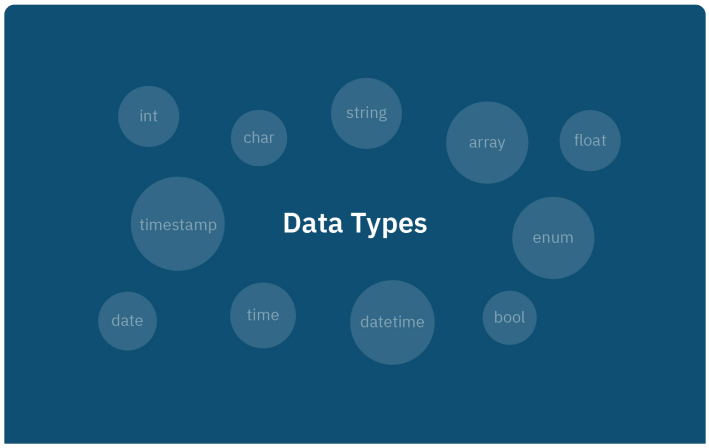
Get started with Datatypes in C



In computer science and computer programming, a data type (or simply type) is a set of possible values and a set of allowed operations on it. A data type tells the compiler or interpreter how the programmer intends to use the data. Most programming l... Read more

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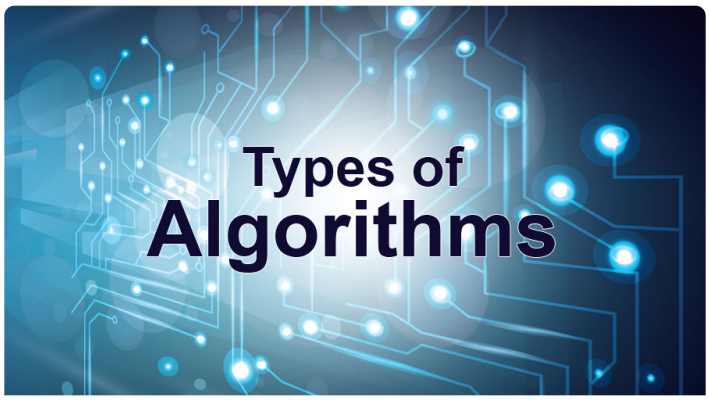
Introduction to Algorithm in C



In mathematics and computer science, an algorithm is a finite sequence of rigorous instructions, typically used to solve a class of specific problems or to perform a computation.Algorithms are used as

specifications for performing calculations and d...
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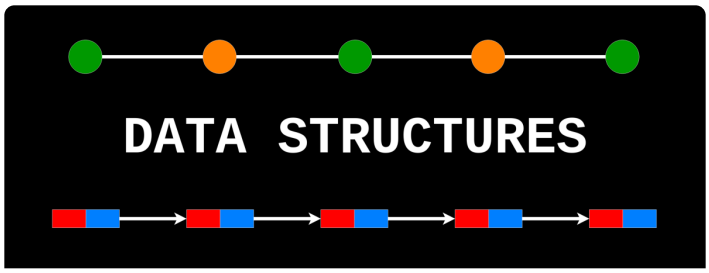
Introduction to Data Structure in C



A data structure is a specialized format for organizing, processing, retrieving and storing data. There are several basic and advanced types of data structures, all designed to arrange data to suit a specific purpose. Data structures make it easy for... Read more

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Introduction to Array in C

An array is a collection of items of same data type stored at contiguous memory locations.This makes it easier to calculate the position of each element by simply adding an offset to a base value, i.e., the memory location of the first

element of the... Read more

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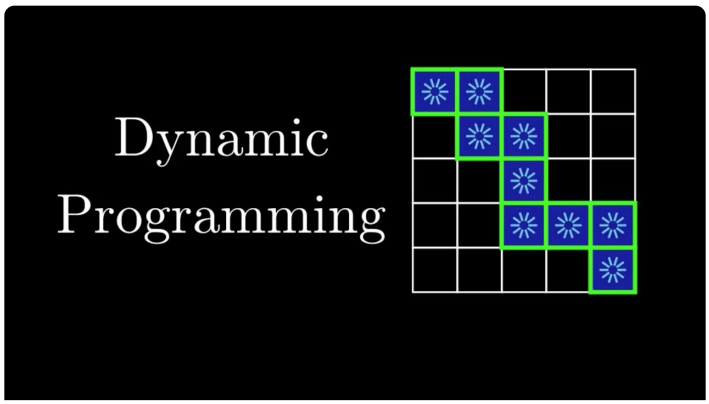
Indroduction to Dynamic Programming



Dynamic Programming is mainly an optimization over plain recursion. Wherever we see a recursive solution that has repeated calls for same inputs, we can optimize it using Dynamic Programming. The idea is to simply store the results of subproblems, so... Read more

