FIJI macro for automatic counting of colonies from a plate

Motivation: I am laze to do this sort of thing manually. Most of the colonies (if the growth is not too strong) can be clearly distinguished, meaning they can be segmented. Developing a macro creates loads of experimented time, increased throughput and reproducibility, while removing bias.

Macro steps:

1. Duplicate and process image – enhance local contrast, remove background etc.
    - prepare as much as possible for binarization
2. Binarize (create mask), watershed into separate objects and adjust their shape a bit
3. Summarize results, especially report the number
    - the counting works analogously to working with the Burker chamber, specifically, only colonies touching the bottom and right-hand edges are counted, while the ones touching the top andleft-hand edge of the image are ignored
4. Create overlay of the final segmentation mask with the original image for verification

Macro usage:

1. Open Fiji
2. Load macro in Fiji (drag-and-drop/ file → open)
3. Open image to be analyzed
4. Run macro
5. Results are written out in the form of a table on screen