

*Universal Sequence Of Primes Finding Algorithm {Version I}*

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## Abstract

In this research investigation, the author has presented a ‘*Universal Sequence Of Primes Finding Algorithm*’.

## Theory

Firstly, we consider a Set containing three known consecutive Primes starting from the beginning, namely 1, 2 and 3 (we consider 1 as Prime),

$$S_1 = \{1, 2, 3\}$$

We now write all possible arrangements of the elements of the set  $S_1 = \{1, 2, 3\}$  as different Sets

$$S_{11} = \{1, 2, 3\}$$

$$S_{12} = \{1, 3, 2\}$$

$$S_{13} = \{2, 3, 1\}$$

$$S_{14} = \{2, 1, 3\}$$

$$S_{15} = \{3, 1, 2\}$$

$$S_{16} = \{3, 2, 1\}$$

We now consider  $S_{13} = \{2, 3, 1\}$  and implement the following Scheme

$\{2, 3, 1\}$  which can be written as

$\{x, x+1, x-1\}$  we now normalize this set in the following fashion

$\left\{x, x + \frac{1}{x}, x - \frac{1}{x}\right\}$  which we re-write as

$\{x^2, x^2 + 1, x^2 - 1\}$  where, we have omitted the denominator.

We now substitute the value of  $x = 2$  and get

$$S_{13 \text{ POSSIBLE PRIMES MAP}} = \{4, 5, 3\}$$

Using author’s Primeness Test & Primeness Test {Version 5}, we find which among the  $S_{13 \text{ POSSIBLE PRIMES MAP}} = \{4, 5, 3\}$  are Prime.

We now consider each of the other 5 Sets i.e.,

$$S_{11} = \{1, 2, 3\}$$

$$S_{12} = \{1, 3, 2\}$$

$$S_{14} = \{2, 1, 3\}$$

$$S_{15} = \{3, 1, 2\}$$

$$S_{16} = \{3, 2, 1\}$$

and repeat the same procedure and possibly find any more primes. This gives us the new primes 5 and 7.

We now extend our Set by including these newly found Primes 5 and 7 and call it  $S_2 = \{1, 2, 3, 5, 7\}$

We now consider all possible 3 element subsets of  $S_2$ , say  $S_{2\text{SUBSET } i}$ , (i going from 1 to 10). These are  $C(5, 3)$  in number, (the number of ways of Selecting a group of 3 numbers among 5 numbers), i.e., 10 in number.

For each of these 10 Sub-Sets, we now write all possible arrangements of the elements in it and repeat the above detailed procedure to find more primes.

We now, again include these newly found primes to  $S_2 = \{1, 2, 3, 5, 7\}$  and call it  $S_3 = \{1, 2, 3, 5, 7\}$  and repeat the same procedure to find more Primes.

We keep repeating this procedure till we find all the Primes upto a Desired Limit.

### **Moral**

*The Fear Of Our Lord Is The Beginning Of Wisdom.*

### **References**

**Ramesh Chandra Bagadi**

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## ***Tribute***

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## ***Dedication***

*All of the aforementioned Research Works, inclusive of this One are **Dedicated to Lord Shiva.***