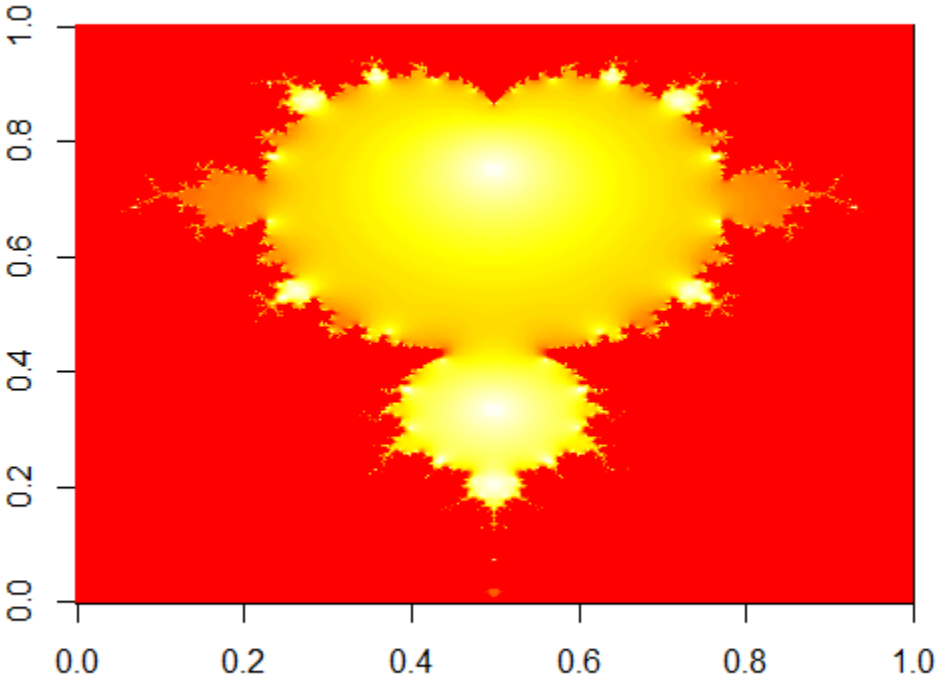
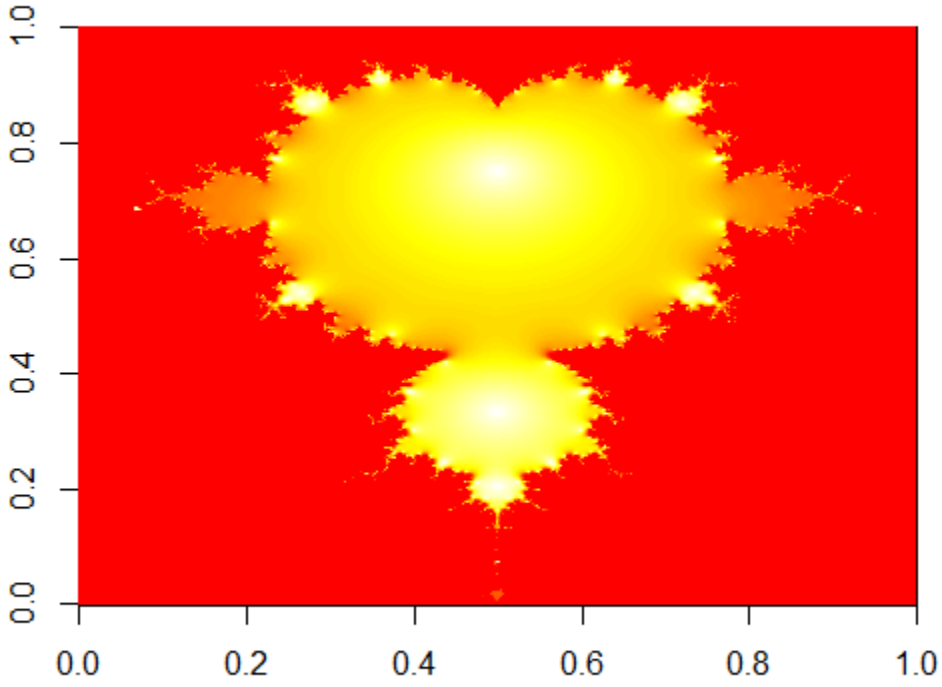
Evina Novi Thekkudan - 5906486
Lab 1: Introduction to R

Running the code before making the changes we get the below image/ plot as the output.