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Jahangirnagar University (JU)

Institute of Information Technology

Lab Report-4

Assembly Language

Name: Abier Farzana Hoque **Class Roll:** 1980

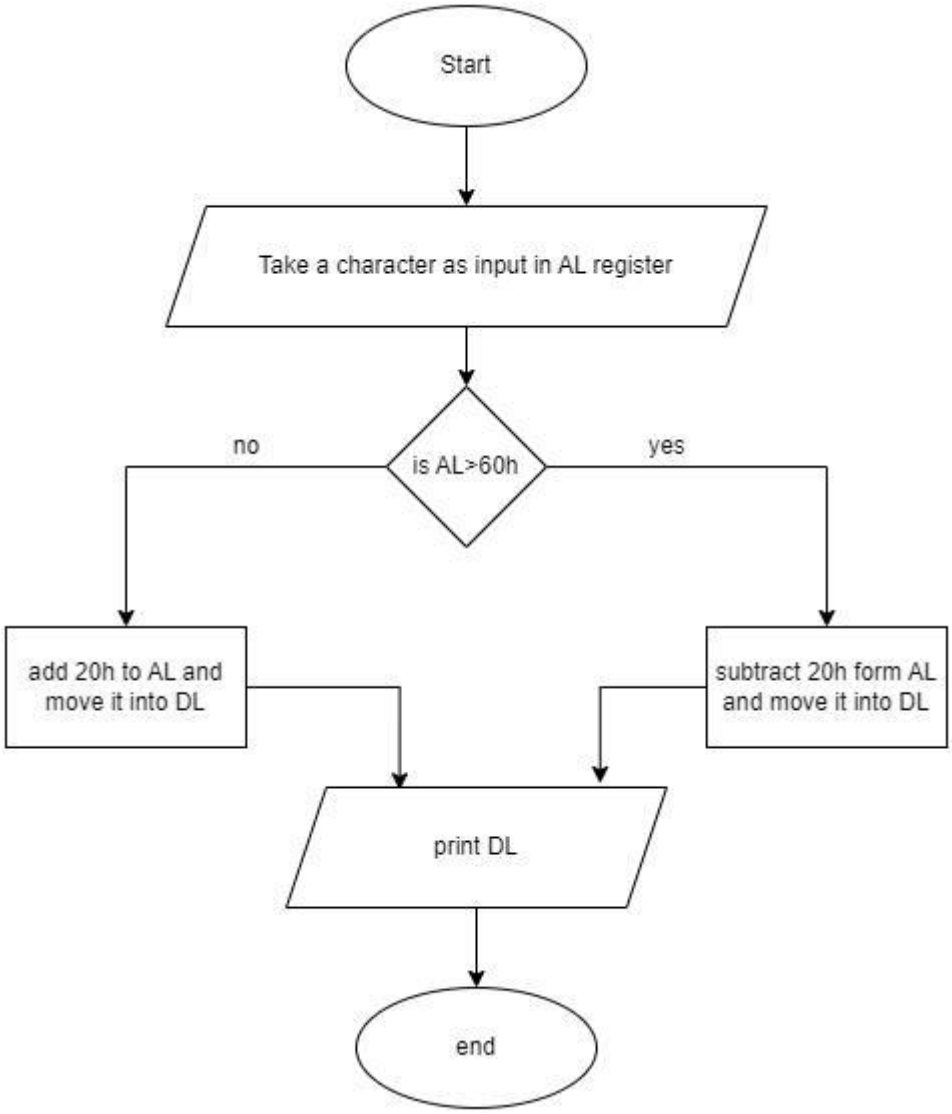
Experiment 1.

Title: Case conversion (upper case to lower case and vice versa Using an assembly language
program).

Algorithm:

Step1: Start
Step2: take an input character in AL register.
Step3: if AL>60h then subtract 20h from AL.
Step4: otherwise add 20h to AL.
Step5: print the content of AL register.
Step6: end.

Flow chart:



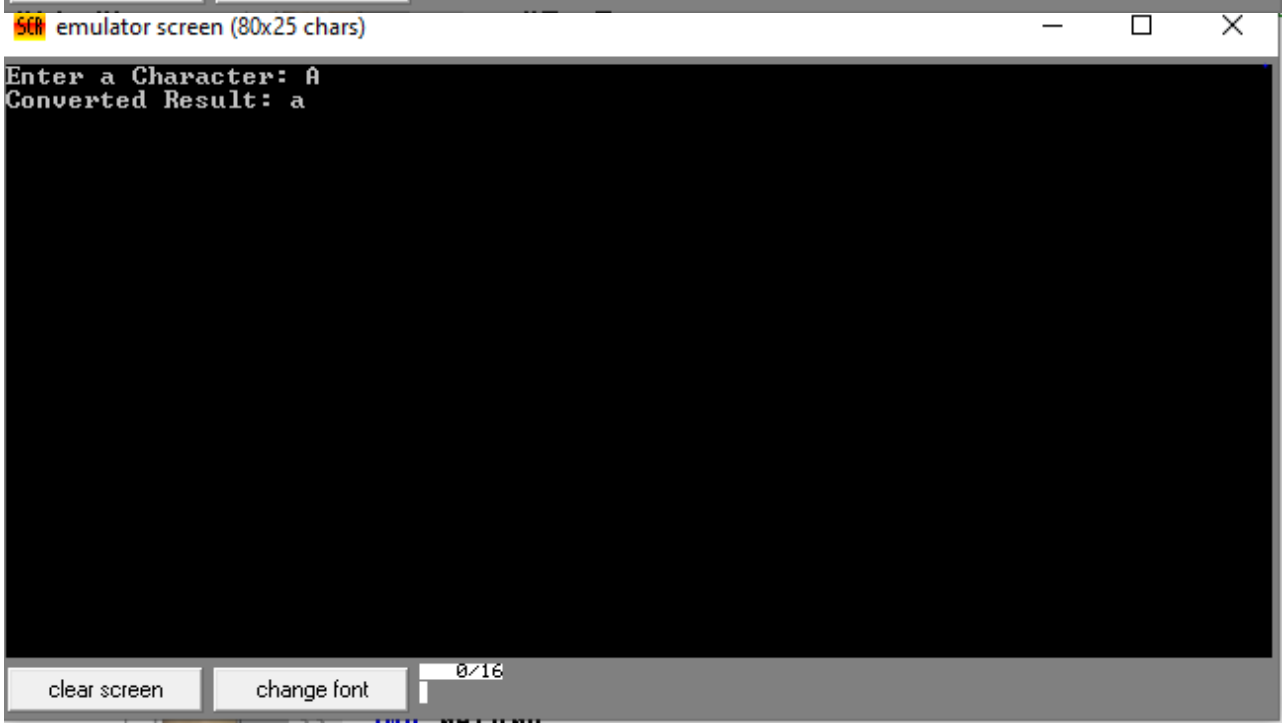
Source Code:

```
.model small
.stack 100h
.data

.code
 input db 'Take Your Input: $'
 res db 10,13,'Your Result is: $'

 main proc
 mov ax,@data
 mov ds,ax

 mov ah,9
 lea dx,input
 int 21h

mov ah,01
int 21h



mov bl,al
 cmp bl,90
 jle big_to_small
 jmp small_to_big

 big_to_small:
 add bl,32
 jmp return

mov bl,al
small_to_big:

sub bl,32

  return:

 mov ah,9
 lea dx,res
 int 21h


 mov ah,02
 mov dl,bl
 int 21h
 exit:
 mov ah,4ch
 int 21h
```

```
 main endp
end main
```

Input: Firstly take a input in lower case latter a and take another input in upper case latter A.

Output:



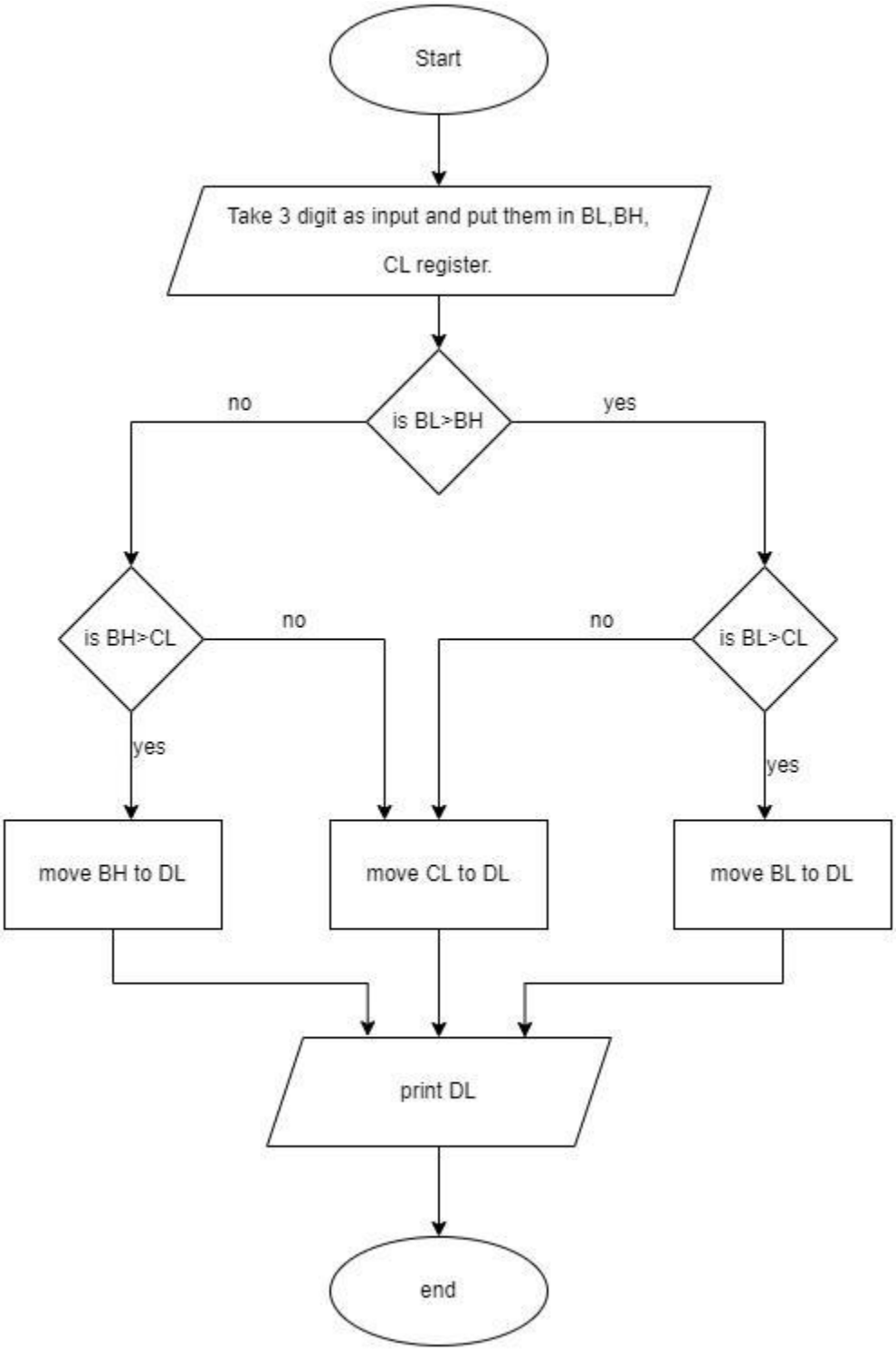
Experiment 2.

Title: Compare three digits and find the biggest number (Using an assembly language
program).

Algorithm:

Step1: Start
Step2: Take 3 digit as input and put them in BL,BH,CL register.
Step3: if BL>BH then
Step4:if BL<CL move CL to DL. otherwise move BL to DL.
Step5: otherwise,if BH<CL move CL to DL. otherwise move BH to DL.
Step6: print the content of DL.
Step7: end.

Flow chart:


Start
Take 3 digit as input and put them in BL,BH, CL register.
is BL>BH
no
yes
is BH>CL
no
no
is BL>CL
yes
yes
move BH to DL
move CL to DL
move BL to DL
print DL
end

Source Code:

```
data segment
     a db 0dh,0ah,"Enter first number $"
     b db 0dh,0ah,"Enter second number $"
     c db 0dh,0ah,"Enter third number $"
    d db 0dh,0ah,"Biggest out of three number is: $"
    data ends
code segment
    assume CS:code,DS:Data

    start:

    mov ax,Data
    mov DS,ax

    mov dx,offset a
    mov ah,09
    int 21h
    mov ah,01
    int 21h
    mov bl,al
```

```
mov dx,offset b
mov ah,09
int 21h
mov ah,01
int 21h
mov bh,al


mov dx,offset c
mov ah,09
int 21h
mov ah,01
int 21h
mov cl,al


cmp bl,bh
JNG secondbig

firstbig:

cmp bl,cl
JNG thirdbig1
```

```
mov dx,offset d
mov ah,09
int 21h

mov dl,bl
mov ah,02
int 21h
ret


thirdbig1:

mov dx,offset d
mov ah,09
int 21h

mov dl,cl
mov ah,02
int 21h
ret



secondbig:
```

```
cmp bh,cl
JNG thirdbig2
mov cl,bh

mov dx,offset d
mov ah,09
int 21h

mov dl,cl
mov ah,02
int 21h
ret


thirdbig2:
mov dx,offset d
mov ah,09
int 21h

mov dl,cl
mov ah,02
int 21h
ret
```

