Ps 2 Problem 3

Adam Guerin

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Abstract

This document has an outline of a program that makes a picture of the mandelbrot set.

1 Introduction

Mandelbrot set is a 2d set with a straight forward definition of z' = z+c starting at z = 0 for z and c complex. if the magnitude of z' ¿ 2 then c isnt in the set.

2 Methods

Mildly naive code was used to calculate this. For c values between -2 and 2 real and complex, run 100 iterations of the calculation of z', if at any point the magnitude is ¿ than 2 then i return false, otherwise return true. if the returned value is true i add the real part of the c value im looking at to an array and the imaginay c value im looking at to a different array. i then did a scatter plot of those two arrays after calculating however many points i wanted.

3 Results

here is the mandelbrot set on a 1000x1000 grid

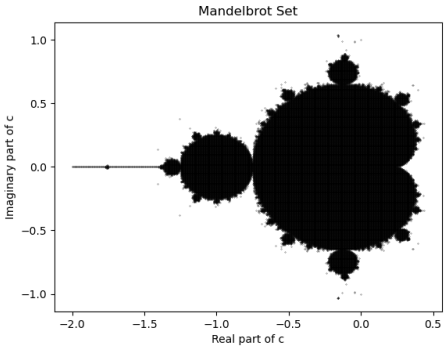

Figure 1: 1000x1000 grid between -2 and 2 meaning a linear spacing of .04

4 Discussion

It's really pretty. Could have added colors easily by checking how many iterations it took to be removed.