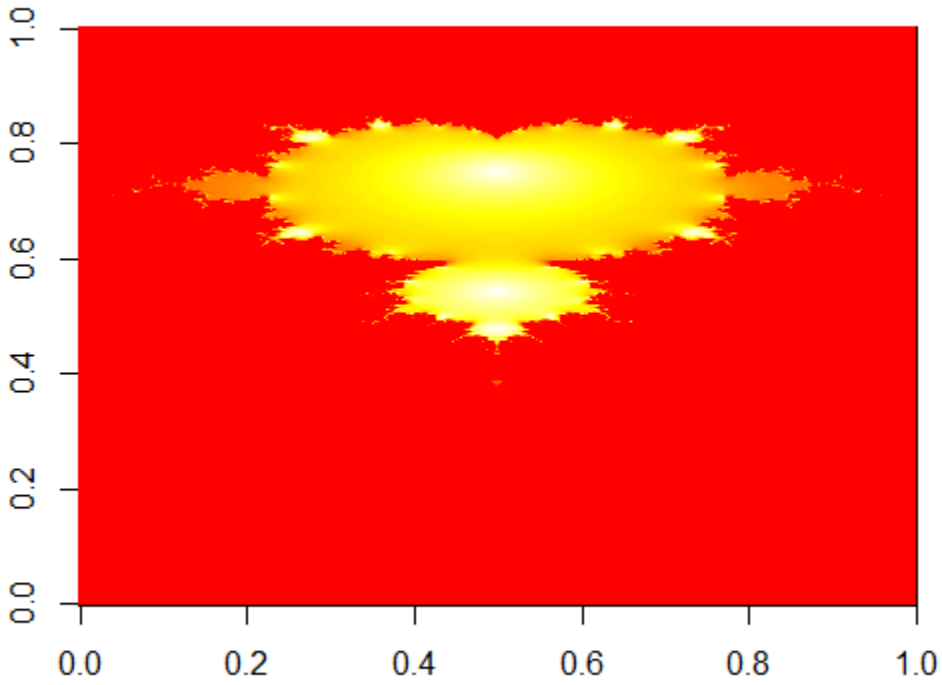


1. Change the dim parameter to 1000.
   After changing the dimension - fractal(iters=20, dim=1000, xlo=-1.8, xhi=0.6, ylo=-1.2, yhi=1.2)
   We get the below image.



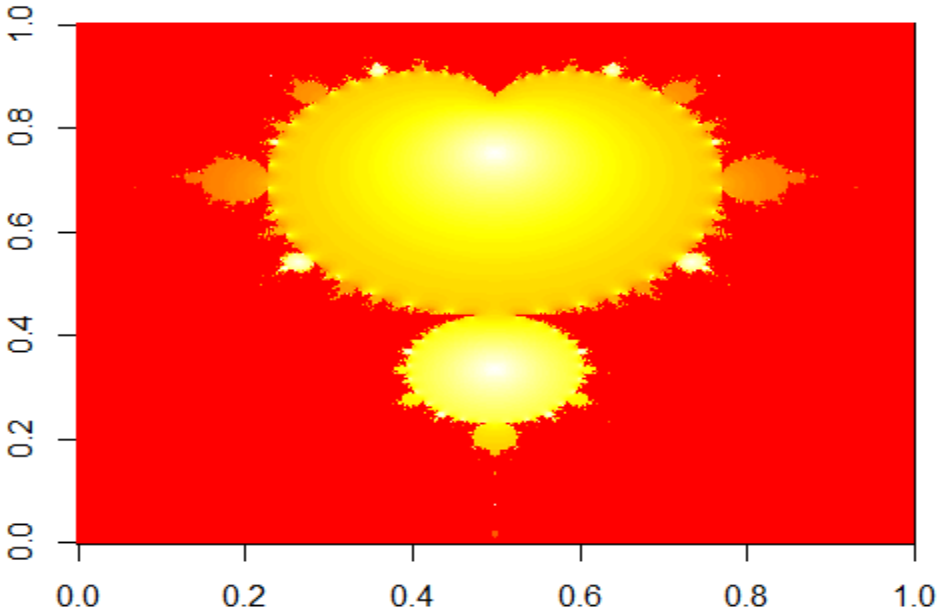
   The change is very minimal. The image appears smoother or crisper with the increase in value of the dimension variable.

