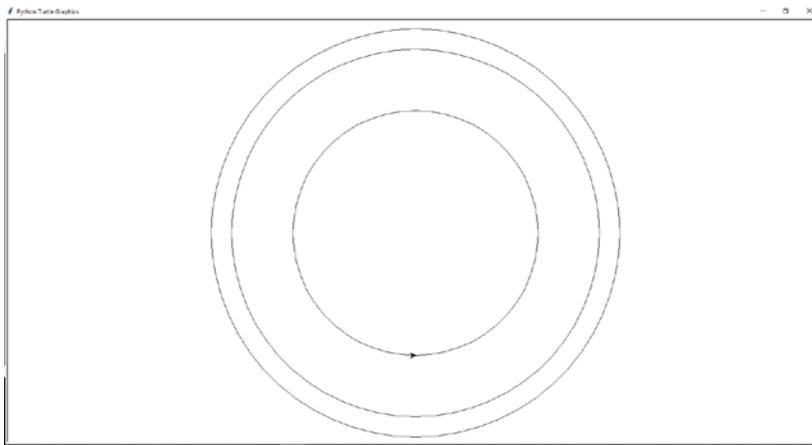


William Garnes

Math 2270-Linear Algebra

Professor Gustafson, Grant B

For the semester project I decided to create some kind of program that creates fractals. For my base image I chose to create some sort of image that looks like a planet with a ring that goes around it. Here is an image of what the base image would look like.



Using this image I would write a program to create different interesting fractals. One thing that I wanted for the program is I wanted several things to be adjustable so that many fractals could easily and quickly be drawn up by changing a few variables in the code. Some things that I wanted to be adjustable were the sizes, positions, iterations, and distances between the planets. So I created several variables to make the program as adjustable as possible. Some different variables that the user can set in the program are x position, y position, radius, draw amount, and iteration count.

Once those variables were set I then used a recursive function called fractal art to draw up the images. The x and y position of the original planet would decide the position of the rest of the planets and planets would then be drawn inside one another to form the fractal effect.

Please feel free to mess with the fractal code in the area marked as “edit code in between the stars.” Messing with those parameters. Below an example of the variables and picture output has been placed.

```
#edit code in between the stars
#*****#
#1)x (int) - the x location mid-point of the planetets being drawn
x = 0
#2)y (int) - the y location mid-point of the planetets being drawn
y = -50
#3)radius (int) - the length of the radius of the planet
radius = 275
#4)drawAmount (int) - the amount of planets that will be drawn (if a number <= 0 is entered the program will stop)
drawAmount = 3
#5)drawIncrease (int) - how many planets to increase the draw count by (can be positive or negative)
drawIncrease = 1
#6)firstLocation (string) - the position relative to the mid-point where the first planet will be drawn
#6 cont.) - parameter options: top, bottom, left, right, topleft, topright, bottomleft, bottomright
firstLocation = 'top'
#7)sizeDecrease (int)- tells how much smaller planets drawn inside the planet will be (percentage between 1-99)
sizeDecrease = 77
#8)repeatCount (int)- how many times the program will recursively draw before it stops
repeatCount = 2
#*****#
```

