Lab Assessment – 3

Microprocessors and their interfacing

Question

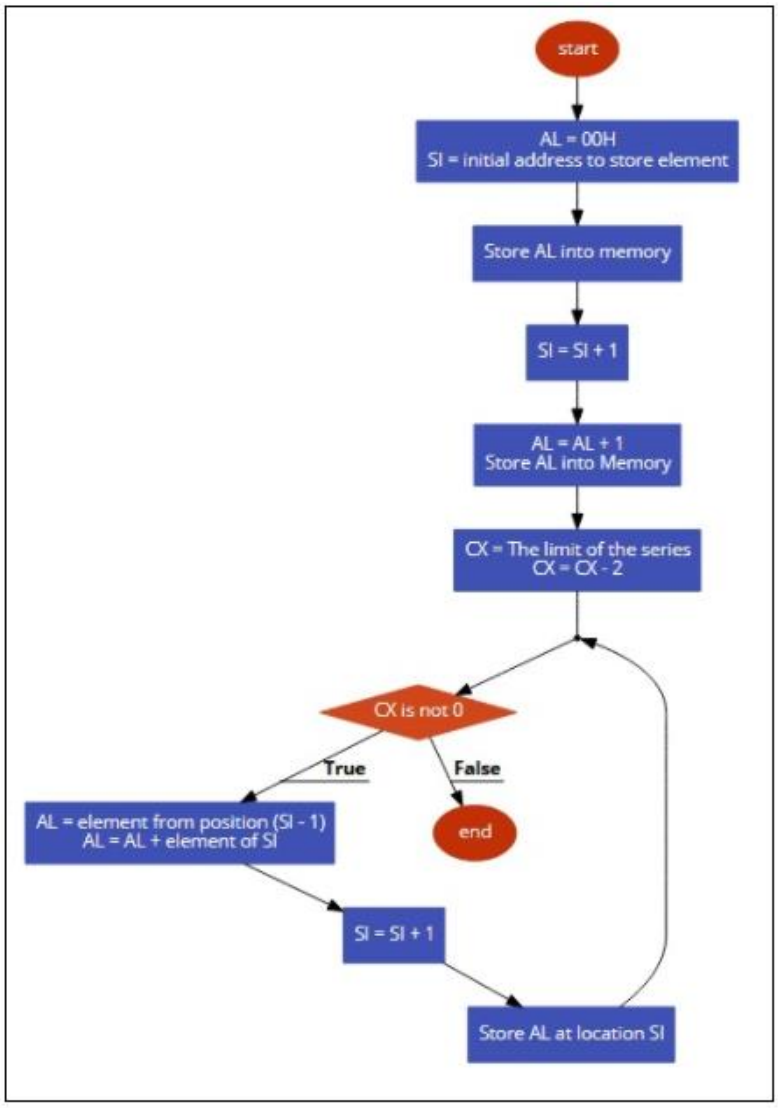
Write programs for the following

1. Check if palindrome
2. Generate the Fibonacci series
3. Find the Cube of a number
4. Check if number is positive or negative