2. Change xlo to -3.6 and xhi to 1.2
   After making this change - fractal(iters=20, dim=500, xlo=-3.6, xhi=1.2, ylo=-1.2, yhi=1.2)
   We get the below image.



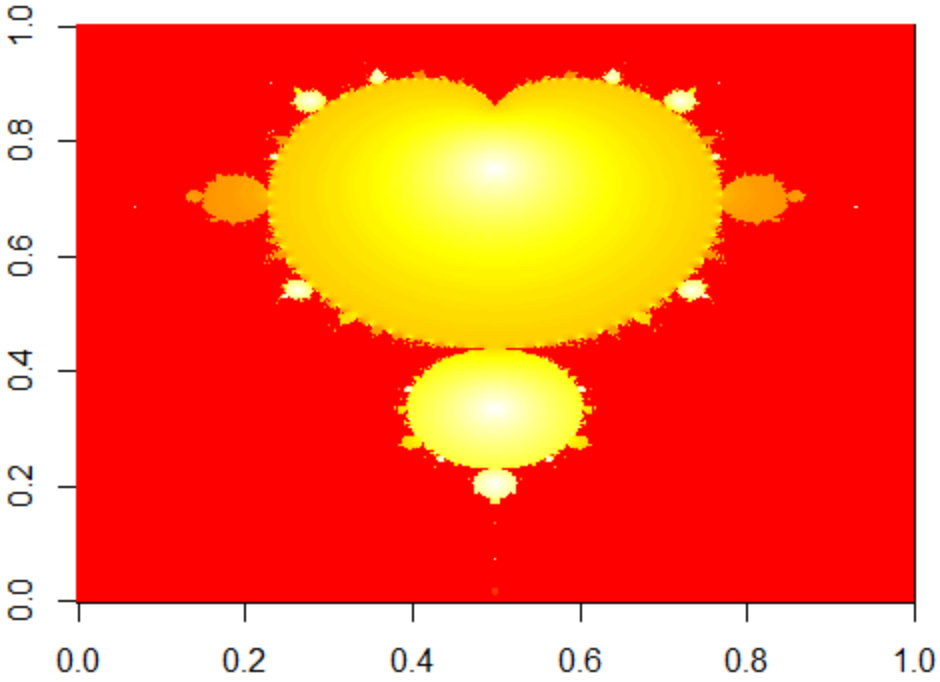
   The change is clear. The image/ plot appears compressed lengthwise (top to bottom).

