

MAWLANA BHASHANI SCIENCE AND TECHNOLOGY UNIVERSITY

SANTOSH, TANGAIL-1902



DEPARTMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY

Course Title: Microprocessor and Embedded System Lab

Course Code: ICT-2204

Experiment Name: Problem Solving with Assembly Language - III

Lab Report No: 04

Submitted By	Submitted To
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Date of Performance: 04/12/2024

Date of Submission: 11/12/24

Experiment no: 04

Experiment name: Problem Solving with Assembly Language – III

Program 1: Ax and Bx contain signed numbers. A program to put the biggest one in Cx.

Code:

```
.model small
.stack 100h
.data
m1 db 'Kuldip Saha Mugdha IT22018',0ah,0dh,'$'

.code
main proc
mov ax,@data
mov ds,ax

mov ah,9
lea dx,m1
int 21h

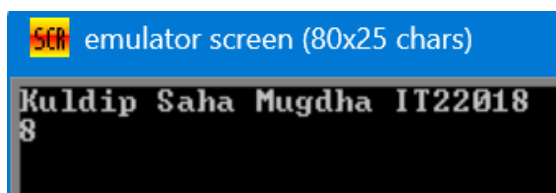
mov ax,4
mov bx,8

cmp ax,bx
jg Label1
mov cx,bx
add cx,48

mov ah,2
mov dx,cx
int 21h
jmp Exit

Label1:
mov cx,ax
add cx,48
mov ah,2
mov dx,cx
int 21h
|
Exit:
mov ah,4ch
int 21h
main endp
end main
```

Output:



```
SCR emulator screen (80x25 chars)
Kuldip Saha Mugdha IT22018
8
```

Program 2: AL and BL contain extended ASCII characters. A program to display the one that comes first in the character sequence.

Code:

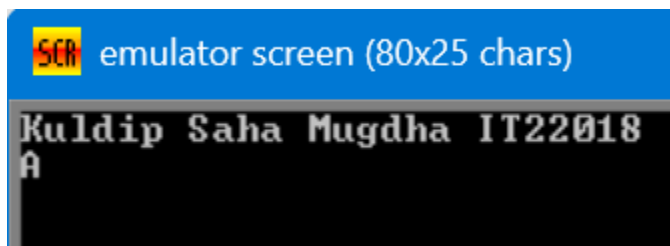
```
.model small
.stack 100h
.data
m db 'Kuldip Saha Mugdha IT22018',0ah,0dh,'$'
.code
main proc
mov ax,@data
mov ds,ax

mov ah,9
lea dx,m
int 21h

mov al,'A'
mov bl,'B'

cmp al,bl
jl level
mov ah,2
mov dl,bl
int 21h
jmp return
level:
mov ah,2
mov dl,al
int 21h
jmp return
return:
mov ah,4ch
int 21h
main endp
end main
```

Output:



Program 3: If AX contains a negative number, put -1 In BX; if AX contains 0, put 0 In BX; if AX contains a positive number, put 1 In BX.

Code:

```
.model small
.stack 100h
.data
m db 'Kuldip Saha Mugdha IT22018',0ah,0dh,'$'
main proc
mov ax,@data
mov ds,ax

mov ah,9
lea dx,m
int 21h

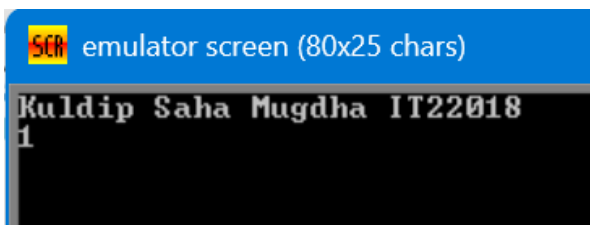
mov ax,1
cmp ax,0
je zero
jg positive
jl negative

zero:
mov ah,2
mov dx,0
add dx,48
int 21h
jmp return

positive:
mov ah,2
mov dx,1
add dx,48
int 21h
jmp return

negative:
mov ah,2
mov dx,045
int 21h
mov dx,1
add dx,48
int 21h
jmp return;
|
return:
mov ah,4ch
int 21h
main endp
end main
```

Output:



```
emulator screen (80x25 chars)
Kuldip Saha Mugdha IT22018
1
```

Program 4: A program which display “o” if AL contains 1 or 3; if AL contains 2 or 4, display “e”.

Code:

```
.model small
.stack 100h
.data
m db 'Kuldip Saha Mugdha IT22018',0ah,0dh,'$'
.code
main proc
mov ax,@data
mov ds,ax

mov ah,9
lea dx,m
int 21h

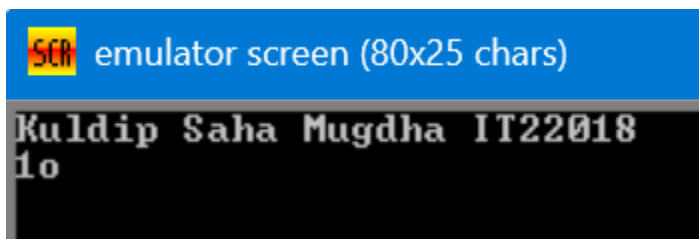
mov ah,1
int 21h
cmp al,'1'
je odd
cmp al,'3'
je odd
cmp al,'2'
je even
cmp al,'4'
je even
jmp return

odd:
mov ah,2
mov dl,'o'
int 21h
jmp return

even:
mov ah,2
mov dl,'e'
int 21h
jmp return

return:
mov ah,4ch
int 21h
main endp
end main
```

Output:



```
SCR emulator screen (80x25 chars)
Kuldip Saha Mugdha IT22018
1o
```

Program 5: A program which read a character, and if it's an uppercase letter, display it.

