

PRIME NUMBERS AND ITS PATTERN IN SIMPLE LOGO

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Abstract. In This paper we will use a simple Logo software to demonstrate a possible pattern in prime numbers. We Will see how primes show a tendency to retrace the path of other primes.

Keywords: Prime numbers, Composite numbers, logo, patterns, real numbers.

1. Introduction

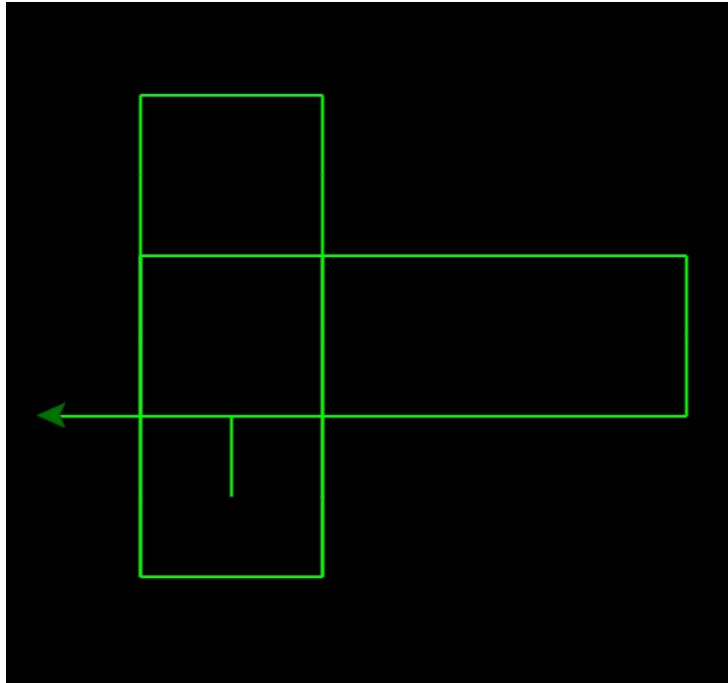
Prime numbers are such numbers which show no pattern & are distribute unevenly in the number line. We will show how primes may serve and have a possible pattern. To do so I have used a simple logo software available on Android. I have used Turtle Draw version 2.0.16 to draw the pattern. Logo is a software used to draw a particular shape using simple commands like FORWARD, RIGHT, LEFT etc. A numerical value is specified after the command to indicate the magnitude. For e.g. FORWARD 10 Will shift the turtle

by 10 units and the turtle will trace a path behind it. Similarly Right 90 indicates that turtle has to turn right by 90 degree.

2. The procedure

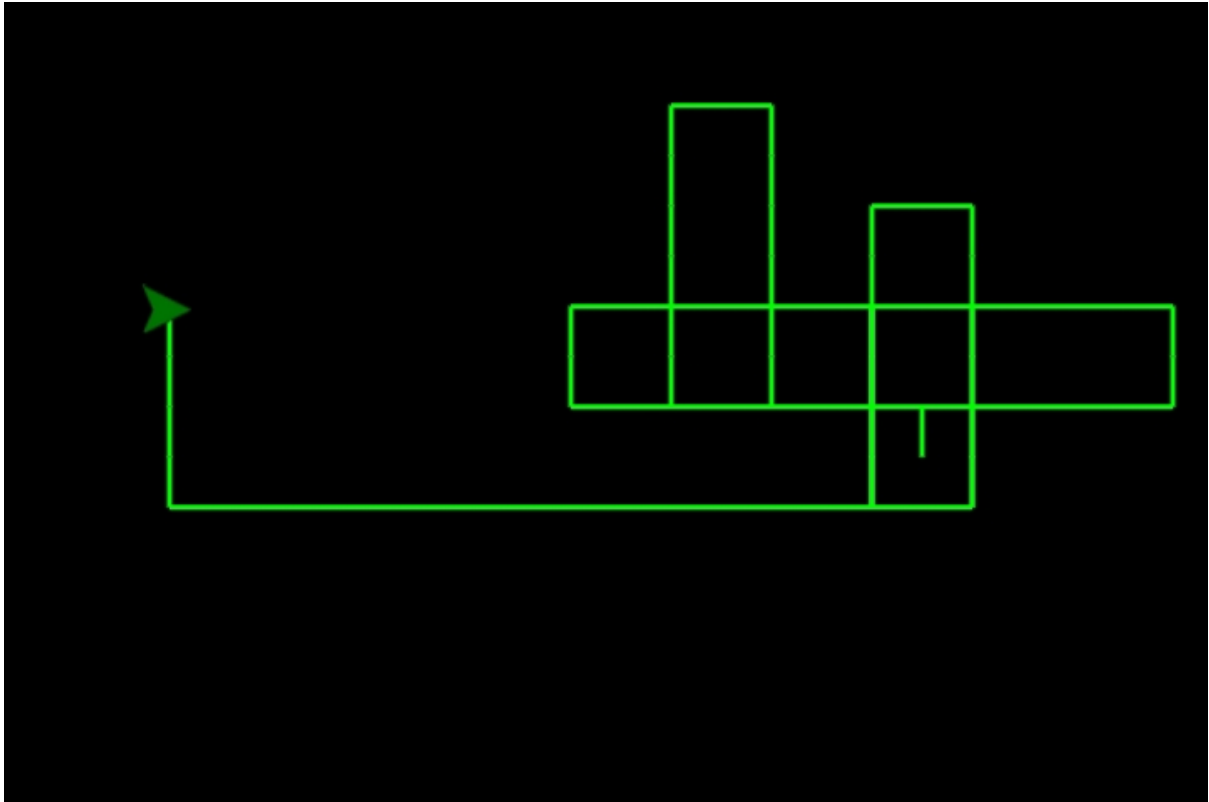
To Start with we will use the Set of Natural numbers $\{N\}$. we Begin by number 1. As 1 is special we specify no action on it. Then as 2 is Prime we command the turtle to go forward by 90 units. Then as 2 is prime we specify One special action as to turn Right.

