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1 !PROBLEM 5
2 ! Name: Debasis Buxy
3 !PRN: 22020004154
4 !13/7/21
5 !generate first 200 prime numbers
6 program PRIMEGEN
7     implicit none
8     integer :: N, Nsqr, Cmax, I, D, C
9     logical :: FLAG
10
11     C=1
12     Cmax=200
13     N=2
14     write(*,*) "First 200 prime numbers: "
15     do
16         FLAG = .true.
17         !check if number is 2, 3 or 5
18         if ((N==2) .or. (N==3) .or. (N==5)) then
19             !divisibility by 2, 3, 5
20             else if ((mod(N,2) == 0) .or. (mod(N,3) == 0) .or. (mod(N,5) == 0)) then
21                 FLAG = .false.
22             else
23                 !divisibility by primes
24                 I = 5
25                 D = 2
26                 Nsqr = int(sqrt(real(N)))+1
27                 do
28                     I = I+D
29                     if (I>Nsqr) exit
30                     if (mod(N,I) == 0) then
31                         FLAG = .false.
32                         exit
33                     else
34                         D=6-D !alternate increment between 2 and 4
35                     end if
36                 end do
37             end if
38             if(FLAG) then
39                 !write(*,100) N !print vertically
40                 write(*,100, advance="no") N !print horizontally
41                 if (C == Cmax) exit !exit if count reaches 200
42                 C = C+1
43             end if
44             N=N+1 !increment N
45         end do
46     100 format(i0,' ')
47 end program PRIMEGEN

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