// EratosthenesFindNumberAlgorithmApp.cpp : Defines the entry point for the console application.

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//Goal: Discover prime numbers in the range [0..n].

// Using Eratosthenes algorithm.

//Preprocessor Declarations

#include "stdafx.h"

#include <iostream>

using namespace std;

//Prototypes (Headers or Signatures)

int findNextUnmarkedValue(bool a[], int n, int startingPosition);

//Main Function

int main()

{

const int N = 30;

bool a[N + 1];

//initialization (all cells claim to be the candidate for prime)

for (int i = 0; i < N + 1; i++) a[i] = true;

int p = 2;

while (p\*p < N)

{

//disqualification

for (int i = 2 \* p; i < N + 1; i += p) a[i] = false;

//find next unmarked value

p = findNextUnmarkedValue(a, N, p);

}

//show results

for (int i = 2; i < N + 1; i++)

if (a[i]) cout << i << " ";//if (x == true) = if (x); as well if (x == false) = if (!x)

cout << "\nAll done!\n";

return 0;

}

//User-Defined Methods

int findNextUnmarkedValue(bool a[], int n, int startingPosition)

{

for (int i = startingPosition + 1; i < n; i++)

if (a[i]) return i;

return -1;

}

