Assignment 4

1. Write a program to find all the prime numbers between 1 to 50.

Program :-

```
data segment
        primes db 20 dup(0)
        temp db ?
data ends

code segment
        assume cs:code,ds:data
        mov ax,data
        mov ds,ax
        mov ah,0h
        lea di,primes
        mov bl,2h
        mov cl,3h
        mov [di],bl
        inc di
        loop1:
                mov al,cl
                div bl
                inc al
                mov [temp],al
                mov ah,0h
                mov al,cl
                mov dl,2h
                loop2:
                        div dl
                        cmp ah,0h
```

```asm
            jz end_

            mov ah,0h

            mov al,cl

            cmp dl,[temp]

            jz prime

            inc dl

            jmp loop2

        prime:

            mov [di],cx

            inc di

        end_:

            inc cl

            cmp cl,50

            jnz loop1

    int 03
code ends
end
```

Output :-

2. Write a program to read a string of lower case letters and convert to upper case and display the string on the console.

Program :-

```
data segment

        buffer db 30,?, 30 dup(' ')

        msg1 db "Enter Lower case string : $"

        msg2 db "Upper case string of entered string : $"

data ends


code segment

        assume cs:code,ds:data

        mov ax,data

        mov ds,ax

        mov dx,offset msg1

        mov ah,9

        int 21h

        mov dx,offset buffer

        mov ah,0Ah

        int 21h

        mov bl,buffer[1]

        mov buffer[bx+2],'$'

        mov cl,buffer[1]

        mov ch,0h

        mov bx,0h

        mov dx,offset buffer+2
```

```
    loop1:

        sub buffer[bx+2],32

        inc bx

        cmp cx,bx

        jnz loop1

    mov dx,offset msg2

    mov ah,9

    int 21h

    mov bl,buffer[1]

    mov buffer[bx+2],0Ah

    inc bl

    mov buffer[bx+2],'$'

    mov dx,offset buffer+2

    mov ah,9

    int 21h

    int 03

code ends

end
```

Output :-


```
C:\DEBUG>debug c:\lab42.exe
-g=0070
Enter Lower case string : helloayan
```



```
C:\DEBUG>debug c:\lab42.exe
-g=0070
Upper case string of entered string : HELLOAYAN
Unexpected breakpoint interrupt
```

3. Write a program to create a file and write 10 bytes of data into the file. Create one more file and make a copy of the first file.(i.e Read from the first file and write into the second file.)

Program :-

```
data segment

        file1 db "file1.txt",0

        handle1 dw ?

        file2 db "file2.txt",0

        handle2 dw ?

        msg db "Hello Ayan"

        errMsg db "Error$"

        buffer db 10 dup(' ')

data ends


code segment

        assume cs:code,ds:data

        mov ax,data

        mov ds,ax


        ;create file1

        mov cx,0

        lea dx,file1

        mov ah,3ch

        int 21h

        jc err_
```

```asm
        mov handle1,ax


;write into file1

mov bx,ax

mov cx,10

lea dx,msg

mov ah,40h

int 21h

jc err_

mov ah,3eh

int 21h

jc err_


;create file2

mov cx,0

lea dx,file2

mov ah,3ch

int 21h

jc err_

mov handle2,ax


;open file1

mov ah,3dh

mov al,0h
```

```
        lea dx,file1

        int 21h

        jc err_

        mov handle1,ax


        ;read from file1

        mov bx,handle1

        mov cx,10

        lea dx,buffer

        mov ah,3fh

        int 21h

        jc err_

        mov ah,3eh

        int 21h

        jc err_


        ;write into file2

        mov ah,40h

        mov bx,handle2

        mov cx,10

        lea dx,buffer

        int 21h

        jc err_

        mov ah,3eh
```

```
        int 21h

        jc err_

        jmp end_

        err_:

                mov ah,9

                mov dx,offset errMsg

                int 21h

        end_:

                int 03

    code ends

    end
```