Code:

```
.model small
.stack 100h
.data
m db 'Kuldip Saha Mugdha IT22018', 0ah, 0dh, '$'
n1 db 0ah,0dh,'Not An Uppercase Letter $'
.code
main proc
mov ax, @data
mov ds, ax

mov ah, 9
lea dx, m
int 21h

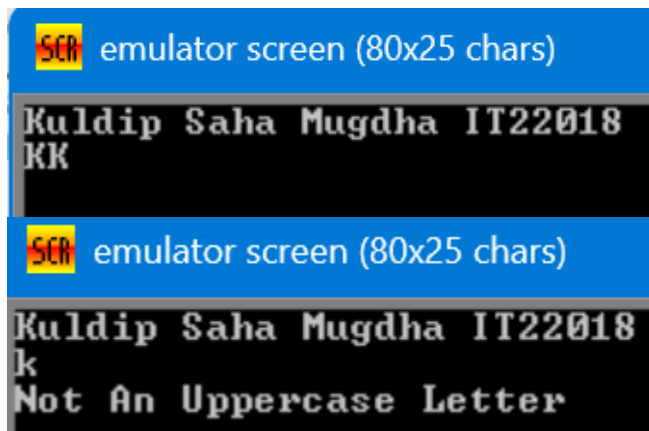
mov ah, 1
int 21h
cmp al, 'A'
jl na
cmp al, 'Z'
jg na

mov ah, 2
mov dl, al
int 21h
jmp return

na:
lea dx, n1
mov ah, 9
int 21h

return:
mov ah, 4ch
int 21h
main endp
end main
```

Output:



Program 6: A program which read a character. If it's "y" or "Y", display it; otherwise terminate the program.

Code:

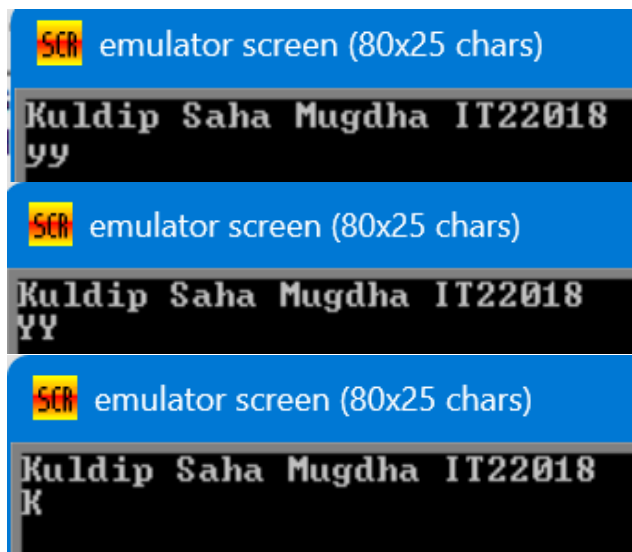
```
.model small
.stack 100h
.data
m db 'Kuldip Saha Mugdha IT22018', 0ah, 0dh, '$'
.code
main proc
mov ax, @data
mov ds, ax

lea dx, m
mov ah, 9
int 21h

mov ah, 1
int 21h
cmp al, 'y'
je display
cmp al, 'Y'
je display
jmp return

display:
mov ah, 2
mov dl, al
int 21h
|
return:
mov ah, 4ch
int 21h
main endp
end main
```

Output:



Program 7: A program to display a row of 80 stars by using count-controlled loop.

Code:

```
.model small
.stack 100h
.data
m1 db 'Kuldip Saha Mugdha IT22018',0ah,0dh,'$'
.code
main proc
mov ax,0data
mov ds,ax

mov ah,9
lea dx,m1
int 21h

mov cx,80
Loop:
cmp cx,0
je Exit
mov ah,2
mov dl,'*'

int 21h
sub cx,1;
jmp Loop

Exit:
mov ah,4ch
int 21h
main endp
end main
```

Output:



```
emulator screen (80x25 chars)
Kuldip Saha Mugdha IT22018
*****
```


Program 8: A program to read characters until a blank is read.

Code:

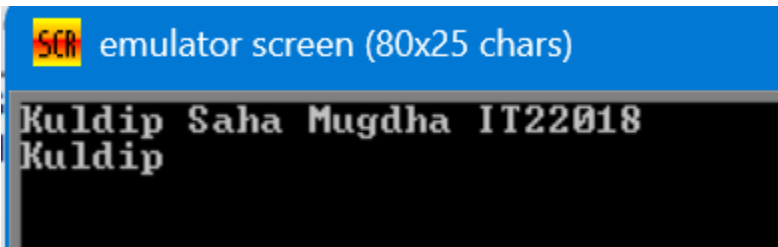
```
.model small
.stack 100h
.data
m1 db 'Kuldip Saha Mugdha IT22018',0ah,0dh,'$'
.code
main proc
mov ax,@data
mov ds,ax

mov ah,9
lea dx,m1
int 21h

loop:
mov ah,1
int 21h
cmp al,' '
je Exit
jmp loop

Exit:
mov ah,4ch
int 21h
main endp
end main
```

Output:



```
SCR emulator screen (80x25 chars)
Kuldip Saha Mugdha IT22018
Kuldip
```