3. Change iters to 50, 100, and 1000
   I. iters = 50, we get the below image



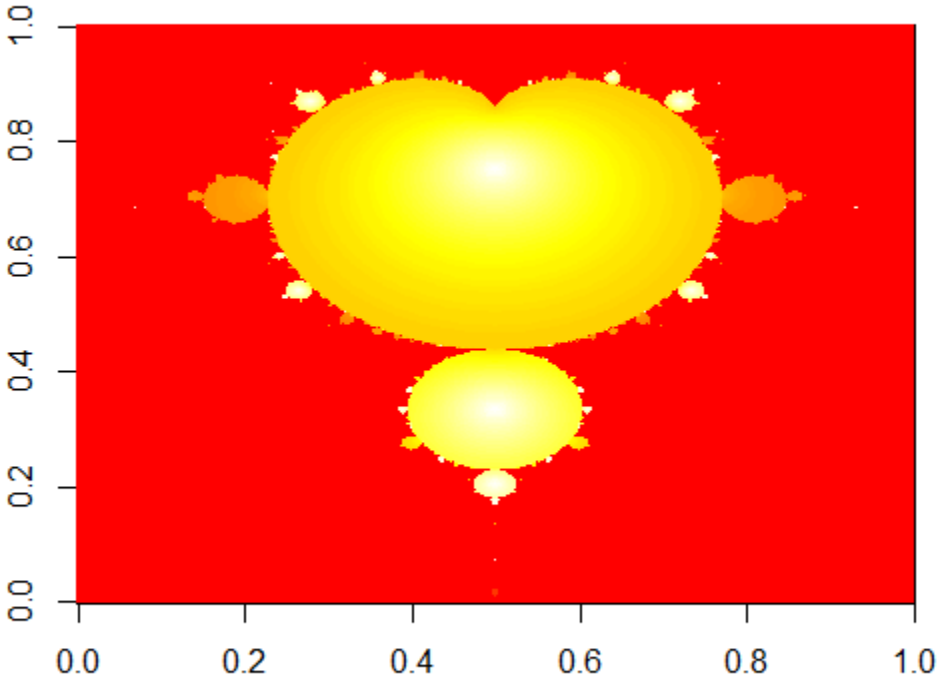
   The image has smoother/ finer borders than the original.

   II. iters = 100, we get the below image



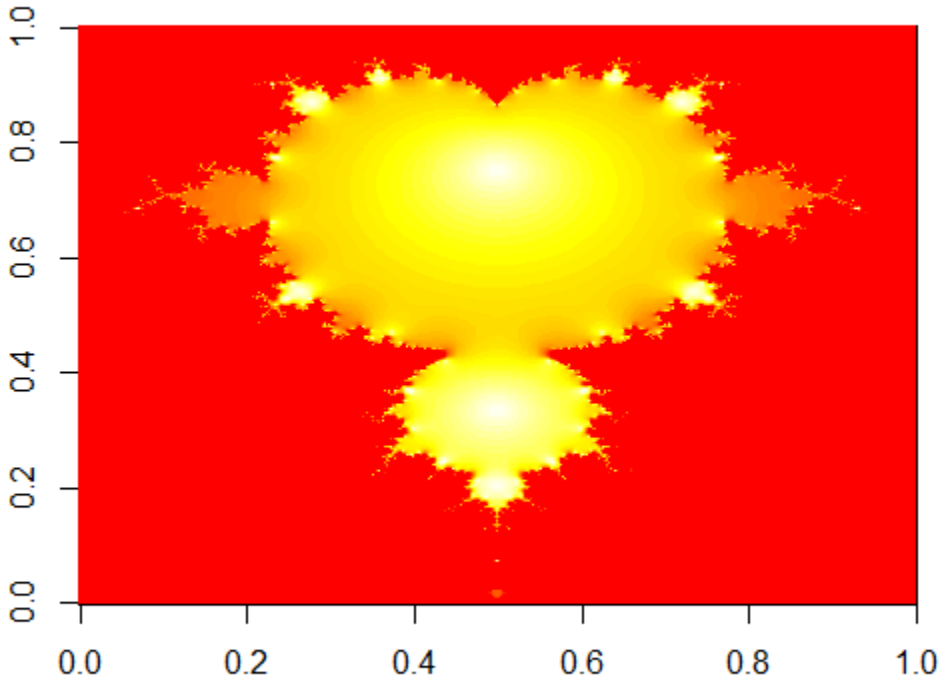
We can see the borders are even finer and detailed when the iters is increased to 100.