In genral If a number $\alpha \neq 1$ is composite then the only action is FORWARD 90. If α is prime then We specify two actions Forward 90 and RIGHT 90. The computation for first 50 natural numbers Is as follows:

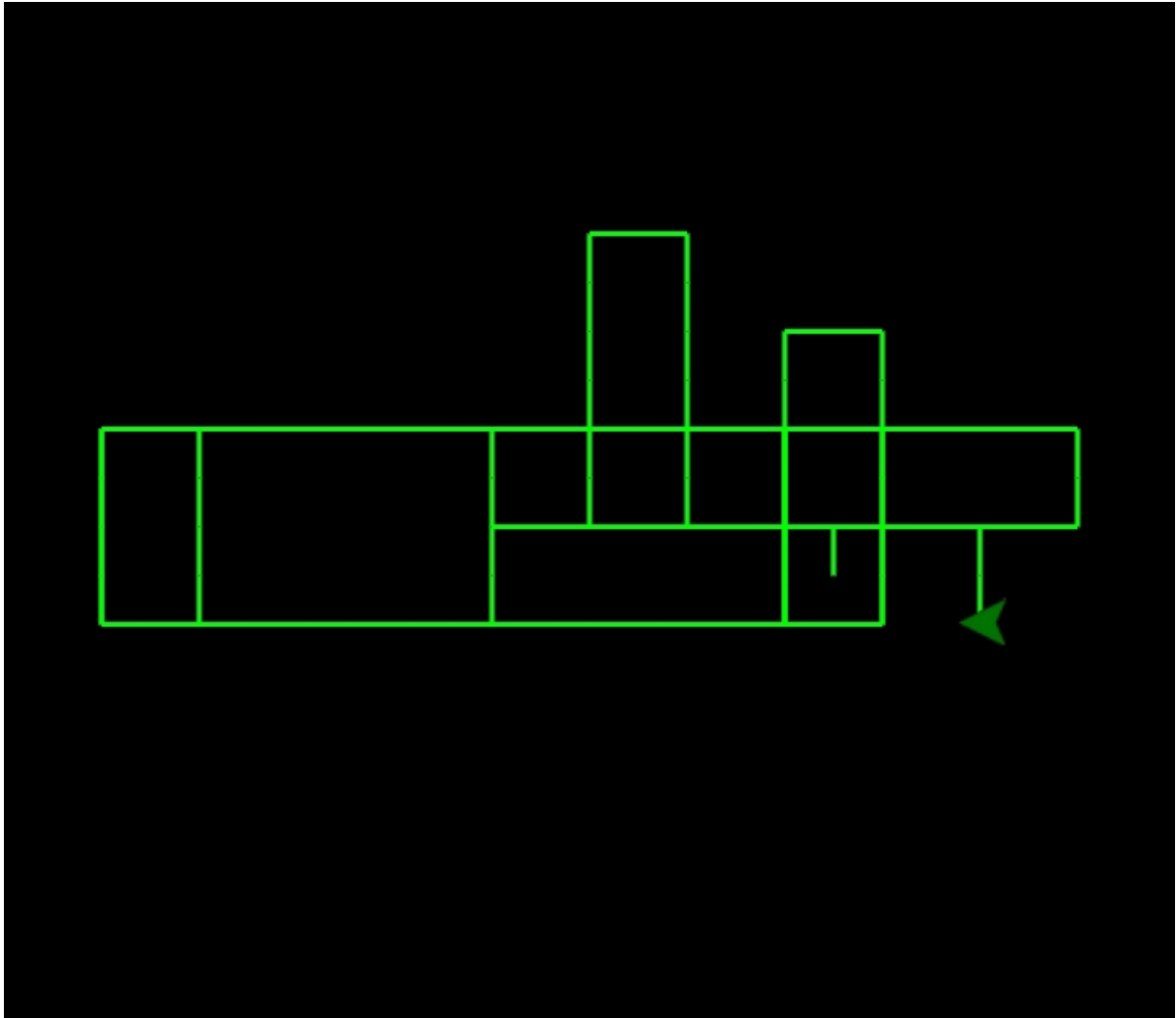


Since I type command manually I could do this upto 151. It would be fun to see what happens when consider more and more numbers.