Output :-

- **Before running program :-**

```
C:\DEBUG>debug c:\lab43.exe
-g=0040
Unexpected breakpoint interrupt
AX=3E0A BX=0005 CX=000A DX=0029 SP=0000 BP=0000 SI=0000 DI=0000
DS=0744 ES=0734 SS=0743 CS=0744 IP=00BC NV UP EI PL ZR NA PE NC
0744:00BC B409                    MOV     AH,09
-_
```
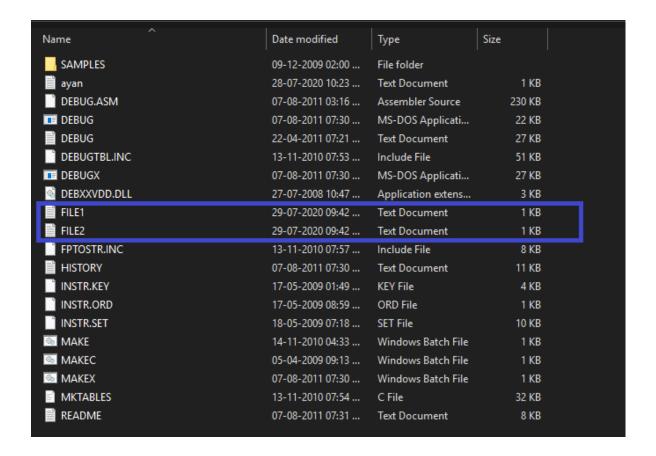
- **After Running program :-**

Name	Date modified	Type	Size
SAMPLES	09-12-2009 02:00 ...	File folder	
ayan	28-07-2020 10:23 ...	Text Document	1 KB
DEBUG.ASM	07-08-2011 03:16 ...	Assembler Source	230 KB
DEBUG	07-08-2011 07:30 ...	MS-DOS Applicati...	22 KB
DEBUG	22-04-2011 07:21 ...	Text Document	27 KB
DEBUGTBL.INC	13-11-2010 07:53 ...	Include File	51 KB
DEBUGX	07-08-2011 07:30 ...	MS-DOS Applicati...	27 KB
DEBXXVDD.DLL	27-07-2008 10:47 ...	Application extens...	3 KB
FILE1	29-07-2020 09:42 ...	Text Document	1 KB
FILE2	29-07-2020 09:42 ...	Text Document	1 KB
FPTOSTR.INC	13-11-2010 07:57 ...	Include File	8 KB
HISTORY	07-08-2011 07:30 ...	Text Document	11 KB
INSTR.KEY	17-05-2009 01:49 ...	KEY File	4 KB
INSTR.ORD	17-05-2009 08:59 ...	ORD File	1 KB
INSTR.SET	18-05-2009 07:18 ...	SET File	10 KB
MAKE	14-11-2010 04:33 ...	Windows Batch File	1 KB
MAKEC	05-04-2009 09:13 ...	Windows Batch File	1 KB
MAKEX	07-08-2011 07:30 ...	Windows Batch File	1 KB
MKTABLES	13-11-2010 07:54 ...	C File	32 KB
README	07-08-2011 07:31 ...	Text Document	8 KB

- **Contents of both the files :**

```
FILE1.TXT                    FILE2.TXT
 1    Hello Ayan|             1    Hello Ayan
```

4. Write a program to display the string "Hello world" when the character 'Y' is pressed.

Program :-

```
data segment
        msg db "hello world"
data ends



code segment
        assume cs:code,ds:data
        mov ax,data
        mov ds,ax

        mov ah,7h
        int 21h
        cmp al,       'Y'
        jnz end_

        mov ah,9
        lea dx,msg
        int 21h

        end_:
                int 03

code ends
end
```

Output :-

- **When other character except 'Y' is pressed :-**

```
C:\DEBUG>debug c:\lab44.exe
-g=0010
Unexpected breakpoint interrupt
AX=0757 BX=0000 CX=0025 DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=0744 ES=0734 SS=0743 CS=0744  IP=0025 NV UP EI NG NZ AC PO CY
0744:0025 726F                   JB          0096
-_
```

- **When 'Y' is pressed :-**

```
C:\DEBUG>debug c:\lab44.exe
-g=0010
hello worldUnexpected breakpoint interrupt
AX=0959 BX=0000 CX=0025 DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=0744 ES=0734 SS=0743 CS=0744  IP=0025 NV UP EI PL ZR NA PE NC
0744:0025 7501                   JNZ         0028
-
```