Fibonacci series

AIM: To generate a Fibonacci series

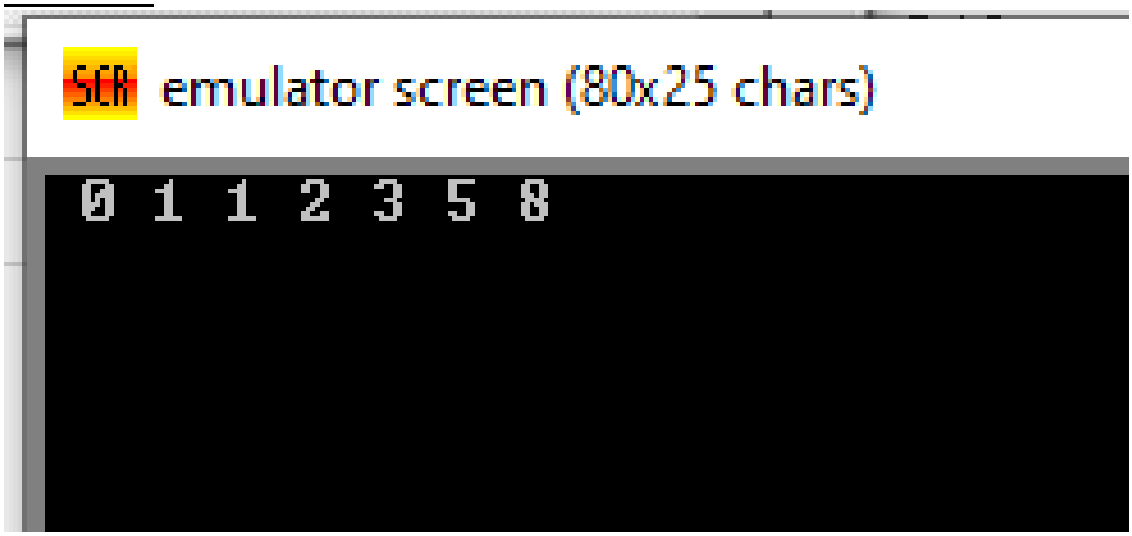
ALGORITHM



CODE

```
DATA SEGMENT
RES DB ?
COUNT DB 05H ; Initialize the counter for the no of Fibonacci No needed
DATA ENDS
CODE SEGMENT
START: MOV AX,DATA
MOV DS, AX
LEA SI, RES
MOV CL, COUNT ; Load the count value for CL for looping
MOV AX, 00H ; Default No
MOV BX, 01H ; Default No
;Fibonacci Part
L1: ADD AX ,BX
DAA ; Used to Present the value in Decimal Form
MOV [SI], AX
MOV AX, BX
MOV BX,[SI]
INC SI
LOOP L1
;MOV AH,09H
;INT 21H
EXIT:MOV AH,4CH
INT 21H
CODE ENDS
END START
```

OUTPUT



Registers

Palindrome checking

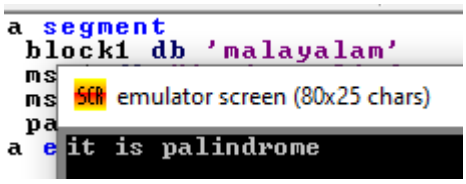
CODE

```
data segment
   block1 db 'malayalam'
   msg1 db "it is palindrome $"
   msg2 db "it is not a palindrome $"
   pal db 00h
data ends

print macro msg
   mov ah,09h
   lea dx,msg
   int 21h
   int 3h


endm
extra segment
   block2 db 9 dup(?)
extra ends

code segment
   assume cs:code,ds:data,es:extra
   start:mov ax,data
   mov ds,ax
   mov ax,extra
   mov es,ax
   lea si,block1
   lea di,block2+8
   mov cx,00009h
   back:cld
   lodsb
   std
   stosb
   loop back
   lea si,block1
   lea di,block2
   mov cx,00009h
   cld
   repz cmpsb
   jnz skip
   lea dx,msg1

   mov ah,09h
   int 21h
   mov ax,4ch
   int 21h
   skip:lea dx,msg2

   mov ah,09h
```

```
    int 21h
    mov ah,4ch
    int 21h

    code ends
end start
```

OUTPUT (ARSHDEEP)

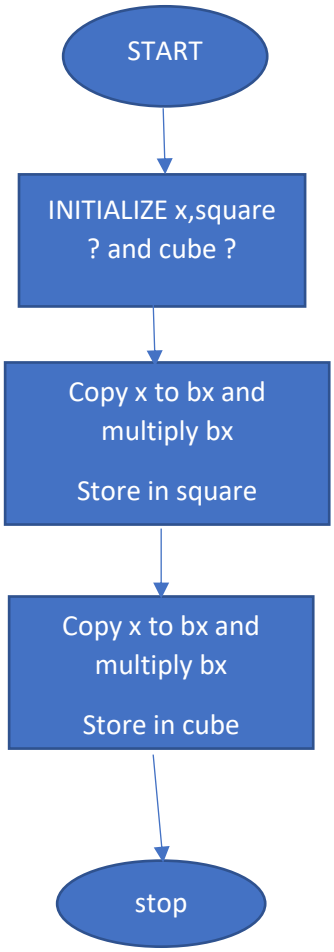
OUTPUT (MALAYALAM)



Square/Cube of a number

AIM: to find the square and cube of a given number

ALGORITHM

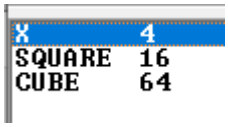


CODE

```
;19BCB0086 CUBE
DATA SEGMENT
   X DW 04H
   SQUARE DW ?
   CUBE DW ?
DATA ENDS

CODE SEGMENT
   ASSUME CS:CODE,DS:DATA
   START:MOV AX,DATA
   MOV DS,AX
   MOV AX,X
   MOV BX,X
   MUL BX
   MOV SQUARE,AX
```

