



VIT[®]

Vellore Institute of Technology

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

Microprocessors and Interfacing

(CSE – 3002)

LABFAT

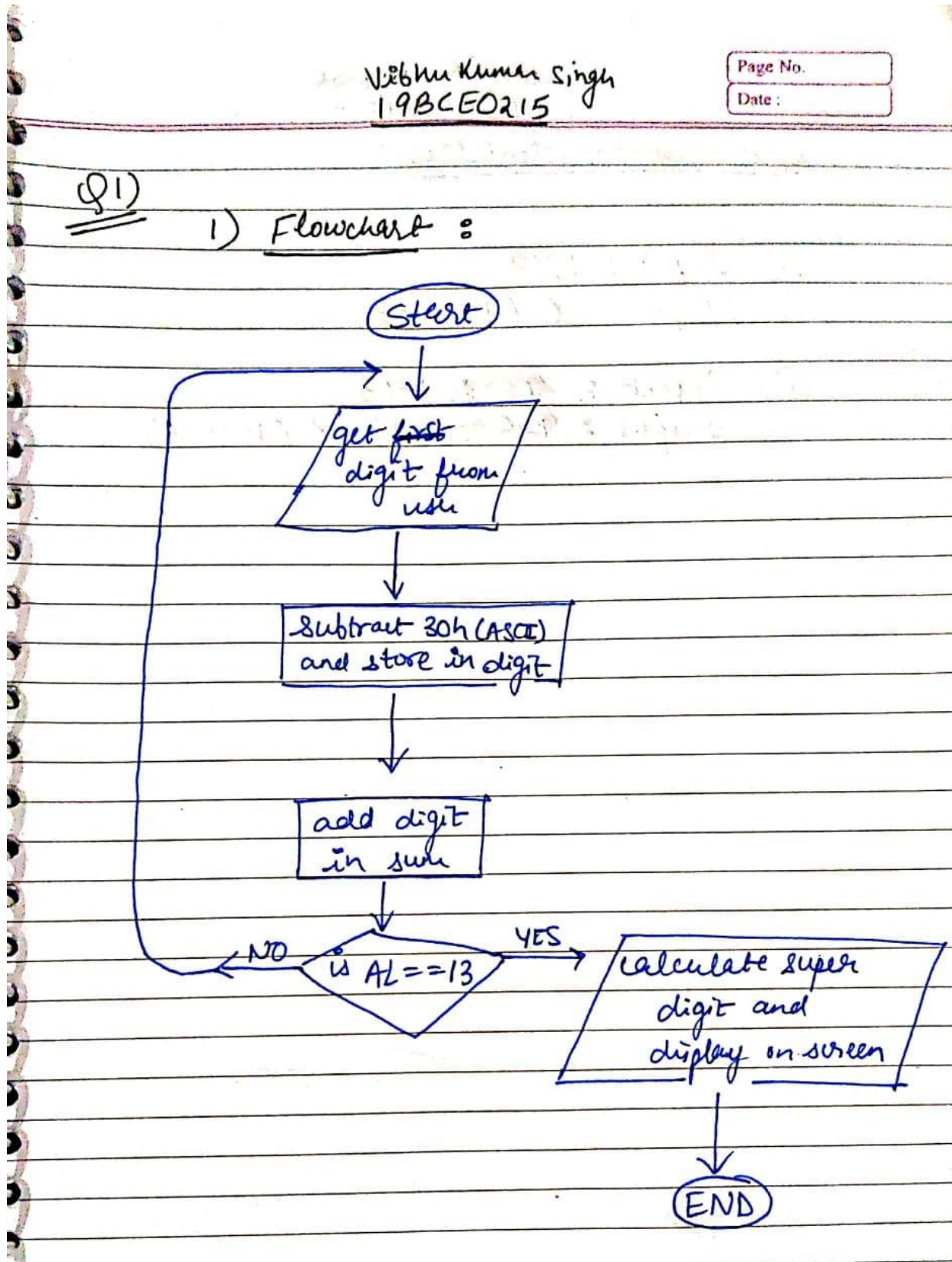
Name: **Vibhu Kumar Singh**

Reg. No: **19BCE0215**

Teacher: **Mr. Konguvel E.**

1. Write and execute ALP to prompt the user to input a three digit integer to perform and display its 'Super Digit'. [Super Digit of integer 456 is $4+5+6 = 15$] Example: Three Digit Integer: 456 Super Digit: 15

Ans 1)



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2) Handwritten Calculations :

(i) Input : 123
Output : 6 (1+2+3)

(ii) Input : ~~123~~ 143
Output : ~~6~~ 8 (1+4+3)

