IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

TOTAL NUMBER OF PRIME LESS THAN OR EQUAL TO GIVEN N

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Abstract : Prime Numbers-total numbers of prime-less than or equal to a given number.

IndexTerms - **Prime numbers-finding out total number of primes, less than a given number-a novel method suggested.**

INTRODUCTION:

Prime numbers have intrigued many mathematicians all through the ages. The un even distribution of primes causes, great hurdles in finding out a analytical formula to calculate the number of primes less than or equal to a given number.
This may be illustrated by showing a small example. Considered the numbers upto 100 (N=100).

The prime numbers bellow or equql to N=100 are

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 51, 59, 61, 67, 71, 73,79, 83, 89, 97.

If we considered the difference of interval between two consecutive prime where n is equal to hundred it follows as :

1) No 2 to No3-1

2) 3to5-2

3)5to7-2

4)7to11-4

5)11to13-2

6)13to17-4

7)17to19-2

8)19to 23-4

9)29to29-2

10) 29to31-2

11) 31to37-6

12) 37to41-4

13) 41to43-2

14) 43to47-4

15) 47to51-4

16) 51to59-8

17) 61to67-2

18) 67to71-4

19)71to73-2

20)73to79-6

21)79to83-4

22)83to89-6

23)89to97-8

24)97to101-4

The above table use us a clear picture about the un even distribution of prime numbers.

In this paper we are going to overcome this hardships and going to establish a set of consciences that generates all primes less than or equal to a given number and a quantity of prime less than or equal to a given number.

HISTORY:

In his paper Tzanio.V.Kolav (Maths 618-project-May 2 2000) Quotes P Erdos, "It will take another million years at lest before we understand primes".

I do not agree with this statement of P Erdos. In my opinion prime numbers and there un even distribution etc or not beyond the reach of the understatnding capacity of human kind. In this paper , V Annatha Padmanabhan already explained how primes can be generated (IJNRD/ Volume Issue10th Month 20XXISSn-2456-4184/ IJNDR.ORG)

In the history of number theory, mathematics, primes attracted many great mathematicians like Equlid, Eulur, Gaus, Drichlet, Chellev, Reiman, Landing, Winner, Hardy and Erdus.

In the history the major discovery regarding the distribution of primes was made in 1949 by the Non Wegion mathematician, atlee sellberg. He discovered an arithmetical proof to prime number theorem, which fetch us him the famus field medal in 1950.

After wards many advances or being made to prime number theorem.

The theorem: $\varphi(x)=x/\log x$

Than several modifications and improvements have been made to the prime number theorem.

However in this paper i am not going to discuss about the prime number theorem, nor its proofs and further modification.

Instead of that i am going to suggest a totally new and novel method, a sets of functions etc, Which generates all the primes less than or equal to the given N, and gives us the total number of primes.

PART 2

Methodology to create all composites

There exists only 4 type of composites, they may be grouped together as sown below

1) α_1 T x α_1 T

2) α_2 T x α_2 T

3) α_2 T x α_1 T

4) α_2 T x α_2 T

Note : Here T means terms

Ie L1 means

{ 5, 11, 17, 23, 29, 35..... multiplied with} { 5, 11, 17, 23, 29, 35..... multiplied with}

Note: The symbol { } is used to separately to show the line.

OPERATION:

L1:

Q_1 5x5, 5x11, 5x17, 5x23, 5x29, 5x35....

Q_2 11x11, 11x17, 11x23....

Q_3 17x17, 17x23, 17x29....

Q_4 23x23, 23x29, 23x35....

Q_5 29x29, 29x35, 29x41....

.....

.....

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Ie

Q_1 25, 55, 85, 115, 145, 175....

Q_2 121, 187, 253....

Q_3 289, 391....

Q_4 529, 667....

Q_5 1225, 1435....

