Lab 4. Task 1- preparation task
Template for answers

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Student names and LiU-IDs: (Max 2 students per group):

1. *Thomas Indrias (thoin216)*

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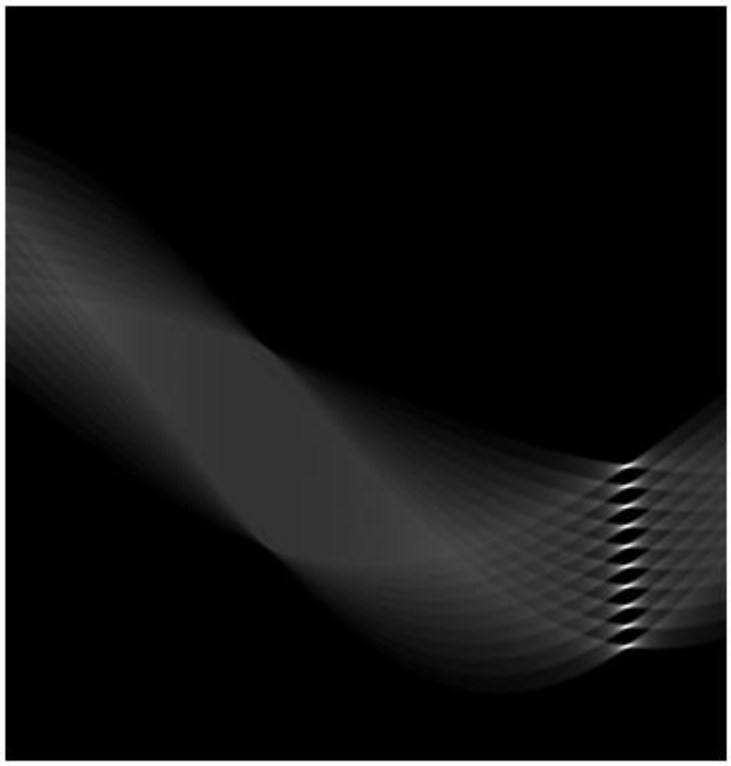
Version (in case you need to re-submit): 1.0

1) Hough transform

1) H1:



2) Your guess:

```
% 65 degreees (believe it or not). Through MATLAB data plot tool, I chose
% the pixel value for X axis (around 311). The ratio becomes 310/360 which
% I then multiplied with 180 degrees. Since angle is -90 to 90, I substract
% 90 degrees from the result. (310/360) * 180 - 90 = 65
```

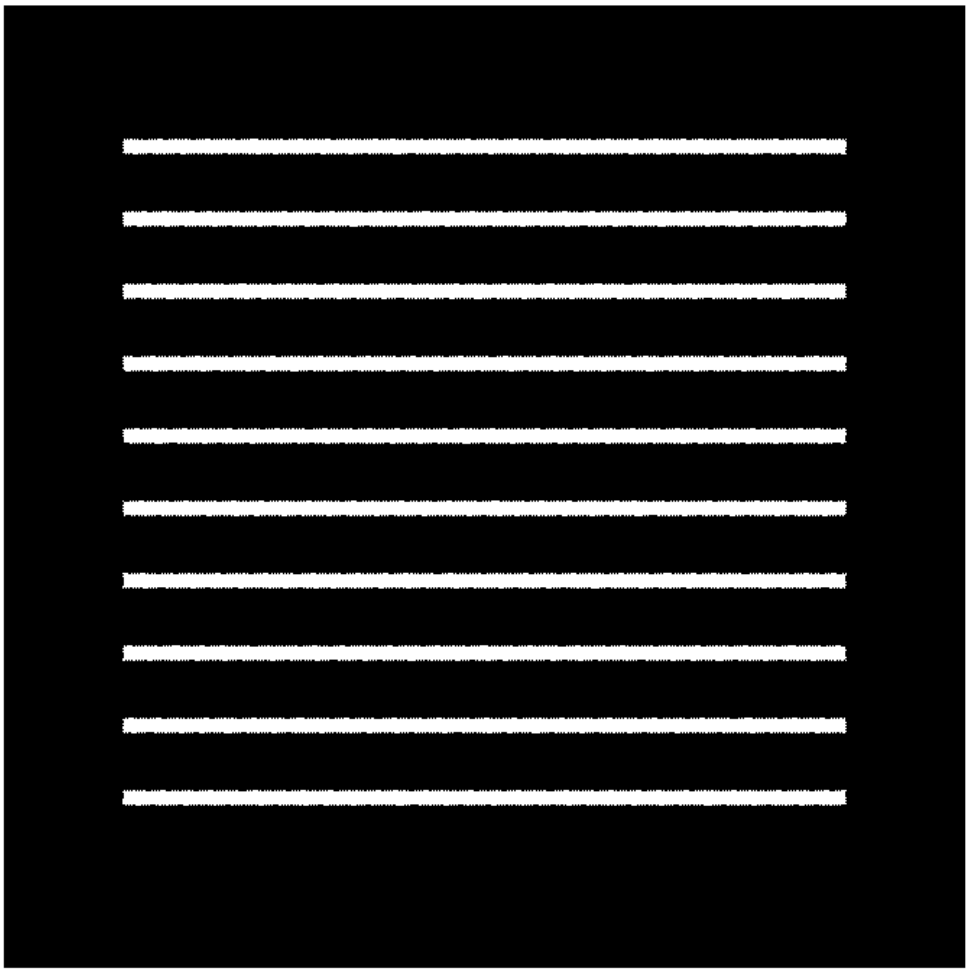
3) What is the exact angle corresponding to the lines in $Image1a$?

```
% The exact value is 65 degrees.
```