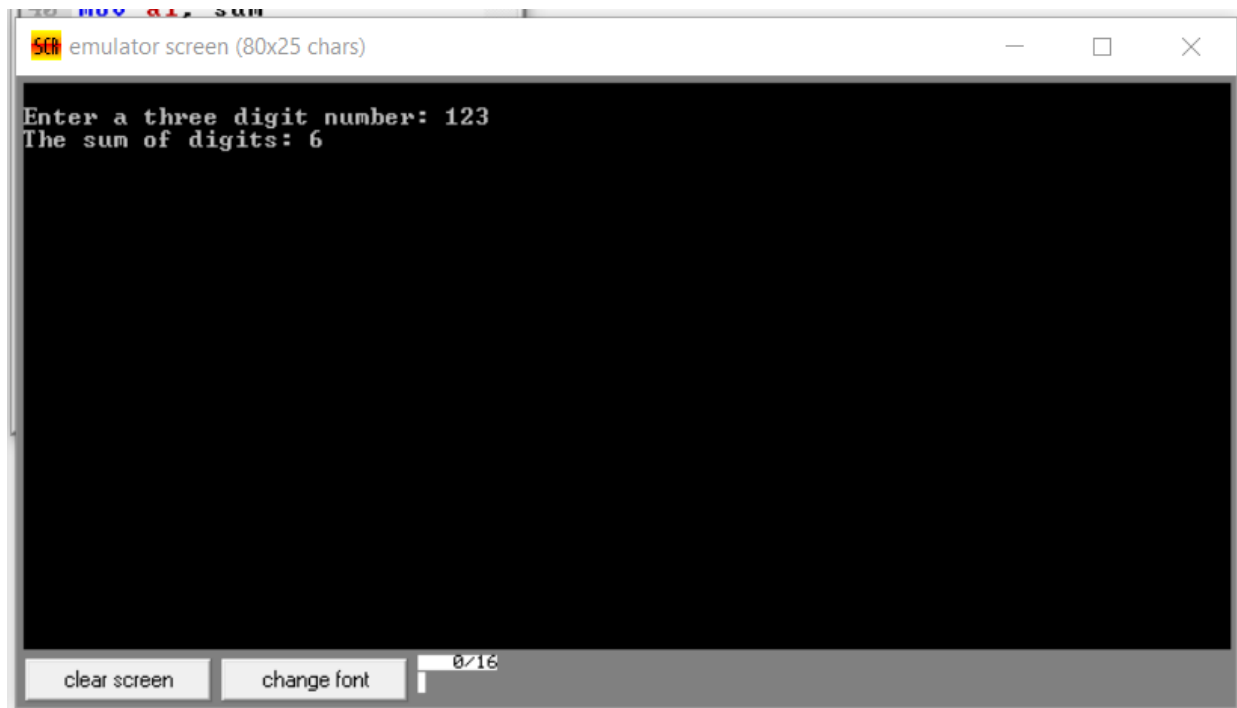
CS Scanned with CamScanner

Screenshot of ALP:

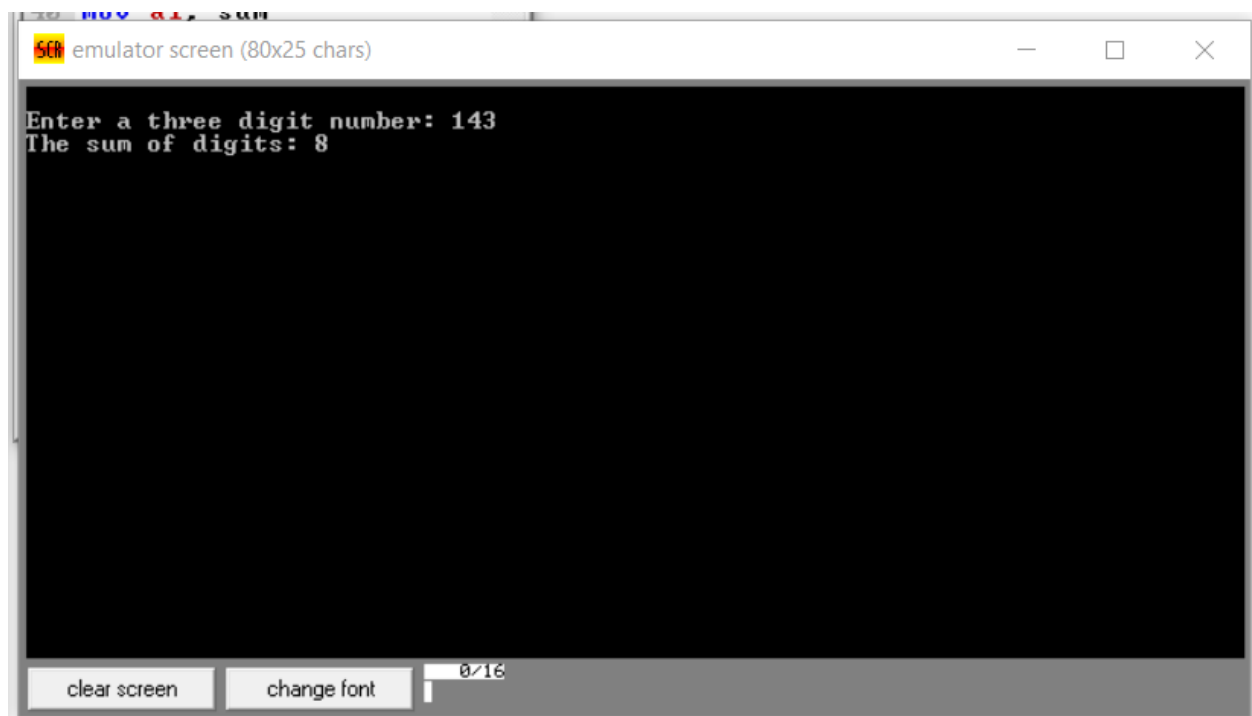
```
01 ;Vibhu Kumar Singh 19BCE0215
02
03 .model small
04 .stack 100h
05 .data
06 msg1 db 10,13,"Enter a three digit number: $"
07 msg2 db 10,13,"The sum of digits: $"
08 digit db 0
09 sum db 0
10
11 .code
12 start:
13     mov ax, @data
14     mov ds, ax
15
16     lea dx, msg1
17     mov ah, 09h
18     int 21h
19
20 read:
21     mov ah, 01
22     int 21h
23
24     cmp al, 13
25     je calculate
26
27     mov digit, al
28     sub digit, 30h
29
30     mov al, sum
31     mov bl, 10d
32     mul bl
33
34     mov ah, 0
35     add al, digit
36     mov sum, al
37     jmp read
38
39 calculate:
40     mov al, sum
41     aas
42     mov cl, al
43     mov al, ah
44     aas
45     add al, ah
46     add al, cl
47     mov bl, al
48     add bl, 30h
49     lea dx, msg2
50     mov ah, 09h
51     int 21h
52     mov dl, bl
53     mov ah, 02
54     int 21h
55     mov ah, 4ch
56     int 21h
57 end start
```

OUTPUT:

- i. Input: 123
Output: 6



- ii. Input: 143
Output: 8



2. Write and execute ALP that takes a string (from user or from memory) and display number of vowels present in the string. Example: String: 'Good Day'. No. of Vowels: 3

Ans 2)

