**Image segmentation**

% MATLAB code for

% Separate the brain part from MRI image.

% read the mri image.

k=imread("mri.jpg");

% display the image.

imtool(k,[]);

% convert it into binary image.

k1=im2bw(k,graythresh(k));

% display the binary image.

imtool(k1);

% Make the brain largest connected component.

% We need to apply opening operation.

% define the structuring element.

SE=strel('disk',7,4);

% apply the opening operation.

k2=imopen(k1,SE);

% display the image now.

imtool(k2);

% apply connected component analysis.

b=bwlabel(k2);

% display the colored map image.

imtool(b,[]);

% brain is component labeled as 9.

% set all other component as 0 except brain.

b(b~=9)=0;

% display the brain part.

imtool(b);

% inside the brain part, black portion is there.

% close the black pixels inside brain part.

k3=imclose(b,strel('disk',18));

% display the brain part.

imtool(k3);

% extract the brain from original image.

k4=k3.\*double(k);

% display the real brain from original image.

imtool(k4,[]);