III. iters =1000, we get the below image



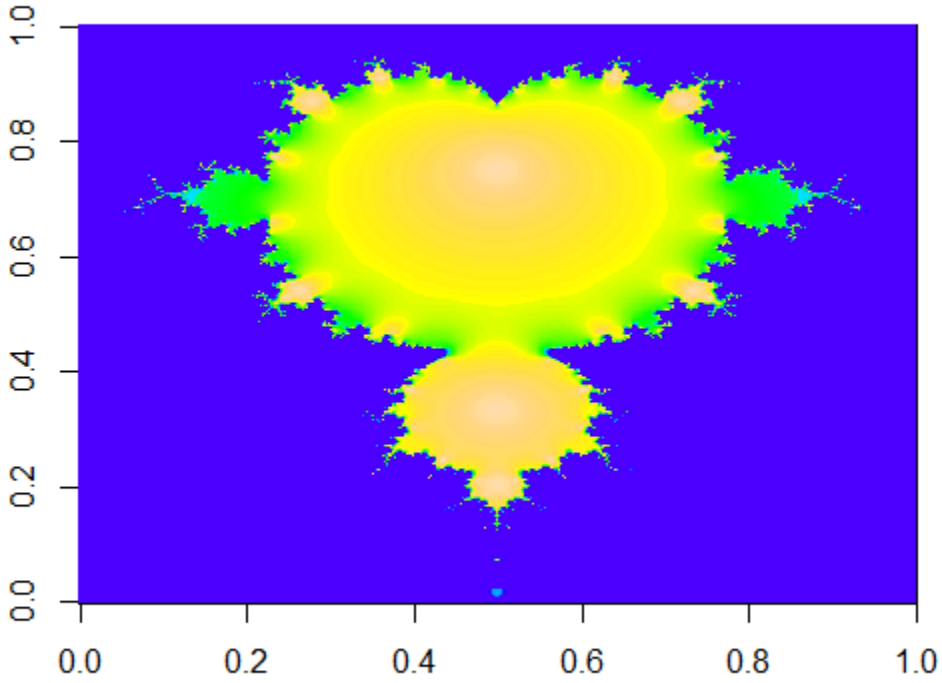
The image again has sharper, more detailed borders with iters = 1000 as compared to 20,50 and 100.

4. Change heat.colors(100) to heat.colors(50)
   We get the below image.



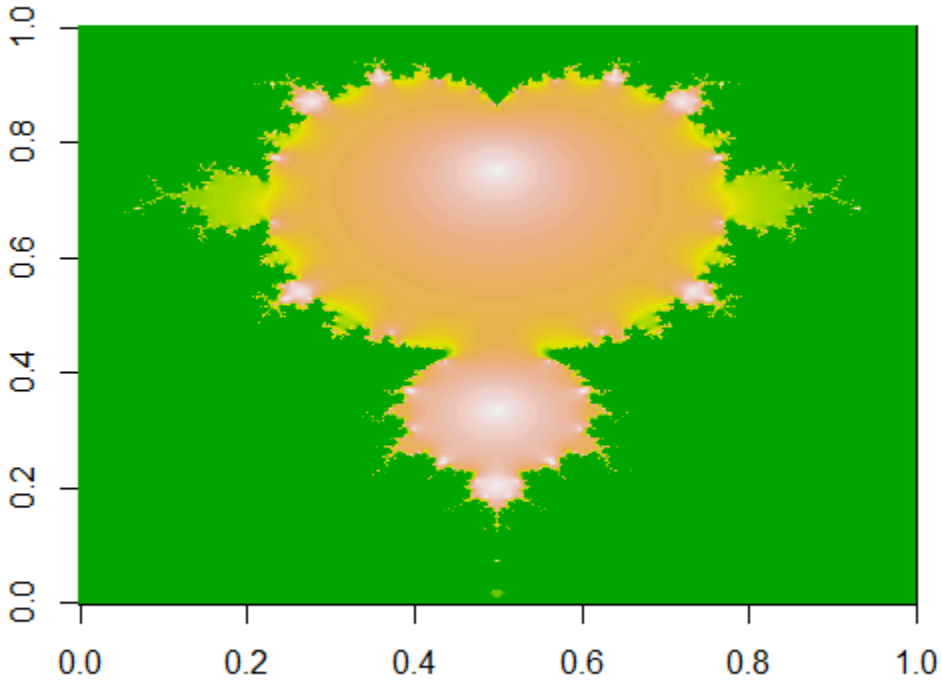
   The new image has some distinct pattern like concentric circles which was not visible in the original image with heat.colors(100).

