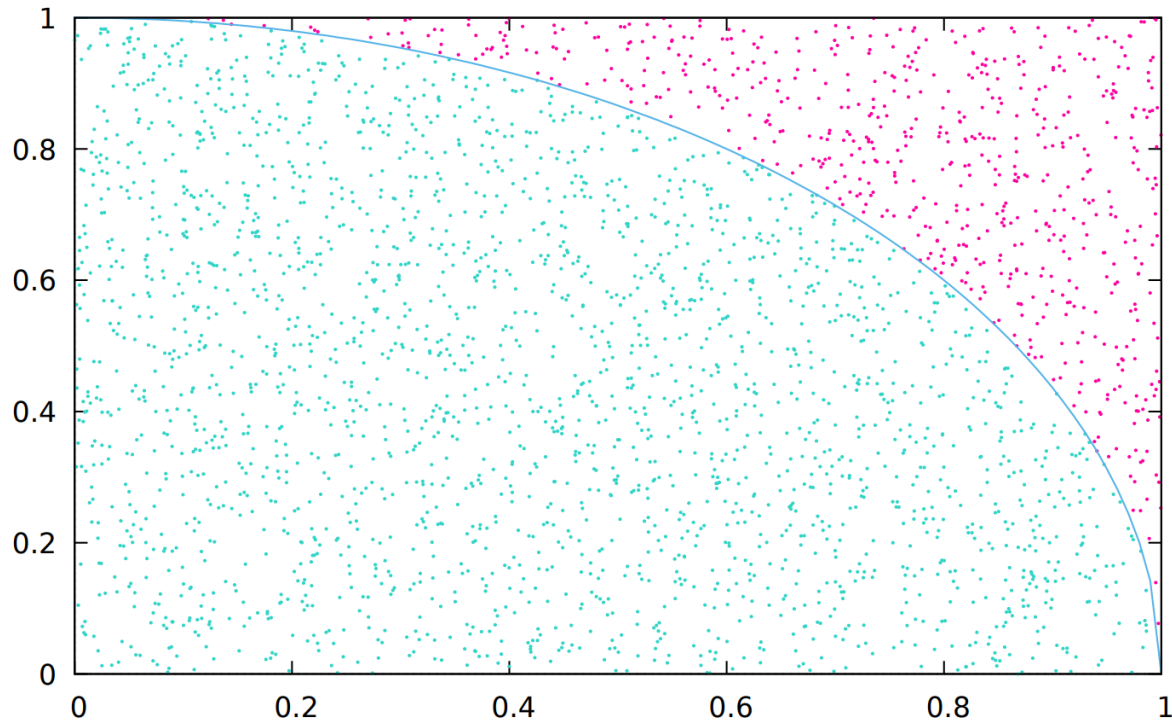# plot.sh Writeup Document

First Plot:

The unix commands for this plot are separated into three distinct sections.

First temp files are set up, as well as variables for path names:
A new folder is made in the /tmp directory, and two files are made in that folder;
one for the Turquoise plots and the other for the Pink plots.

Next a loop parses important data from the monte_carlo program after it is run:
monte_carlo is run 3000 times, outputting to Plot1.dat
A loop is run over every line of Plot1, skipping the first line without data
Then awk parses whether the point is within the circle or not, and organizes the point onto the respective file.

Finally, when all the points have successfully been separated to their respective files, gnuplot is run to plot on a 1x1 axis, outputting to FirstPlot.pdf.
gnuplot creates the arc from the equation of a semicircle y=sqrt(1-x^2)
It then plots the respective files under the hex code for the desired color.

Second Plot:
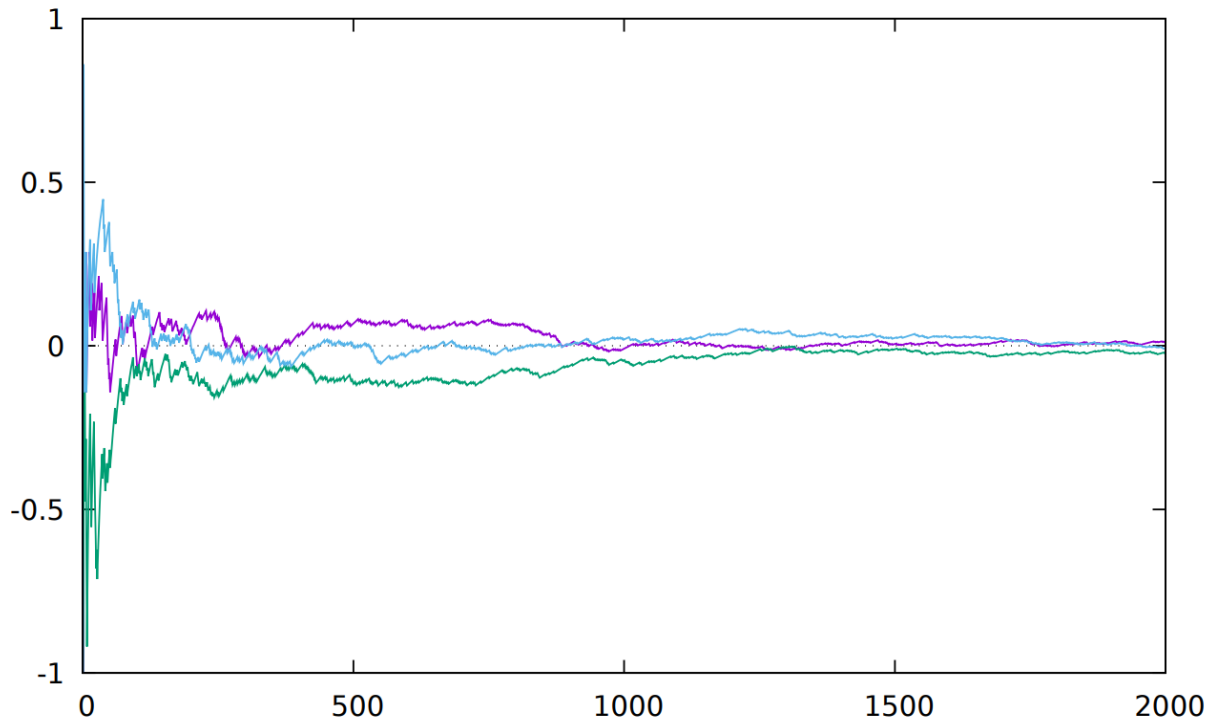
The unix commands for this plot are separated into three distinct sections as well.

First temp files are set up, as well as variables for path names:
Three new files are created in the initial /tmp directory;
one for each of the three seeds respectively.

Next a loop parses important data from the monte_carlo program after it is run for each seed (this section gets repeated three times):
monte_carlo is run 2000 times, outputting to Plot2.dat
A loop is run over every line of Plot2, skipping the first line without data
Then awk parses monte_carlo's estimation of pi, and stores the difference compared to the real value of pi.
The iteration is also parsed, and then a string is concatonated to create a point, with the iteration as the x value and the estimation accuracy as the y value.

Finally, when all the points each point is logged to Plot2.dat, gnuplot is run to plot with an x-axis ranging from 0 to 2000, and with a y-axis ranging from -1 to 1, and is output to SecondPlot.pdf. gnuplot creates the graph by plotting one seed at a time.