4) What is the angle of **clockwise** rotation to rotate $Image1a$ to the horizontal level? Use your answer from problem 3.

```
% A rotation to the horizontal level would need an angle of 90 - 65 = 25
% degrees clockwise
```

5) Image1a_rotated:



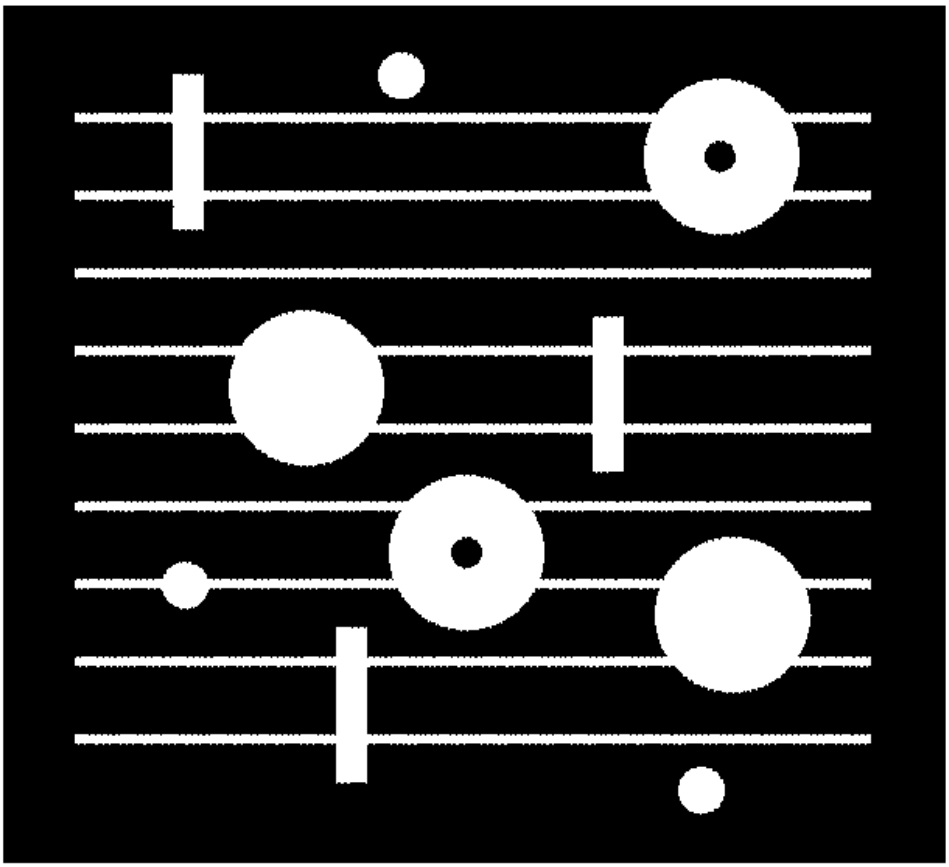
6) What is the exact angle corresponding to the straight lines in $Image1b$?

```
% Exact angle is -75 degrees.
```