5. Change heat.colors(100) to each of the following:
   a. topo.colors(100)



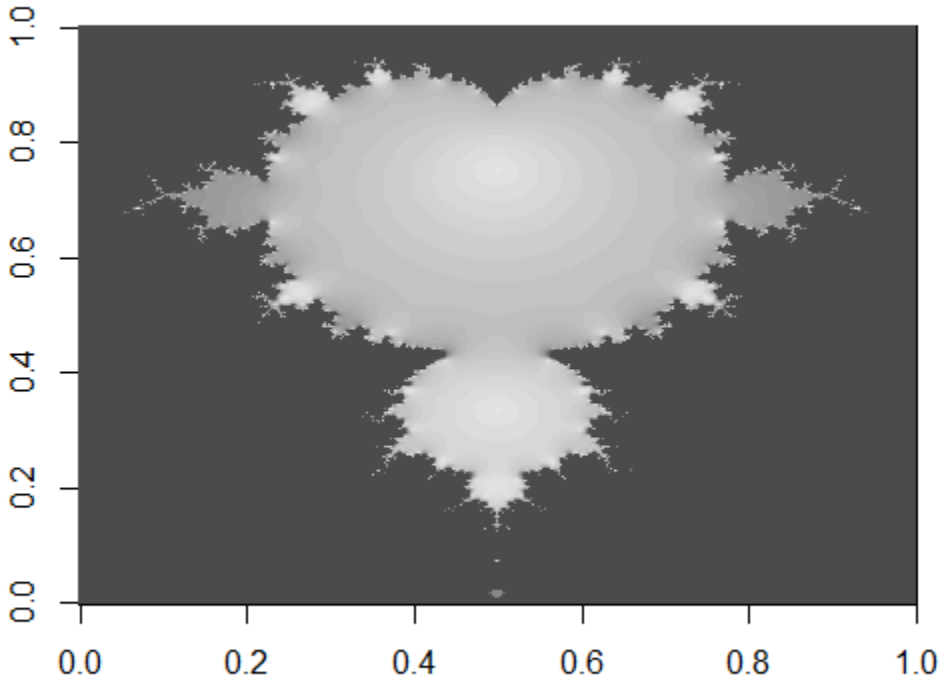
   Using topo.colors(100) the color gradient changes to blues, greens, yellows, and browns, resembling elevation maps.

b. terrain.colors(100)



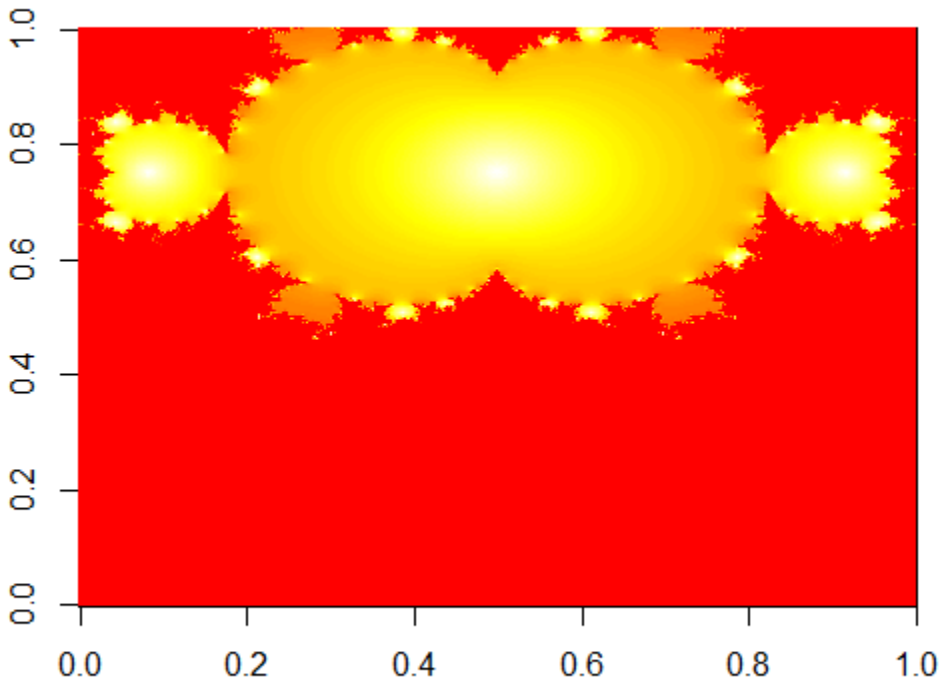
Using terrain.colors(100) the color gradient changes to greens, browns, yellows, and whites, like terrain or landscape colors.