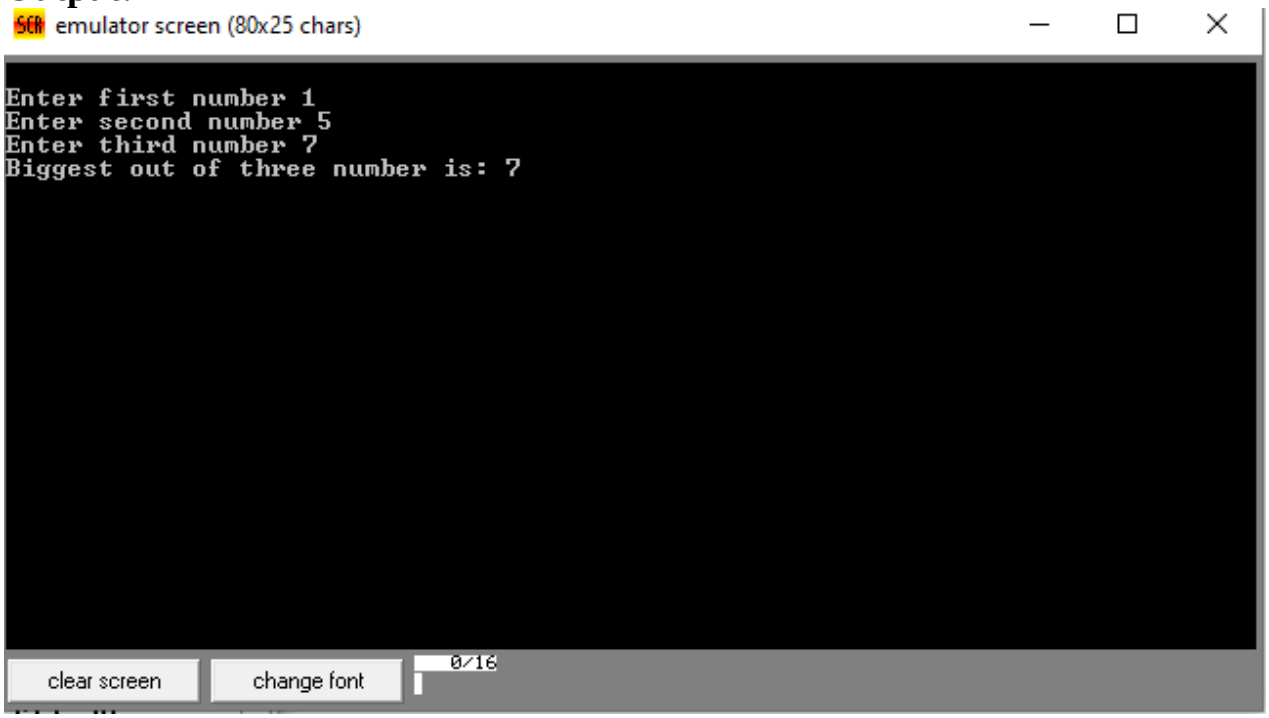
code ends

end start

Input:

Taking input 1,5,7.

Output:



Jahangirnagar University (JU)

Institute of Information Technology

Lab Report-4

Assembly Language

Name: Yeasmine Akter Mitu **Class Roll:** 1992

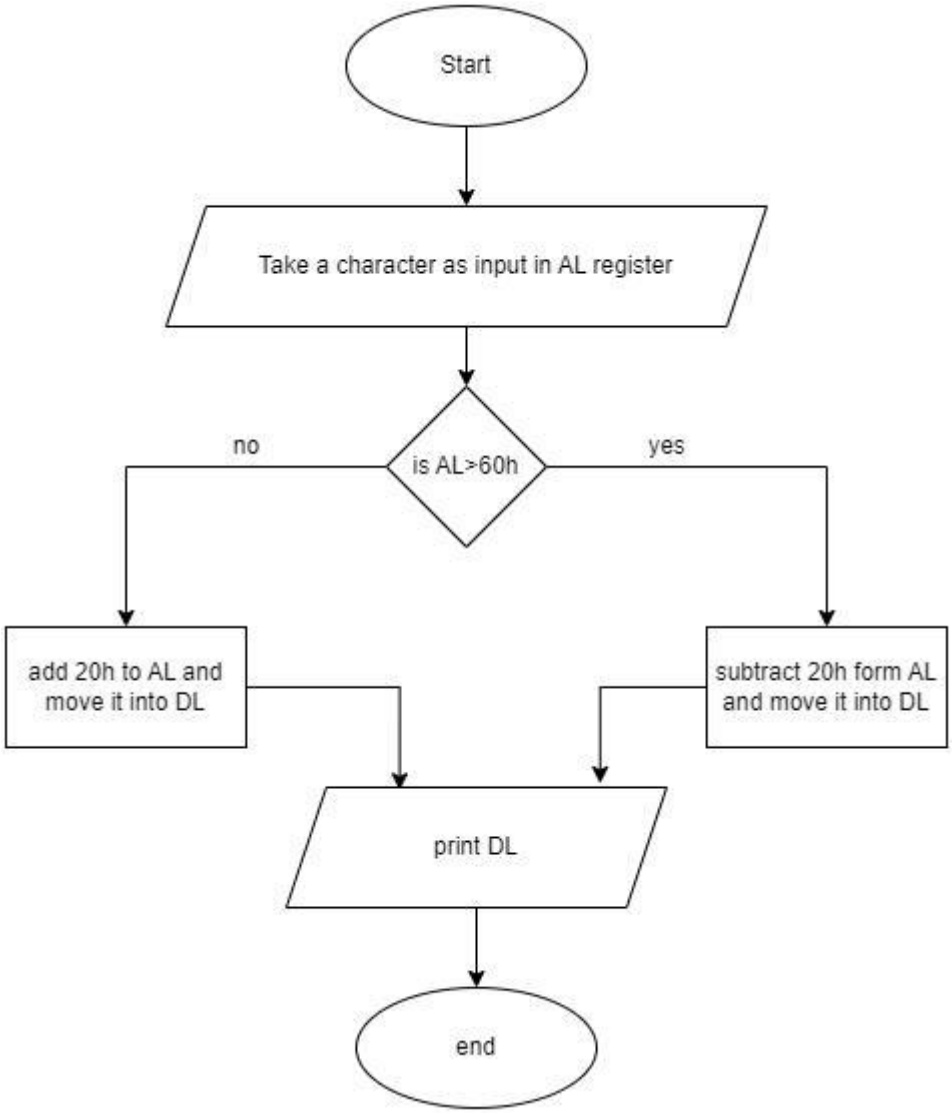
Experiment 1.

