Uttara University

Excellence in Higher Education and Research

Department of CSE

Lab Report 03

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Submitted to:

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Lecturer, Microprocessor Assembly Programming, UU

Problem Statement:

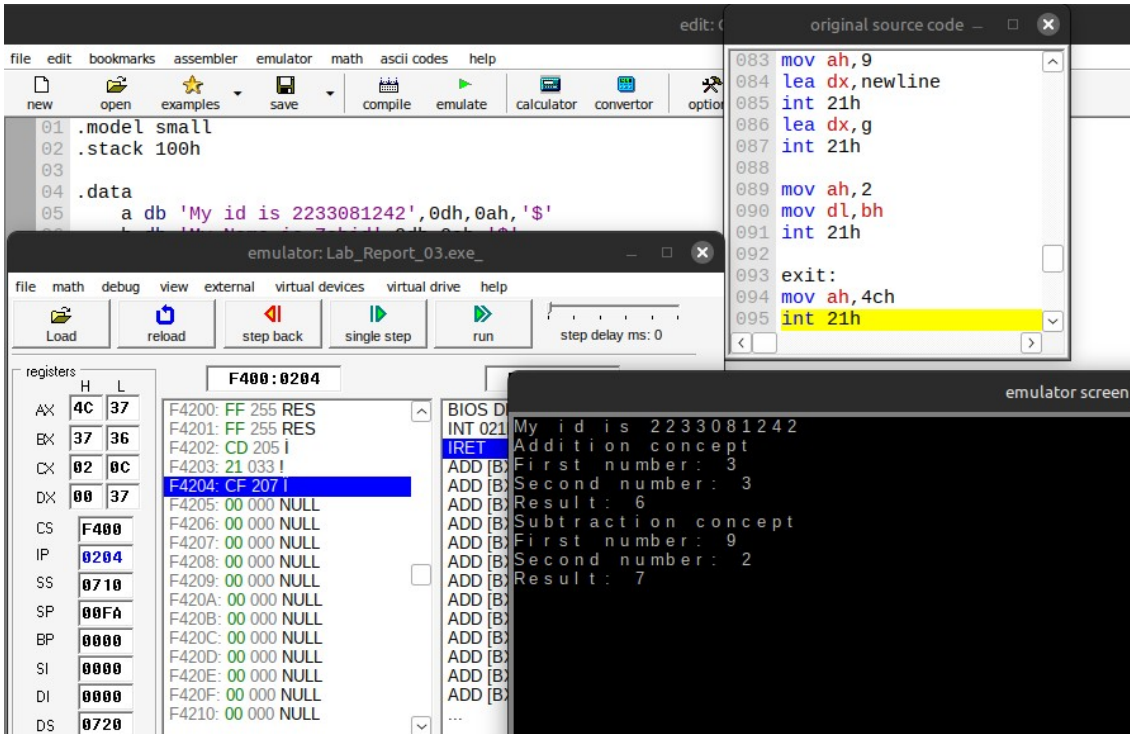
Write an assembly language program that performs the following operations:

1. Declare variable strings which contains your name, your id, Addition concept, Subtraction concept, First number, Last number and Result.
2. Print the id and jump skip name to addition.
4. Take two inputs and print their addition
5. Take two inputs and print their subtraction

Code:

```
.model small
.stack 100h
.data
    a db 'My id is 2233081242',0dh,0ah,'$'
    b db 'My Name is Zahid',0dh,0ah,'$'
    c db 'Addition concept',0dh,0ah,'$'
    d db 'First number: $'
    e db 'Second number: $'
    f db 'Subtraction concept',0dh,0ah,'$'
    g db 'Result: $'
    newline db 0dh, 0ah, '$'

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

    mov ah,9
    lea dx,a
    int 21h
    jmp addition

    lea dx,b
    int 21h

    addition:
    lea dx,c
    int 21h
    lea dx,d
    int 21h

    mov ah,1
    int 21h
    mov bl,al

    mov ah,9
    lea dx,newline
    int 21h
    lea dx,e
    int 21h

    mov ah,1
    int 21h
    add bl,al
    sub bl,'0'

    mov ah,9
    lea dx,newline
    int 21h
    lea dx,g
    int 21h

    mov ah,2
    mov dl,bl
    int 21h

    mov ah,9
    lea dx,newline
    int 21h

    lea dx,f
    int 21h
    lea dx,d
    int 21h

    mov ah,1
    int 21h
    mov bh,al

    mov ah,9
    lea dx,newline
    int 21h
    lea dx,e
    int 21h

    mov ah,1
    int 21h
    sub bh,al
    add bh,'0'

    mov ah,9
    lea dx,newline
    int 21h
    lea dx,g
    int 21h

    mov ah,2
    mov dl,bh
    int 21h

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

Output:



Discussion:

Our following code creates a program that first creates some variables named a, b, c, d, e, f, g, newline which has my ID, nickname and some strings stored into it.

First we print my id with newline by loading the effective address into dx. After that we perform a jump operation to skip the print of my name and start the addition operation.

In the addition operation we first print the string having “First number” and take a user input and store it in the register bl. After that we print the string having “Second number” and take another user input and add it to the previously stored value of bl. And to get the correct answer we subtract the value of character ‘0’ from it. Then we print the string “Result” and print the calculated addition.

In the subtraction operation we first print the string having “First number” and take a user input and store it in the register bh. After that we print the string having “Second number” and take another user input and subtract it from the previously stored value of bh. And to get the correct answer we add the value of character ‘0’ in it. Then we print the string “Result” and print the calculated subtraction.

For printing newline we created a variable named newline and stored 0dh, 0ah, '$' in it which prints a newline when we try to print it as a string. We have also added 0dh, 0ah at the end of the strings who doesn’t need any input line afterward.