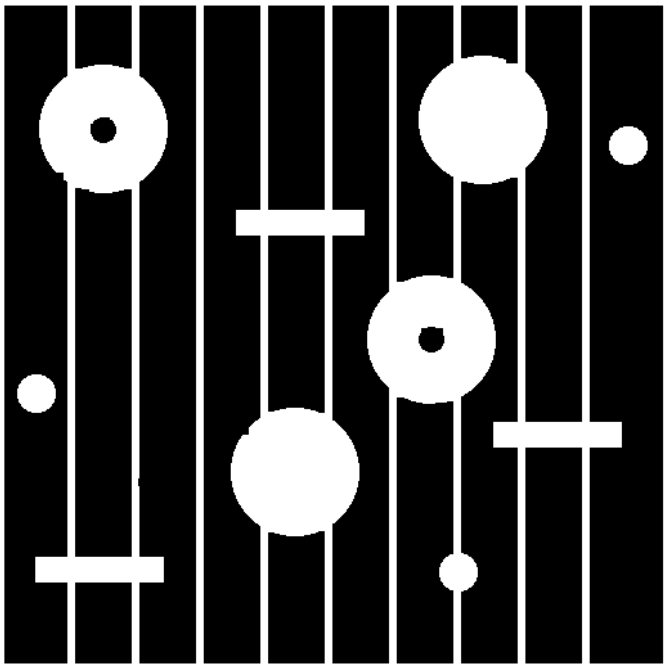
7) What is the angle of **counterclockwise** rotation to rotate $Image1b$ to horizontal level? Use your answer from problem 6.

```
% 90 - 75 = 15 degrees counter clockwise.
```

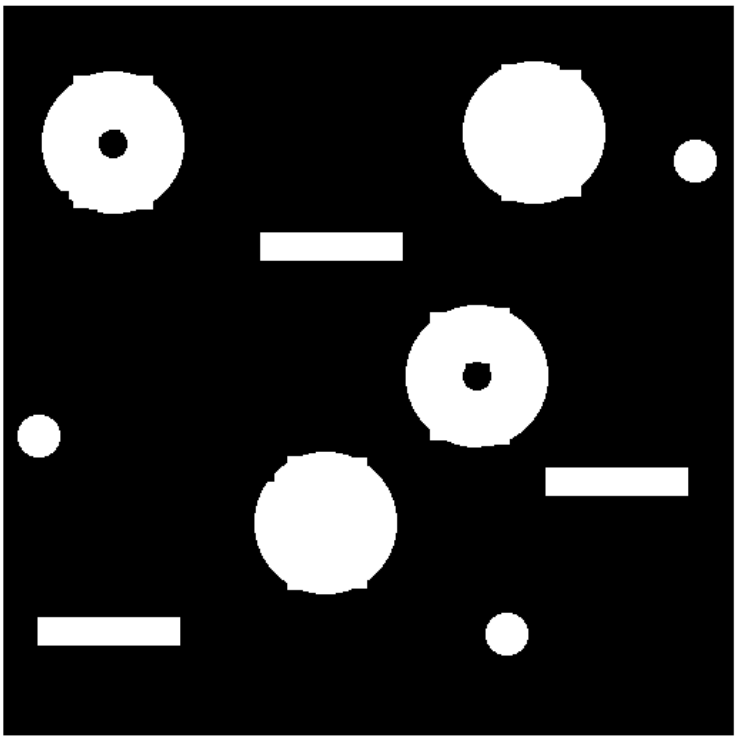
8) Image1b_rotated:



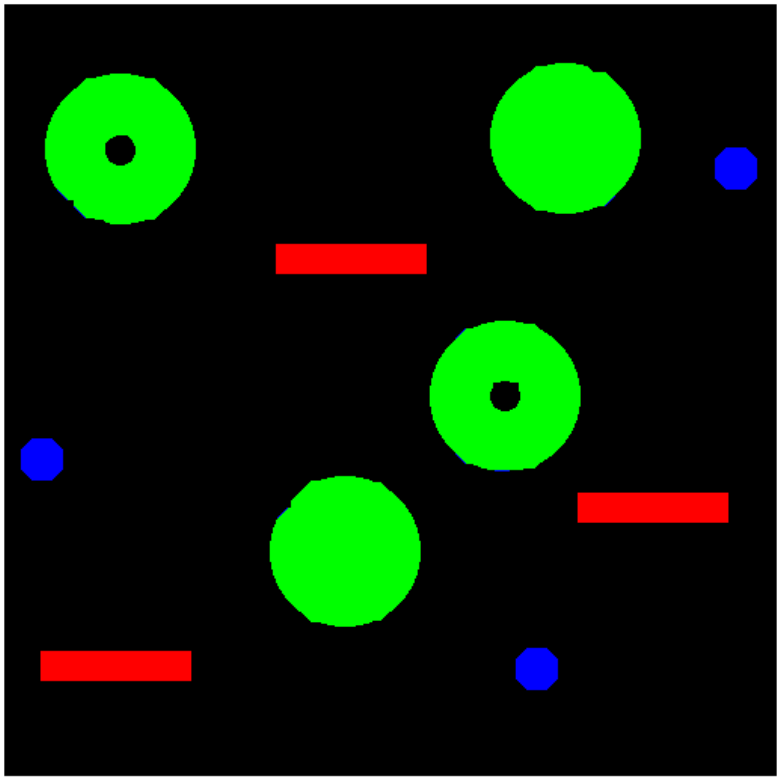
9) Image1c with noise removed:



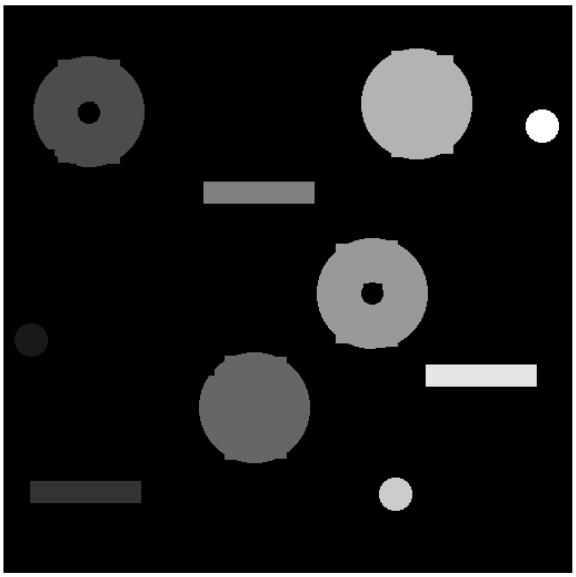
10) Image1c_clean (noise and lines removed):



11) RGB-image displaying the 3 different classes of objects in different colors:



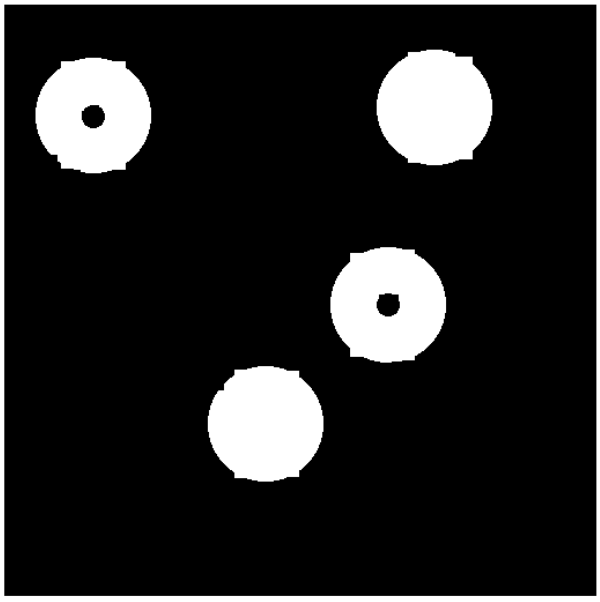
12) Labeled image, L, scaled by max value:



13) What are the perimeters for the large objects (having area > 3000 pixels)?

```
%Perimeter(Large0) gives: 327.4740  325.6300  324.3400  324.9850
```

Image containing only the large objects:



14) What is your selected threshold value?

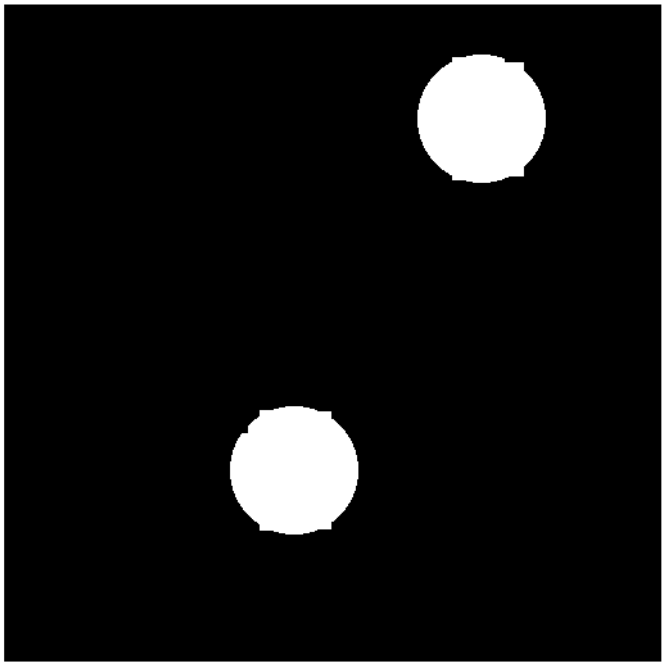
What are the labels of the objects belonging to the class with the smallest perimeter?

```
% Threshold: 150
% Labels: 1, 8 and 10.
```

15) What are the labels of the objects belonging to the class with the largest perimeter, and that has no holes?

```
% Threshold: 250
% EulerNumber: 1
% Labels: 4 and 7.
```

Image containing only objects having the largest perimeter, without holes:



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