Title: Case conversion (upper case to lower case and vice versa Using an assembly language program).

Algorithm:

Step1: Start
Step2: take an input character in AL register.
Step3: if AL>60h then subtract 20h from AL.
Step4: otherwise add 20h to AL.
Step5: print the content of AL register.
Step6: end.

Flow chart:



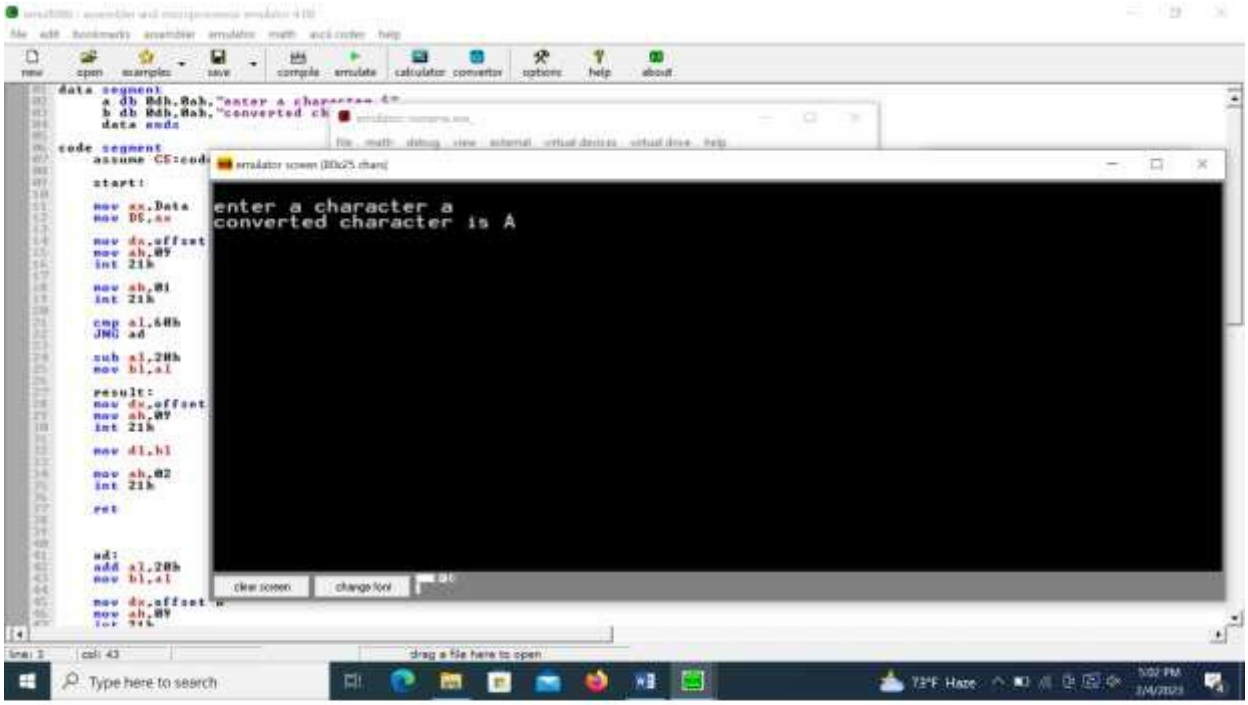
Source Code:

