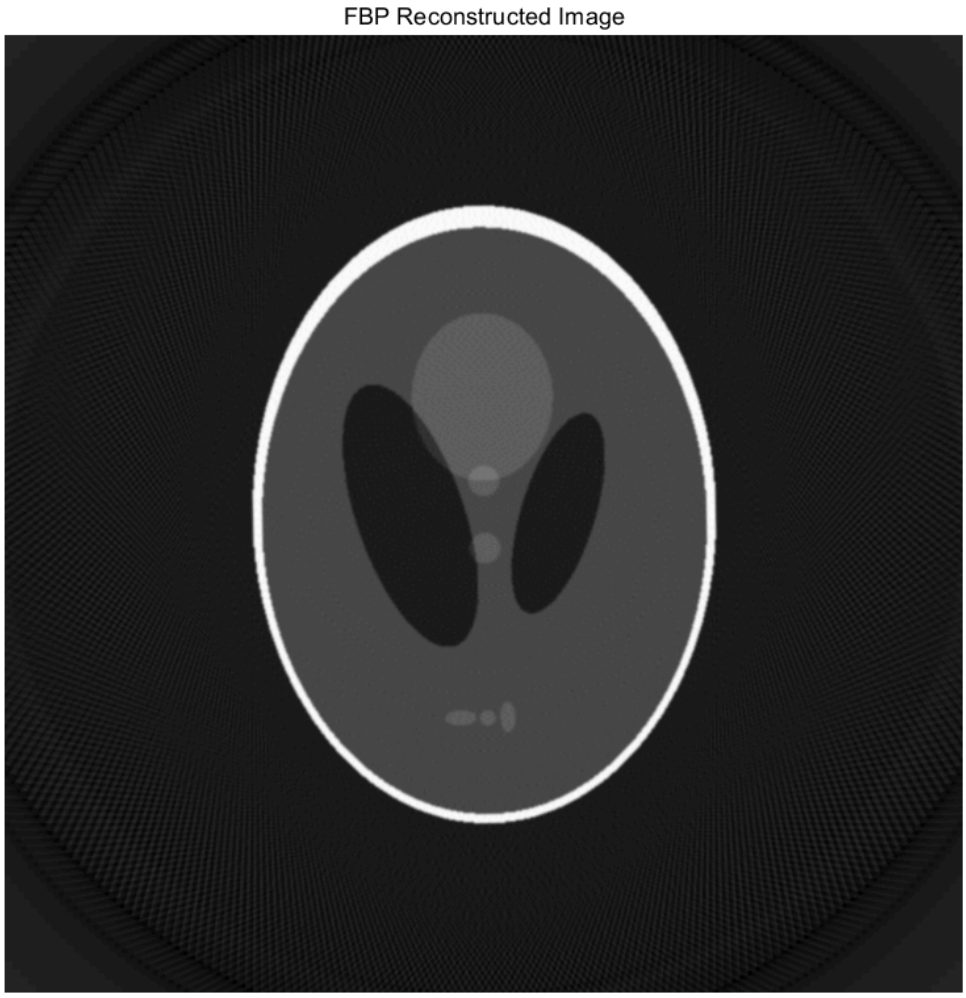
CS270 - Digital - Image - Processing - HW3

Problem 1: CT reconstruction(FBP method)



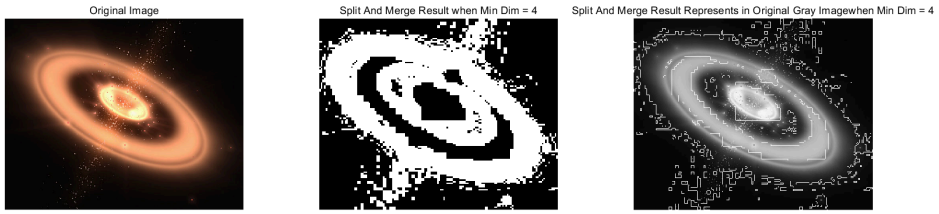
Problem 2: Threshold processing

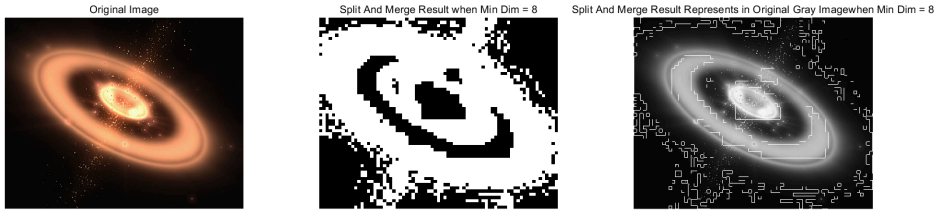
Problem 2a: Basic global thresholding

- Presents foreground and background of flower.tif respectively

Problem 2b: Region Splitting and Merging

- Presents the binarization result of the algorithm
- Presents its corresponding boundary contours superimposed on the grayscale image of the original image
- The values of `min_dim`, σ and μ play an important role in the algorithm performance





Problem 3: Super pixel

- Set $threshold = 0.01$, $m = 40$ to improve the algorithm performance
- By initializing parameters and comparing results, I find `threshold` may not have an important effect on the result, but `m` plays an important role in the algorithm. When $m = 10$ and $k = 100$, the result will have a bad performance, remaining too many original features. Increasing the value of `m` can erase this effect, makeing the result grainy. That is beacause `m` will influence our calculation of the distance in color space and then influence the cluster assignments.