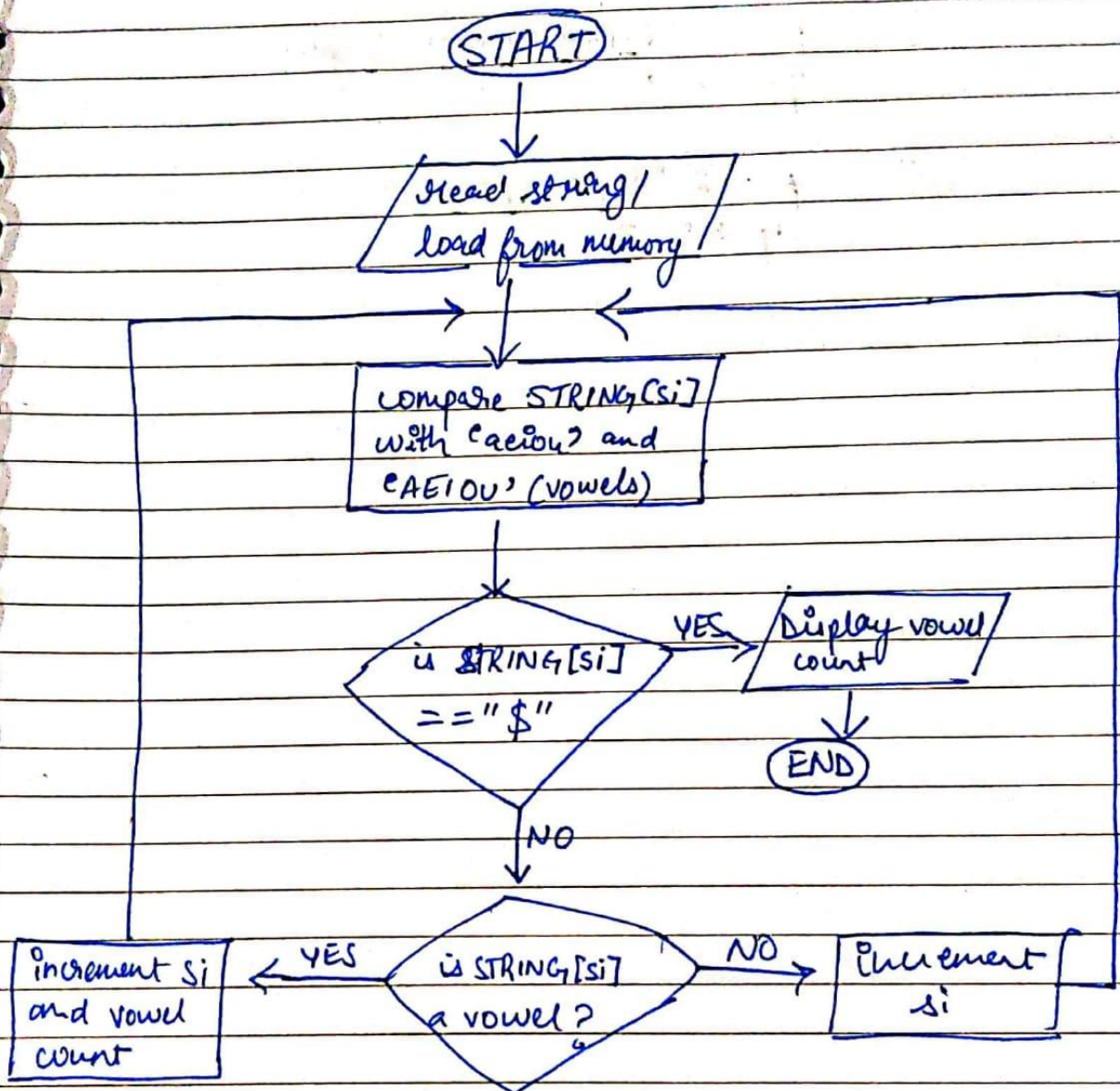
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Q2)

1) Flowchart :



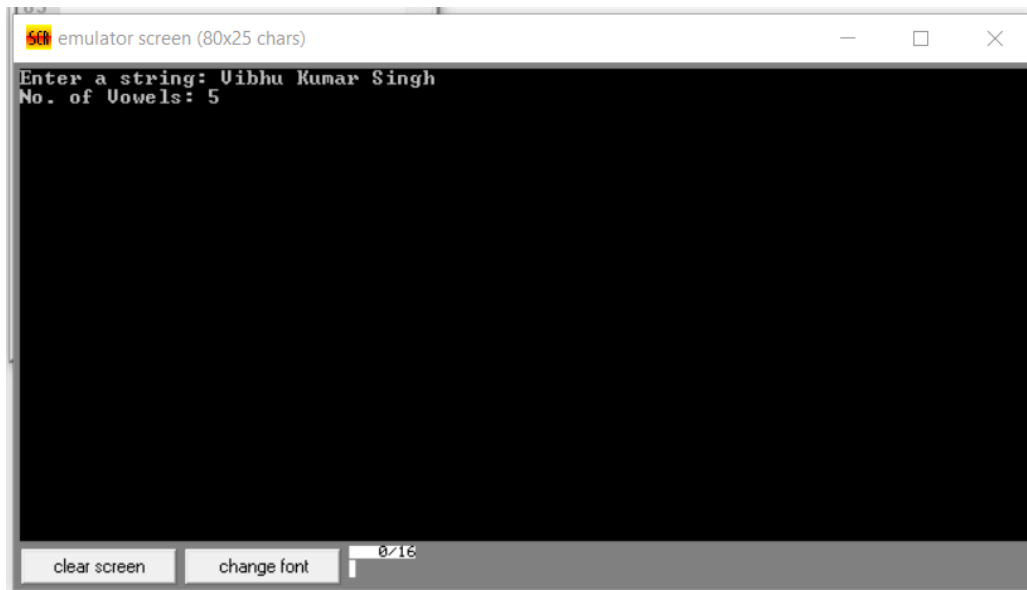
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(i) input : "Vibhu Kumar Singh"
output : 5

(ii) Input : "VIT Vellore"
Output : 3

OUTPUT:

- i. Input: "Vibhu Kumar Singh"
Output: 5



- ii. Input: "VIT Vellore"
Output: 3

