Day -21 of 101 days coding challenge

----------Sieve of Eratosthenes----------

- **Suppose we are going to find the prime number of the given Number**
- **According to this approach we are going to make one array till we want**
- **And divide with each prime number if it is divided then we mark it if not divided then unmark it , that unmark is a prime number.**

	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

According to the above's array we can start this process by 2 as it is first prime number here.

	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

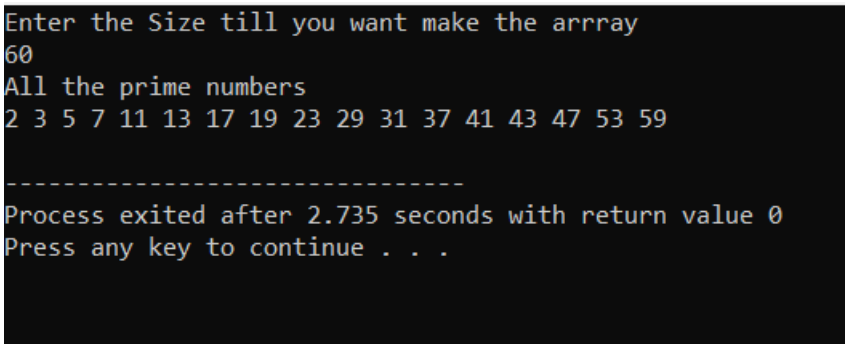
- **All the colored number is a non-prime number and remaining's is prime number.**

Code:

```
#include<iostream>


using namespace std;


int sieveEratosth(int n)
{
	int prime[100] = {0};  // initilize the array with zero (at the begining 0 will reflect to the all indexes)
	int i,j;
	for(i = 2; i<=n; i++) // i = 2 due to prime number starts from 2
	{
		if(prime[i] == 0) // if unmarked then
		{
			for(j = i*i; j<=n; j+=i)
			{
				prime[j] = 1; // here if found divisible from the ith number will marked as 1
			}
		}
	}
```

```
        // going tp print that number which has 0 (unmarked)
        for(i = 2; i<=n; i++)
        {
                if(prime[i] == 0)
                {
                        cout<<i<<" ";
                }
        }cout<<endl;
}

int main()
{
        int n;
        cout<<"Enter the Size till you want make the arrray"<<endl;
        cin>>n;

        // calling and passing the number into the function
        cout<<"All the prime numbers"<<endl;
        sieveEratosth(n);
        return 0;
}
```

Output:


Enter the Size till you want make the arrray
60
All the prime numbers
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59

Process exited after 2.735 seconds with return value 0
Press any key to continue . . .