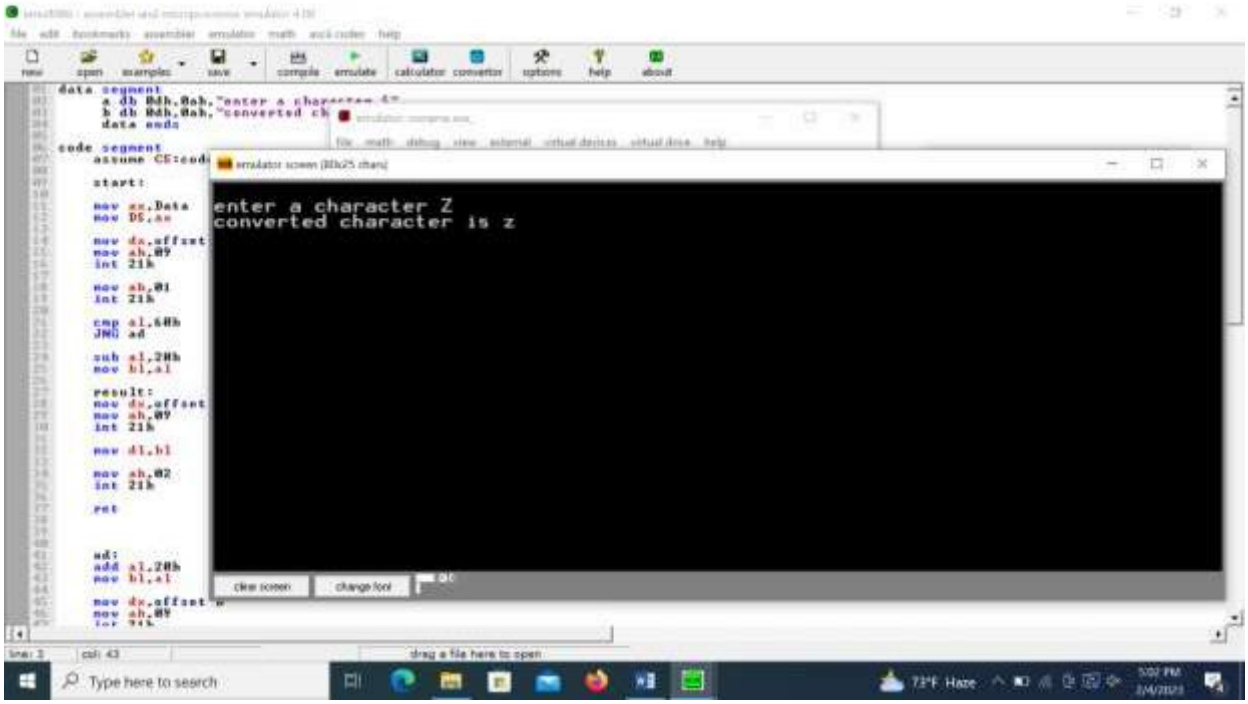
```
data segment
    a db 0dh,0ah,"enter a character $"
    b db 0dh,0ah,"converted character is $"
    data ends

code segment
   assume CS:code,DS:Data

   start:

   mov ax,Data
   mov DS,ax

   mov dx,offset a
   mov ah,09
   int 21h

   mov ah,01
   int 21h

   cmp al,60h
   JNG capital

   small:
   sub al,20h
   mov bl,al
```

```
    mov dx,offset b
    mov ah,09
    int 21h

    mov dl,bl
    mov ah,02
    int 21h
    ret



    capital:
    add al,20h
    mov bl,al

    mov dx,offset b
    mov ah,09
    int 21h

    mov dl,bl
    mov ah,02
    int 21h
    ret

code ends
end start
```

Input: firstly take a input in lower case latter a and take another input in upper case latter Z.

Output:





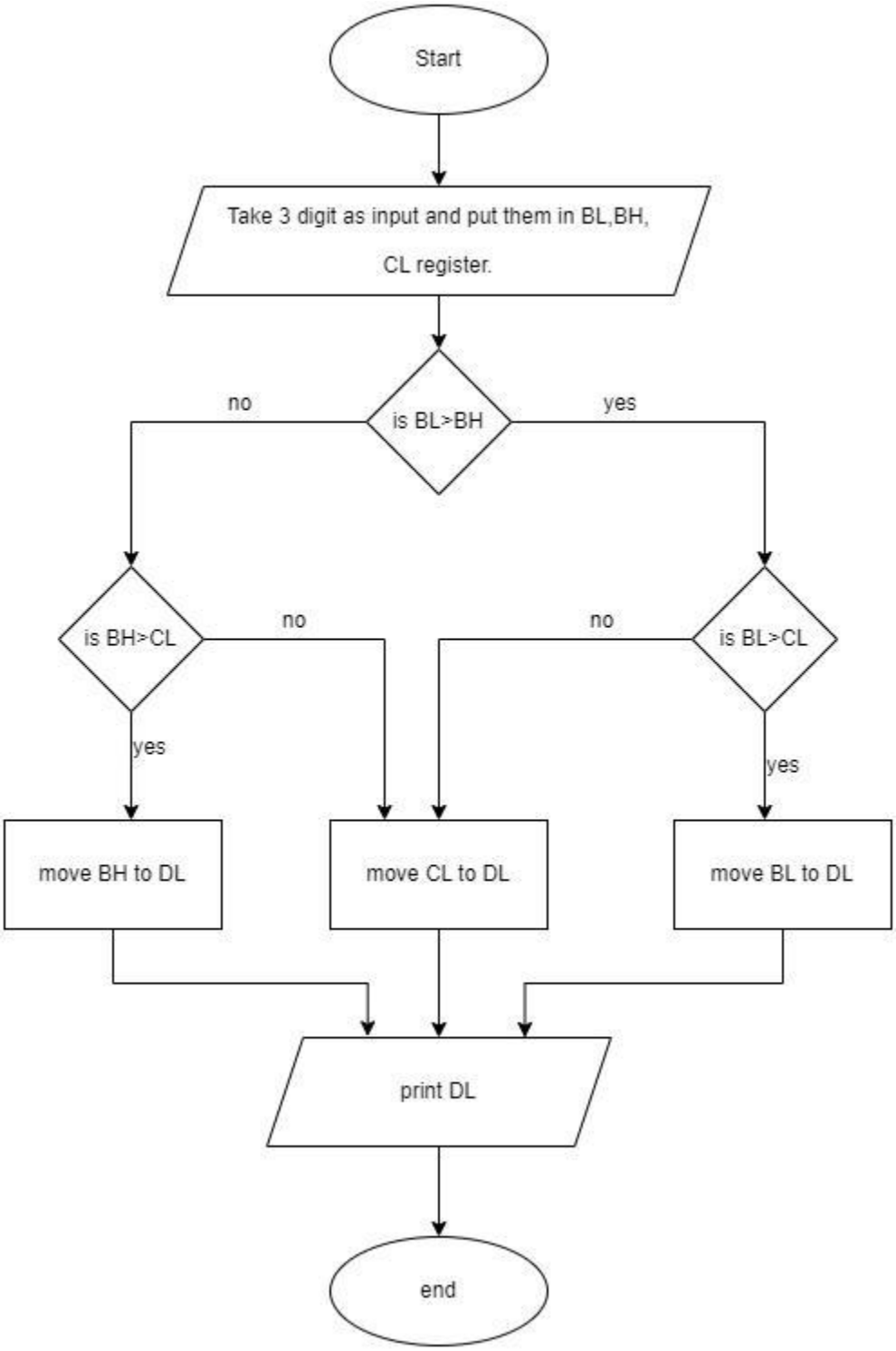
Experiment 2.

Title: Compare three digits and find the biggest number (Using an assembly language program).

Algorithm:

Step1: Start
Step2: Take 3 digit as input and put them in BL,BH,CL register.
Step3: if BL>BH then
Step4:if BL<CL move CL to DL. otherwise move BL to DL.
Step5: otherwise,if BH<CL move CL to DL. otherwise move BH to DL.
Step6: print the content of DL.
Step7: end.

Flow chart:


Start
Take 3 digit as input and put them in BL,BH, CL register.
is BL>BH
no
yes
is BH>CL
no
no
is BL>CL
yes
yes
move BH to DL
move CL to DL
move BL to DL
print DL
end

Source Code:

```
data segment
    a db 0dh,0ah,"enter first number $"
    b db 0dh,0ah,"enter second number $"
    c db 0dh,0ah,"enter third number $"
   d db 0dh,0ah,"biggest number is: $"
   data ends
code segment
   assume CS:code,DS:Data

   start:

   mov ax,Data
   mov DS,ax

   mov dx,offset a
   mov ah,09
   int 21h
   mov ah,01
   int 21h
   mov bl,al
```

```
mov dx,offset b
mov ah,09
int 21h
mov ah,01
int 21h
mov bh,al


mov dx,offset c
mov ah,09
int 21h
mov ah,01
int 21h
mov cl,al


cmp bl,bh
JNG secondbig

firstbig:

cmp bl,cl
JNG thirdbig1
```

```
mov dx,offset d
mov ah,09
int 21h

mov dl,bl
mov ah,02
int 21h
ret


thirdbig1:

mov dx,offset d
mov ah,09
int 21h

mov dl,cl
mov ah,02
int 21h
ret



secondbig:
```

```
cmp bh,cl
JNG thirdbig2
mov cl,bh

mov dx,offset d
mov ah,09
int 21h

mov dl,cl
mov ah,02
int 21h
ret


thirdbig2:
mov dx,offset d
mov ah,09
int 21h

mov dl,cl
mov ah,02
int 21h
ret
```

code ends

end start

Input:

Taking input 3,6,9.

Output: