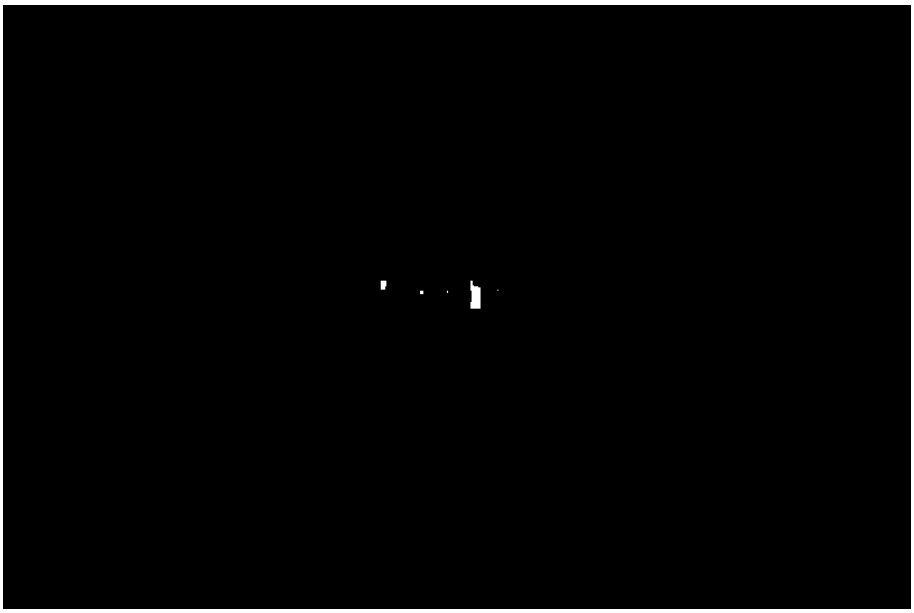

Figure 5.6 – SquareTwo (imerode at Size 10)

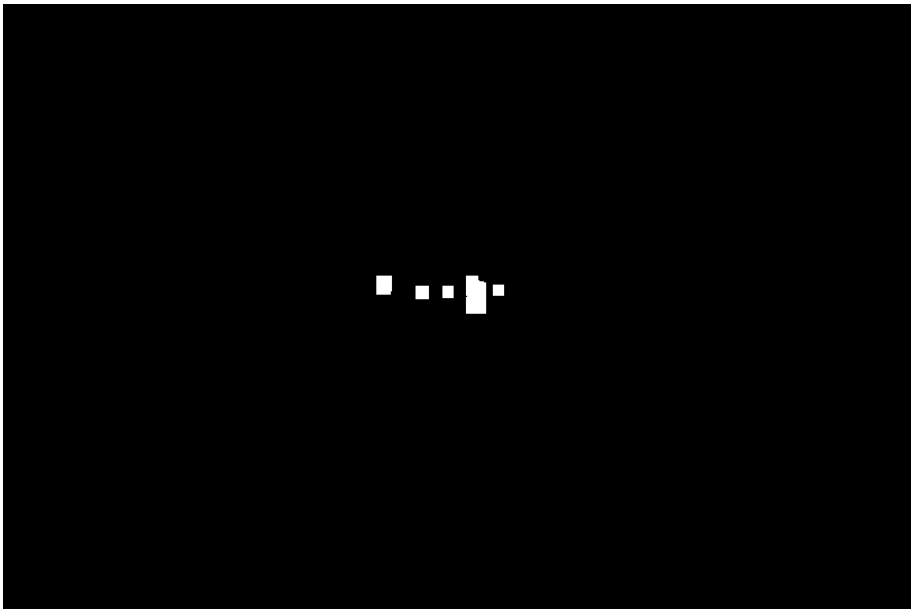

Figure 5.7 – SquareThree (imopen at Size 10)

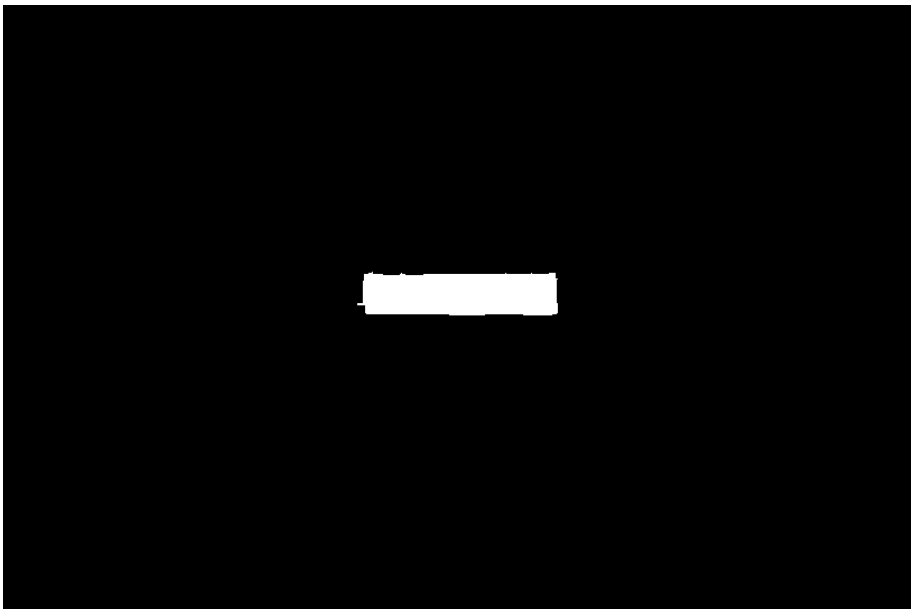

Figure 5.8 – SquareFour (imclose at Size 10)

As a conclusion there was 2x strel used, disk and square. Disk at size 6 and Square at size 10 respectively. The sizes were chosen after multiple attempts to find the best option. Judging from all of the above Fig 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7 and 5.8 accordingly, it is fairly easy to identify that the best outcomes are leaning towards imclose and imdilate as imerode and imopen damage the picture to the point where it does not operate in cooperation with our aims for this task. At this point Fig5.1 has 8546 pixels, Fig5.4 has 6230 pixels, Fig5.5 has 8377 pixels and Fig 5.8 has 6262 pixels.

Last but not least, I have highlighted in the code as "% *Good*" for the examples that worked the best i.e. Fig 5.1, 5.4, 5.5 and 5.8. Furthermore, "%*chosen*" for Fig5.8 i.e. SquareFour (imclose at Size 10) as from experimenting it works the best. Lastly I have also highlighted with "% Bad" for examples that did not work as well that's Fig 5.2, 5.3, 5.6 and 5.7.