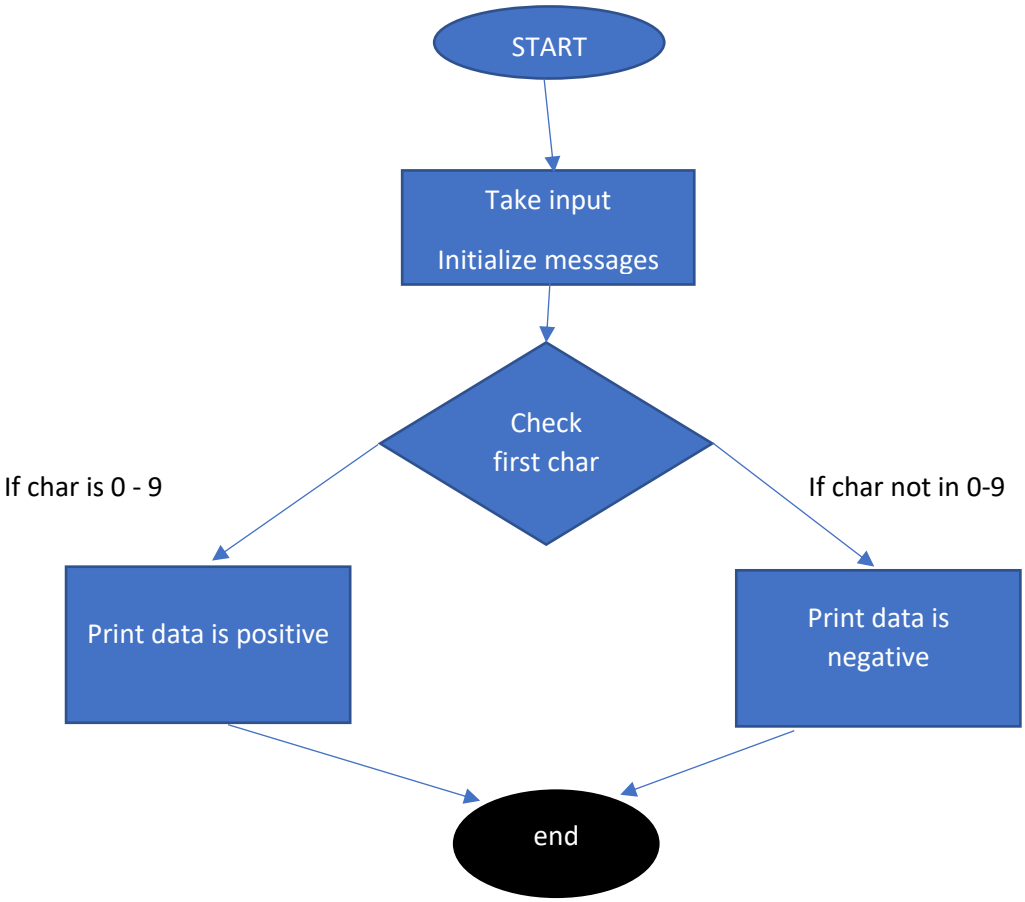
```
   MUL BX
   MOV CUBE,AX
   MOV AH,4CH
   INT 21H
   CODE ENDS
END START
```

OUTPUT



Is the number positive or negative?

ALGORITHM



CODE

```
;19BCB0086

org 100h
.model small
.data
   NUM DB 0F4H
   msg1 db 10,13,'Enter number: $'
   MES1 DB 10,13,'DATA IS POSITIVE $'
   MES2 DB 10,13,'DATA IS NEGATIVE $'
.code
main proc
      MOV AX,@data
      MOV DS,AX
      MOV DX,OFFSET msg1
      mov ah,9
      int 21h
      mov ah,2
      int 21h
      mov bl,al
      mov cl,30h
      cmp bl,cl

      jg positive
      jl negative

      positive:
      lea dx,MES1
      mov ah,9
      int 21h
      mov ah,4ch
      int 21h
      negative:
      lea dx,MES2
      mov ah,9
      int 21h
      mov ah,4ch
      int 21h
main endp
ret
```

OUTPUT