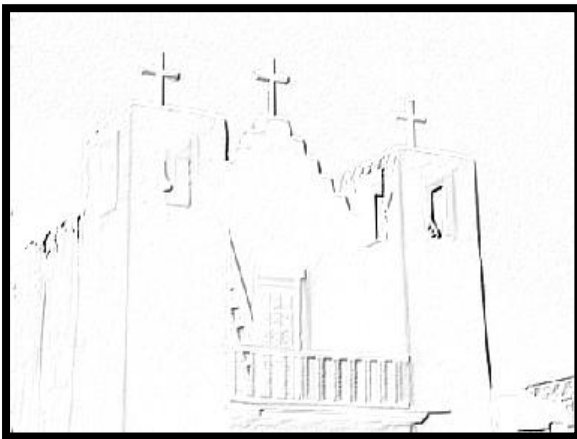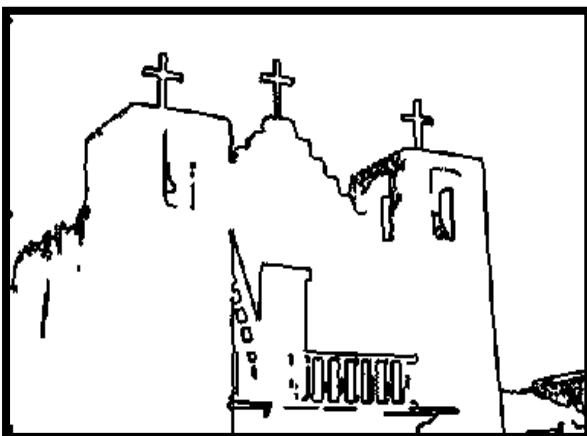# 1. Edge Detection:

#test 01:
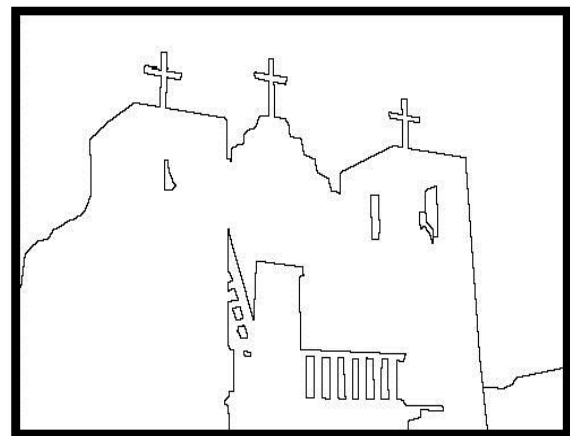

Original Image

Sobel Filter output

Canny Edge detector output

Canny + Morphological Output

Ground Truth

 # test 02:

Original Image

Sobel detector output

Canny Detector Output

Canny + Morphological output

Ground truth

 # test 03:

Original Image

Sobel detector output

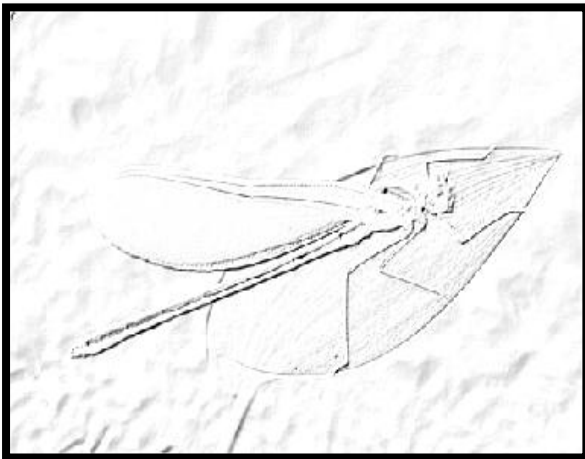*Canny detector output*

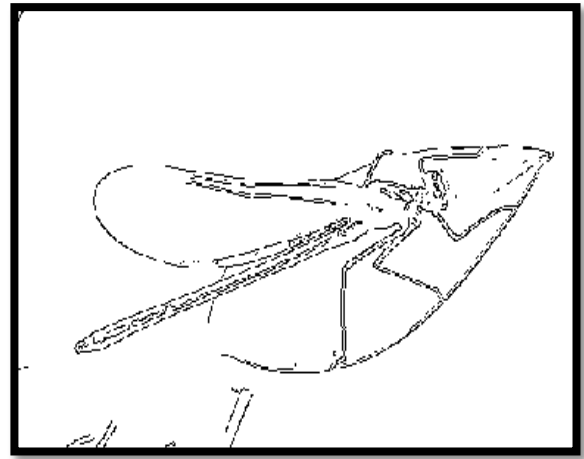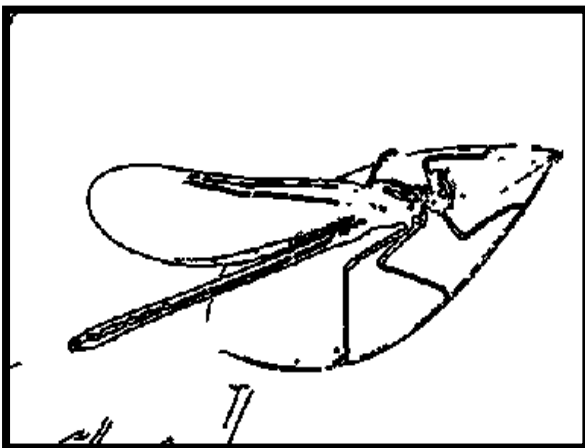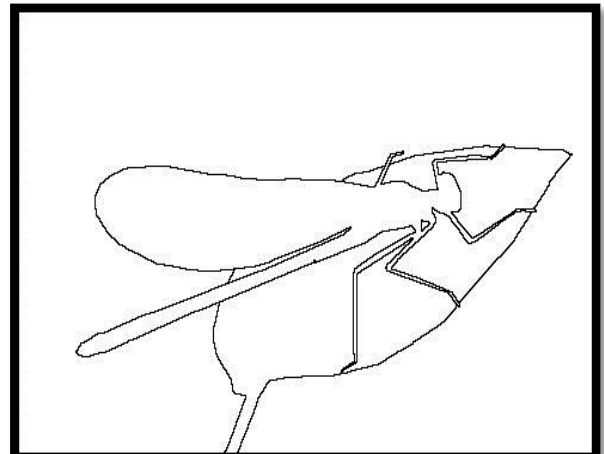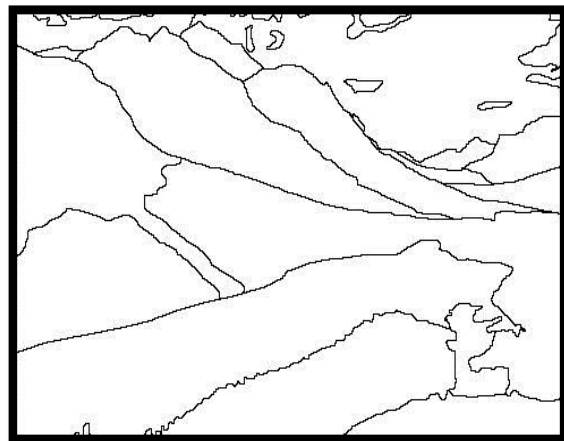*Canny +Morphological output*

Ground truth

#test 04:
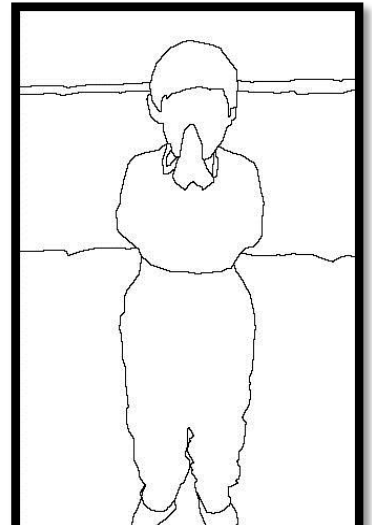

Original image

Sobel detector output

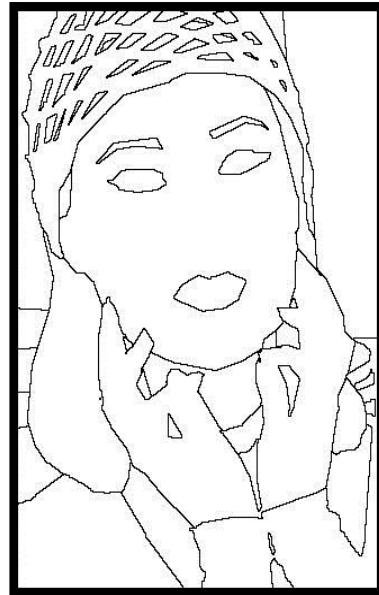*Canny Detector output*

Canny + Morphological Output

Ground truth

 # test 05:

Original Image

Ground truth

Sobel detector output

Canny Detector output

Canny + Morphological Output

Observations:

- I observed that the edges that I got from the canny edge detector are discontinuous when compared to the ground truth which I got from the Berkeley segmentation dataset.
- I also observed that canny edge detection with morphological operation is capturing more details, but it seems to be correct in some cases when compared to the ground truth.
- I also observed that, the canny and the morphological operation is the better approximation to capture the ground truth in many of the cases.
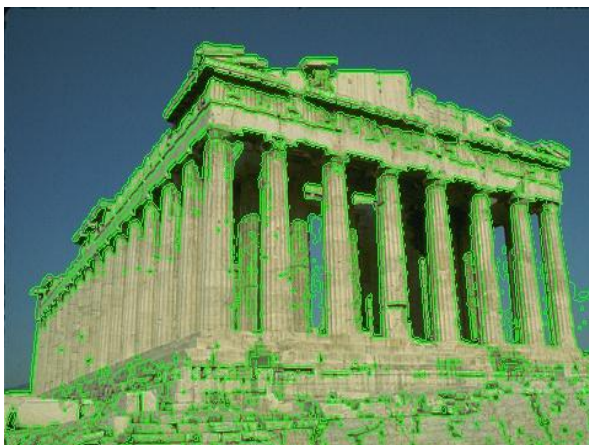
B. Segmentation:

 # test 01:

Original Image

K Means

Mean shift

Canny +Watershed

Ground truth

 # test 02:

Original Image

K Means

Mean shift

Canny + Watershed

Ground truth

test 03:

Original Image

K Means

Mean shift

Canny + Watershed

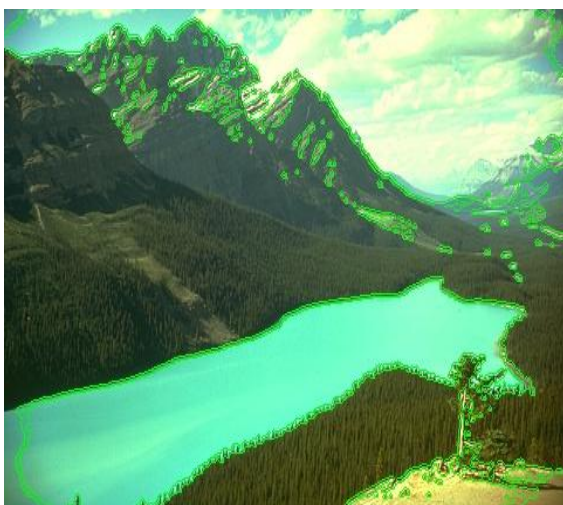*Ground truth*

test 04:

Original Image

K Means

Mean shift

Canny + Watershed

Ground Truth

 # test 05:

Original Image

K Means

Mean shift

Canny + Watershed

Ground truth

Observations:

- I observed that the canny and watershed gives the best approximation to the ground truth in many of the test cases.
- The above method fail to approximate when there is a sudden gradient change .In that case our algorithm over approximates the edges present in the image.