



VIT[®]

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

B. Tech. Semester 2020-2021

**SCHOOL OF COMPUTER SCIENCE ENGINEERING
(SCOPE)**

**MICROPROCESSOR
AND INTERFACING**

Experiment 14

**SHYAM
PIPALIA
19BCE1152**

AIM - To find prime numbers between 1 and n

Algorithm

1. Take n as input
2. Run a loop from i = n to 1. For each iteration, check if i divides n completely or not. If it does, then i is n's divisor
3. Keep a count of the total number of divisors of n
4. If the count of divisors is 2, then the number is prime, else composite

CODE

```
Data Segment
    ORG 0000
    primenum db 0ch dup(?)
Data Ends
Code Segment
    assume cs:code, ds:data
start:mov ax,data
    mov ds,ax
    mov dl,1 mov
    cx,0ch
    mov si,offset primenum
L1:mov bl,2
    add dl,1
    cmp dl,2je
    insert
    logic:mov ah,0
    mov al,dl
    div bl cmp
    ah,0je L1
    add bl,1
    cmp bl,al jb
    logic jmp
    insert
    insert:mov [si],dl
    inc si
    loop L1 mov
    ah,4chint 21h
Code Endsend
start
```

Manual Calculation

Number = 0c(12)

Prime numbers between 1 to 0c(12)

Therefor the prime numbers are:

Hexadecimal : 02 03 05 07 0B

Decimal : 2 3 5 7 11

Results

```
DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: ...
0765:002B 8814      MOV     [SI],DL
0765:002D 46             INC     SI
0765:002E E2DD      LOOP    000D
0765:0030 B44C      MOV     AH,4C
0765:0032 CD21      INT     21
0765:0034 04CE      ADD     AL,CE
0765:0036 9A1C041C20  CALL    201C:041C
0765:003B E504      IN      AX,04
0765:003D 0C44      OR      AL,44
0765:003F 64             DB      64
-G 0765:0032

AX=4C06 BX=0007 CX=0000 DX=0025 SP=0000 BP=0000 SI=000C DI=0000
DS=0764 ES=0754 SS=0763 CS=0765 IP=0032  NU UP EI PL NZ NA PE NC
0765:0032 CD21      INT     21
-D 0764:0000
0764:0000 02 03 05 07 0B 0D 11 13-17 1D 1F 25 00 00 00 00 .....%....
0764:0010 BB 64 07 8E D8 B2 01 B9-0C 00 BE 00 00 B3 02 80 .d.....
0764:0020 C2 01 80 FA 02 74 14 B4-00 8A C2 F6 F3 80 FC 00 .....t.....
0764:0030 74 EB 80 C3 01 38 C3 72-EE EB 00 88 14 46 E2 DD t....8.r....F..
0764:0040 B4 4C CD 21 04 CE 9A 1C-04 1C 20 E5 04 0C 44 64 .L.!.....Dd
0764:0050 20 7F 20 B4 1C 59 67 04-1C 04 4D 90 1C 04 10 44 . .Yg...M...D
0764:0060 60 20 8B D0 E9 20 7F 42-D9 21 12 04 C4 40 14 D5 ` . .B.!...e..
0764:0070 F5 04 C8 14 04 79 15 04-81 0E 44 32 04 06 43 98 .....y....DZ..C.
```