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Lab: 3

Question: 1

.MODEL SMALL

.STACK 100H

.DATA

b DB " ENTER NUM: $"

c DB "->MEAN: $"

.CODE

MAIN PROC

MOV AX,@DATA

MOV DS,AX

MOV CL, 01H

loop1:

;string print b

LEA DX, b

MOV AH,9

INT 21H

;Input taking

MOV AH,1

INT 21H

;Corresponding HEX

SUB AL, 30H

MOV CH, AL

INC CL

;Division

MOV BL, 02H

MOV AH, 00H

DIV BL

;comparing

CMP AH,00h

JE EVEN

CMP CL, 04H

JL loop1

JGE MEAN

EVEN:

ADD BH, CH

CMP CL, 04H

JL loop1

MEAN:

MOV AL, BH

MOV AH, 00H

MOV BX, 02H

DIV BL

MOV CL, AL

;output

LEA DX, c

MOV AH,9

INT 21H

MOV CH, 00H

ADD CL, 30H

MOV DL, CL

MOV AH, 2

INT 21H

JMP FINAL

FINAL:

MOV AH,4CH

INT 21H

MAIN ENDP

END MAIN

Question: 2

.MODEL SMALL

.STACK 100H

.DATA

b DB "ENTER NUM: $"

c DB "Good Morning $"

d DB "Good Afternoon $"

e DB "Good Night $"

.CODE

MAIN PROC

MOV AX,@DATA

MOV DS,AX

;string print b

LEA DX, b

MOV AH,9

INT 21H

;Input taking(Intput from 25-48H, means their Co-responding ASCII values, then converting it to 1-24H)

MOV AH,1

INT 21H

;Corresponding HEX

CMP AL, 34

JL minus24

JGE minus1E

minus24:

SUB AL, 24H

MOV BH, AL

minus1E:

SUB AL, 1EH

MOV BH, AL

CMP BH, 12H

JL GoodMorning

JGE AafterMorning

AafterMorning:

MOV AH, 2

MOV DX, 20H

INT 21H

CMP BH, 18H

JL GoodAfternoon

JGE GoodNight

GoodMorning:

MOV AH, 2

MOV DX, 20H

INT 21H

LEA DX, c

MOV AH,9

INT 21H

JMP FINAL

GoodAfternoon:

MOV AH, 2

MOV DX, 20H

INT 21H

LEA DX, d

MOV AH,9

INT 21H

JMP FINAL

GoodNight:

MOV AH, 2

MOV DX, 20H

INT 21H

LEA DX, e

MOV AH,9

INT 21H

JMP FINAL

FINAL:

MOV AH,4CH

INT 21H

MAIN ENDP

END MAIN

Question: 3

.MODEL SMALL

.STACK 100H

.DATA

num db ?

b db "Number: $"

c db "A Prime Number.$"

d db "Not a Prime Number.$"

.CODE

MAIN PROC

MOV AX, @DATA

MOV DS, AX

;input taking

LEA DX, b

MOV AH, 9

INT 21H

MOV AH, 1

INT 21H

SUB AL, 30H ;corresponding Hex Number

MOV num, AL

CMP num, 1

JLE NOTPRIME ; numbers <=1 are not primes such as 0 and 1

MOV CX,2

MOV AX,0

MOV DX,0

MOV AL,num

DIV CX

MOV CX,AX

PRIMEorNot:

CMP CX,1

JLE PRIME

MOV AX,0

MOV DX,0

MOV AL, num

DIV CX

DEC CX

CMP DX,0

JE NOTPRIME

JMP PRIMEorNot

PRIME:

;line break

MOV AH,2

MOV DL,0DH

INT 21H

MOV DL,0AH

INT 21H

LEA DX, c

MOV AH, 9

INT 21H

JMP Final

NOTPRIME:

;line break

MOV AH,2

MOV DL,0DH

INT 21H

MOV DL,0AH

INT 21H

LEA DX, d

MOV AH, 9

INT 21H

Final:

MOV AX, 4C00H

INT 21H

MAIN ENDP

END MAIN

Question: 4

.MODEL SMALL

.STACK 100H

.DATA

b DB "ENTER SIDE1: $"

c DB "ENTER SIDE2: $"

d DB "ENTER SIDE3: $"

e DB "Equilateral Triangle $"

f DB "Isosceles Triangle $"

g DB "Neither $"

.CODE

MAIN PROC

MOV AX,@DATA

MOV DS,AX

; FIrst input

LEA DX, b

MOV AH,9

INT 21H

MOV AH,1

INT 21H

SUB AL, 30H

MOV BL, AL

;2nd Input

MOV AH, 2

MOV DL, 0DH

INT 21h

MOV DL, 0AH

INT 21H

LEA DX, c

MOV AH,9

INT 21H

MOV AH,1

INT 21H

SUB AL, 30H

MOV BH, AL

;3rd Input

MOV AH, 2

MOV DL, 0DH

INT 21h

MOV DL, 0AH

INT 21H

LEA DX, d

MOV AH,9

INT 21H

MOV AH,1

INT 21H

SUB AL, 30H

MOV CH, AL

;End of input

CMP BH, BL ;checking 2 side

JE thirdSideEqualCheck1 ;if 2 sides are equal check for 3rd side

CMP BH, CH ;if BH!=BL then check if BH == CH

JE Iso ; BH != BL but BH == CH so, Isosceles Triangle

CMP BL, CH ; If BH != BL also BH != CH, then checking if BL == CH

JE Iso ; If BH != BL and BH != CH but BL == CH so, Isosceles Triangle

JMP Neither ; If BH != BL and BH != CH also BL != CH So, the triangle is neither equilateral nor isosceles

thirdSideEqualCheck1: ;3 sides are equal or not

CMP BH, CH

JE Eq

JMP ISO

Eq: ;Equilateral Triangle

MOV AH, 2

MOV DL, 0DH

INT 21h

MOV DL, 0AH

INT 21H

LEA DX, e

MOV AH,9

INT 21H

JMP FINAL

Iso: ;Isosceles Triangle

MOV AH, 2

MOV DL, 0DH

INT 21h

MOV DL, 0AH

INT 21H

LEA DX, f

MOV AH,9

INT 21H

JMP FINAL

Neither:

MOV AH, 2

MOV DL, 0DH

INT 21h

MOV DL, 0AH

INT 21H

LEA DX, g

MOV AH,9

INT 21H

JMP FINAL

FINAL:

MOV AH,4CH

INT 21H

MAIN ENDP

END MAIN