c. gray.colors(100)



Using gray.colors(100), we get the image/ plot in grayscale.

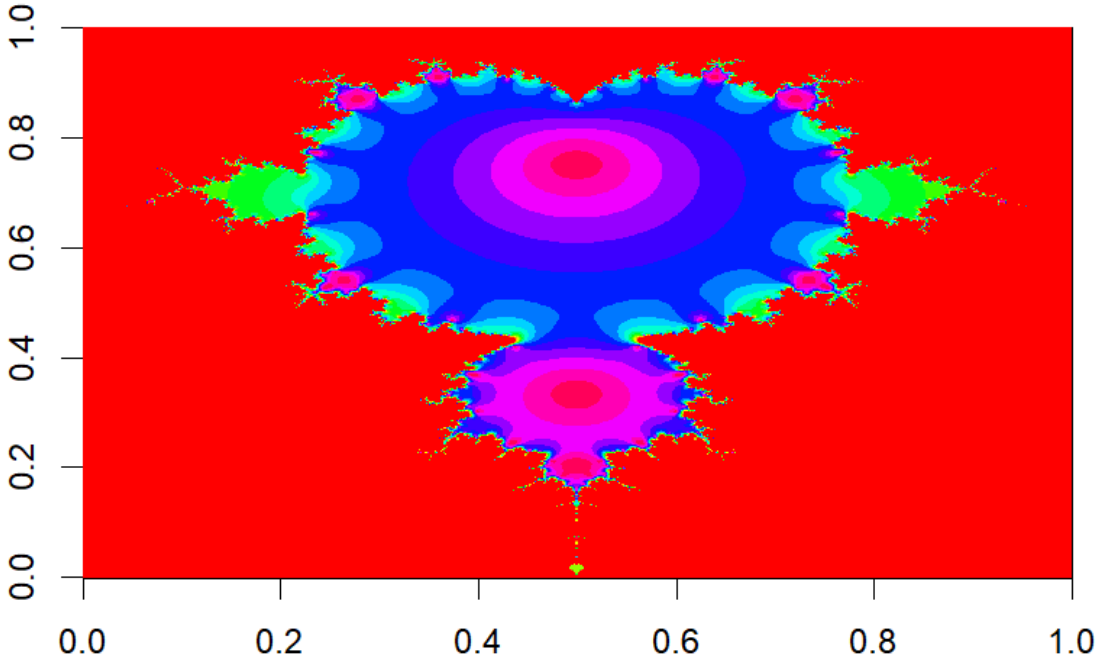
6. Change the expression in the for loop to Z <- Z^3 + C



After making the changes we get an image in which the whole bottom part (a circle) which was there in the original image/ plot is missing and the above two circles which formed a shape similar to a heart seems to be caved in the bottom.

7. Make one other interesting change to the program

The below image/ plot was got after changing the color scheme to rainbow(17).



We can see that the plot/ image colors have changed to a rainbow color scale.