For numbers till 100 this is what we get-

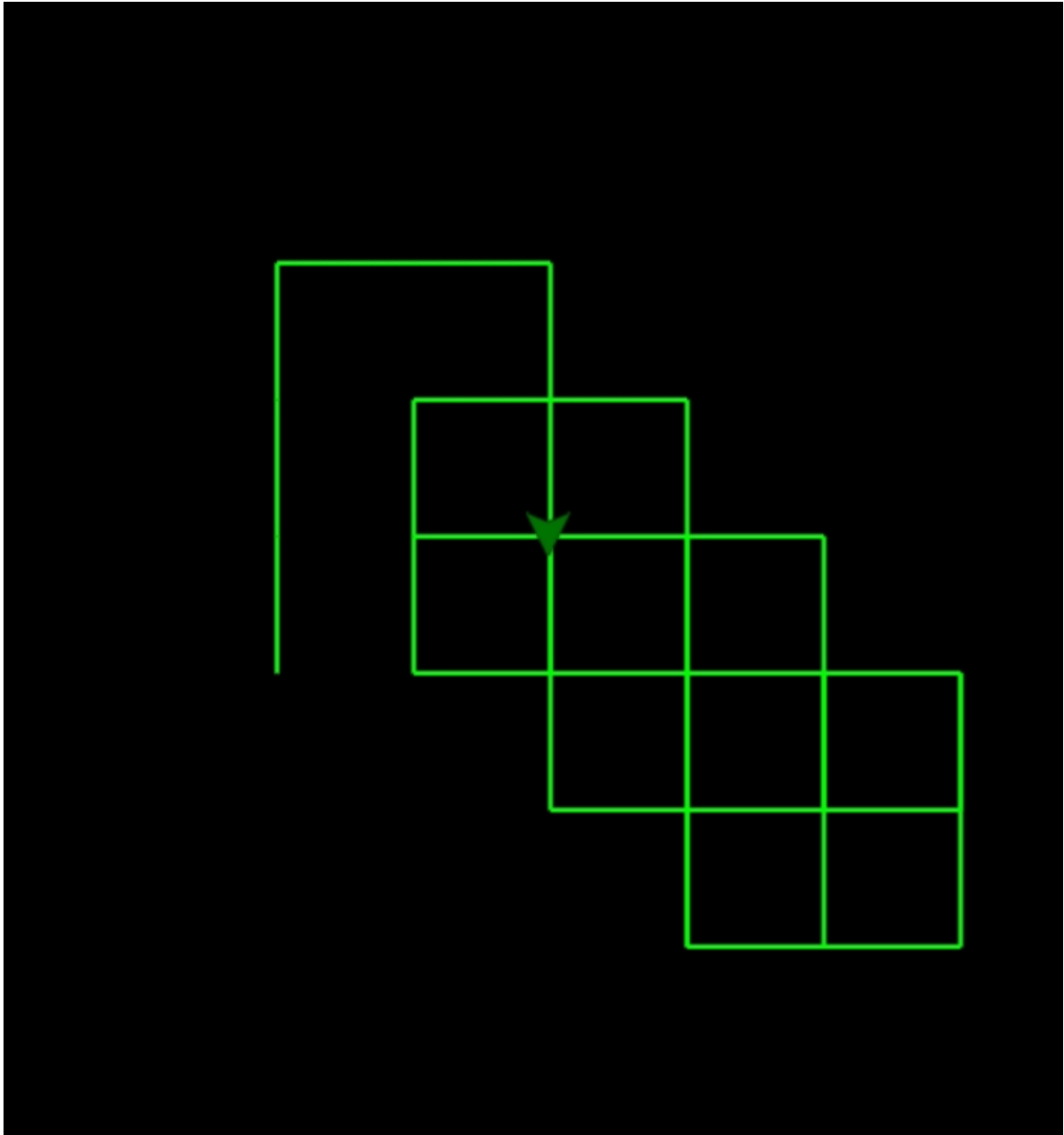


For numbers till 151 this is what we get: We see that How
The next primes overlap over certain primes and rotate And
Continue to trace a previous path.



There also seems to be a tendency of primes to build squares of 2×2 . Still there are a few questions unanswered. If we consider to interchange the commands I.e. to perform a turn towards right is given to consecutive numbers then we get the following:

This is pretty Amazing to see such patterns When a change of command is done. We see lots of 2×2 boxes and a very nice symmetry. This is for the first 50 digits.



3. Conclusion

I happen to make no guaranteed conclusions or predictive thoughts on the following patterns a more intense mathematical investigation is indeed needed.

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