L2:

$\alpha_1 T$ x $\alpha_2 T$

{5, 11, 17, 23, 29, 35... multiplied with 7, 13, 19, 25, 31, 37....}

R_1 5x7=35, 5x13=65.....

R_2 11x13=143, 11x19=209...

R_3 17x19=323, 17x25=425...

R_4 23x25=575, 23x31=713...

R_5 29x31=899, 29x37=1073...

L3:

$\alpha_2 T$ x $\alpha_1 T$

{7, 13, 19, 25, 31... multiplied with 5,11, 17, 23...}

S_1 7x5=35, 7x11=77....

S_2 13x11=143, 13x17=221...

S_3 19x17=323, 19x23=437...

.....

L4:

$\alpha_2 T$ x $\alpha_2 T$

{7, 13, 19, 25, 31... multiplied with 7, 13, 19, 25, 31...}

V_1 7x7=49, 7x13=91...

V_2 13x13=169, 13x19=247...

V_3 19x19=361, 19x25=475...

Now all composites are get generated this is the model.

Now we know the total number of α sequence by using a formula n+1/6+n-1/6 and the total number of composites exists inside the given N by expanding the above said 4 type of composite number in the above said manner.

If we subtract the composites from the total number of α terms we will get the number of primes required. To represent the initial to primes ie 2,3we can add No 2 to the obtained results. The N to which the number of primes is warranted may be chosen at random.

COMMON POINTS:

Some times the same integer may find place in more than one place, in that case the exhibition of the first time alone may be taken into account. All other existence at the same integer may be ignored for example 5x7=35 and 7x5=35 the second time obtained value is ignored and the first time value is accounted. There are so many types of common points. As far as this problem is concerned such study of the common points in detailed is not at all necessary. Simply we are considering the first time alone.

PART 3

ILLUSTRATION

N=300

Q

Q_1 FN:25 D=30 25, 55, 85, 115, 145, 175, 205, 235, 265, 295 = 10

Q_2 FN:121 D=66 121, 187, 253 = 3

Q_3 FN:289 D=102 289 = 1

Total = 14

R

R_1 FN:35 D=30 35, 65, 95, 125, 155, 185, 215, 245, 275 = 9

R_2 FN:143 D=66 143, 209, 275 = 3

Total = 12

S

S_1 FN:35 D=42 35, 77, 119, 161, 203, 245, 287 = 5

S_2 FN:143 D=78 143, 221, 299 = 2

Total = 7

V

V_1 FN:49 D=42 49, 91, 133, 175, 217, 259 = 6

V_2 FN:169 D=78 169, 247 = 2

Total = 8

Next Step:

The Common points gets cancelled.

Now 14+12+7+8 = 41so there are

41 composites

Now 300+1/6 + 300-1/6 = 50+49

Next Step:

99-41 = 58+2 = 60

So φ(x) = 60

CONCLUSION

The above said system of calculating gives us the total number of primes less than or equal to give N. The work is concluded.

A part from this method no other method using α mathematical system will be more comber some and difficult. So i adopted this system.

Again the form of all composites namely Q,R,S,V are may be extended upto infinity both horizontally and vertically. The limit is decided by the give N.

The power of α^n is also included in the above said Q,R,S,V-groups. So most separate set to be prepared to calculate them.

Some personal notes:

Finally and personally speaking... I have started the works of finding the number of prime for the given N during the year 1987. Dr P Kaliyapan and my Daughter A Vidya Co authored with me for some time.

I and my daughter solved this questions using very very elementary techniques and submitted the result, In a book form to American Mathematical Society.

The book consists of some 500 Pages. The learned editor of AMS Dr David Dunne had suggested to me to abridge the results and to resubmit. It took me more than 30 Years to abridge results and now i has submitted the results in a form of research article to your journal. Its quite unfortunate that Dr Kaliayapan is no more and I alone worked this project now.

I acknowledge and wish to state my thanks to all of my friends and relatives to do this project – all this years.

REFERENCES

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