Experiment No 3: String Manipulations

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1. AIM:

Program for moving a string of bytes.

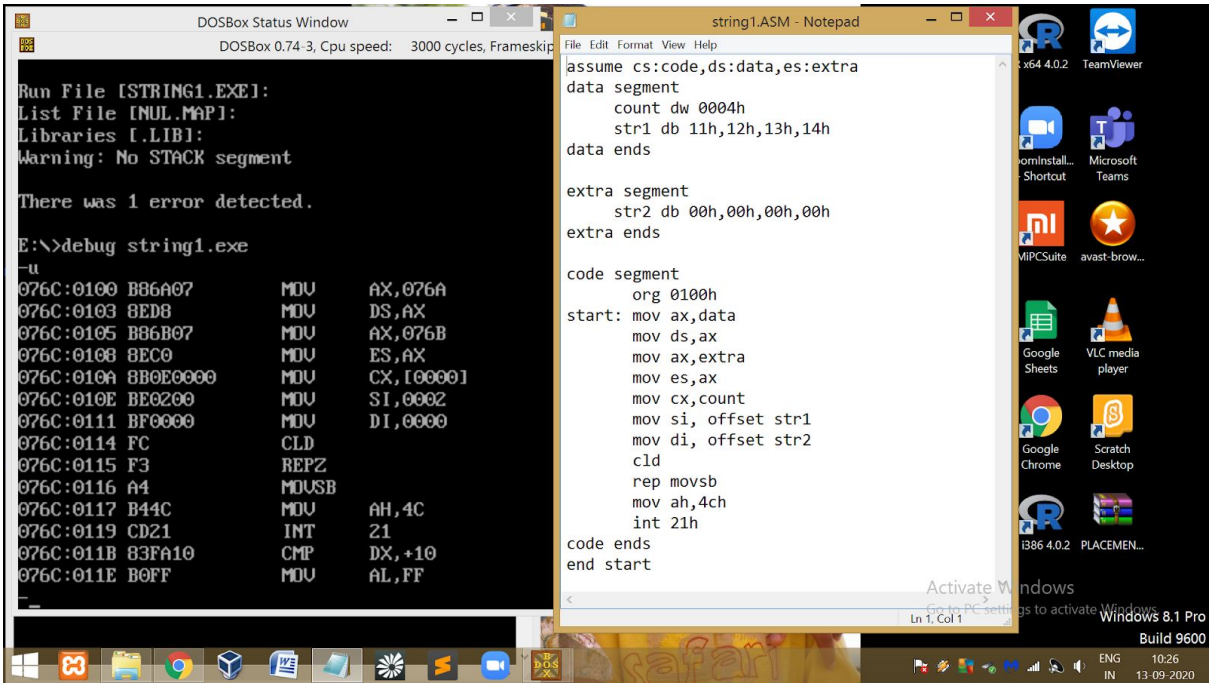
ALGORITHM:

- Initialize the data segment and the extra segment
- Move data segment address to ds
- Move extra segment to es
- Load count to cx
- Load offset of str1 to si and offset of str2 to di
- Clear directory flag
- Move the string of bytes
- Terminate the program

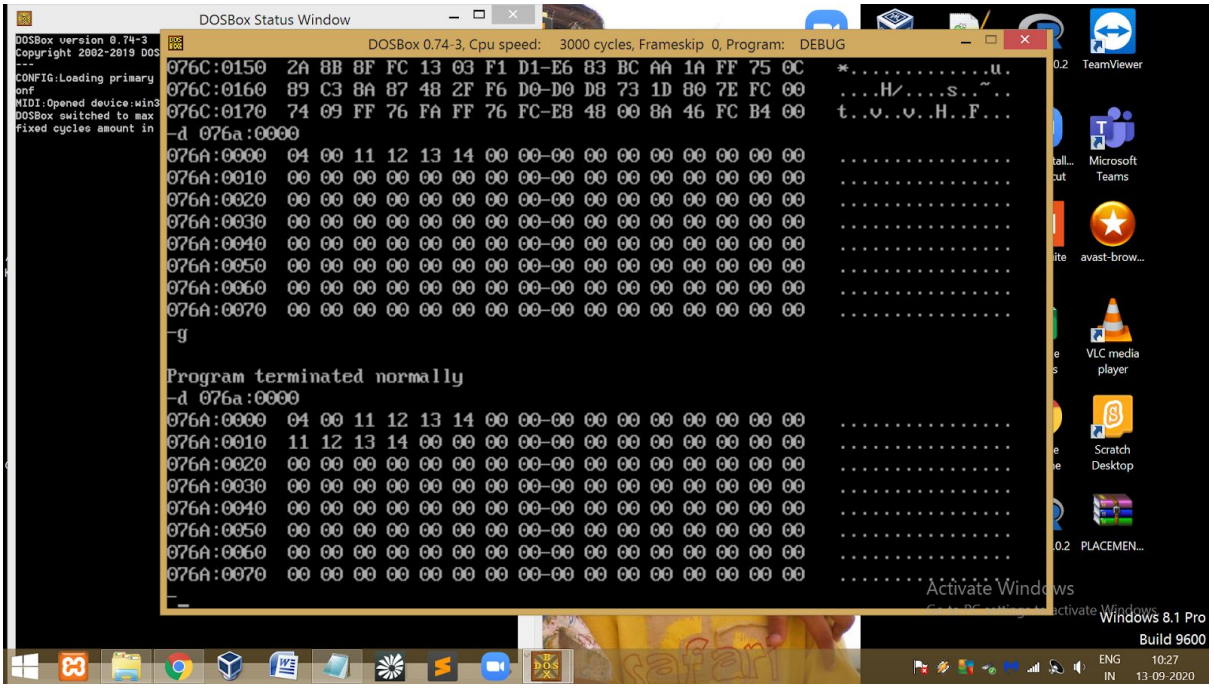
PROGRAM:

PROGRAM	COMMENTS
mov ax,data mov ds,ax	Load data segment to ds
mov ax,extra mov es,ax	Load extra segment to es
mov cx,count	Load count value to cx
mov si, offset str1	Load offset of str1 to si
mov di, offset str2	Load offset of str2 to di
cld	Clear directory flag
rep movsb	Copy string of bytes to extra segment
mov ah,4ch int 21h	Terminate the program

UNASSEMBLED CODE:



SAMPLE INPUT/OUTPUT:



RESULT:

Thus a string of bytes has been moved.

2. AIM:

Program for comparing 2 strings of bytes.

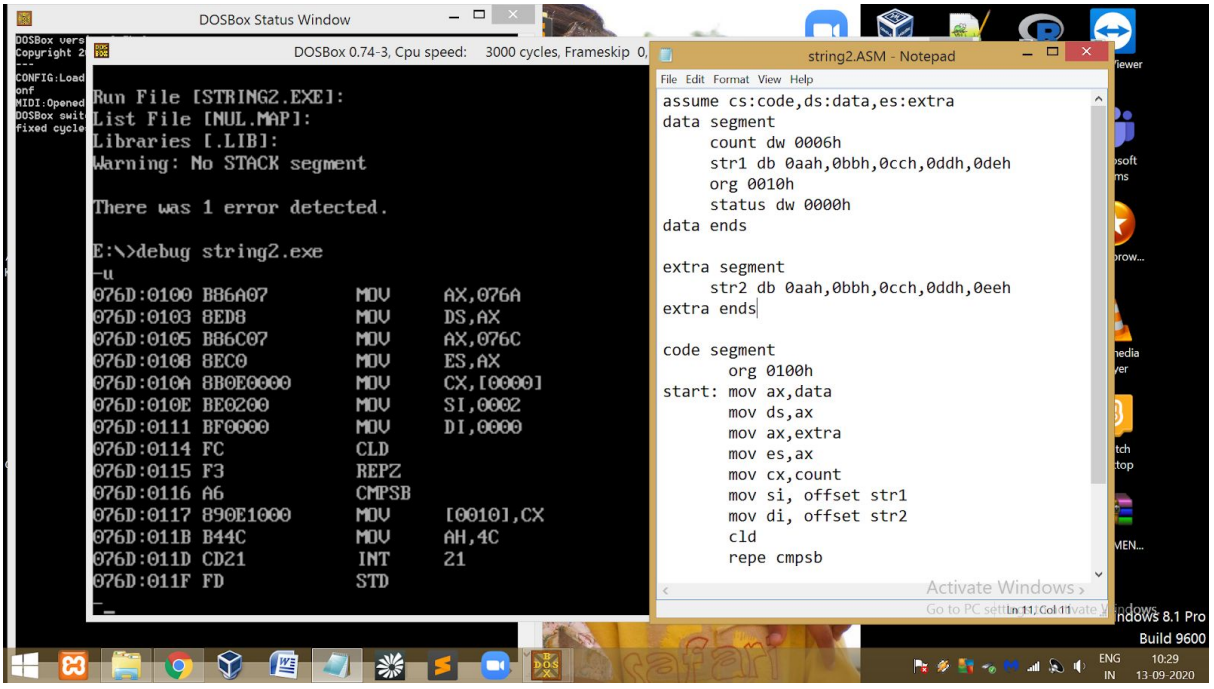
ALGORITHM:

- Initialize the data segment and the extra segment
- Move data segment address to ds and extra segment to es
- Load count to cx
- Load offset of str1 to si and offset of str2 to di
- Clear directory flag
- Compare the 2 sets of strings
- Load cx to status
- Terminate the program

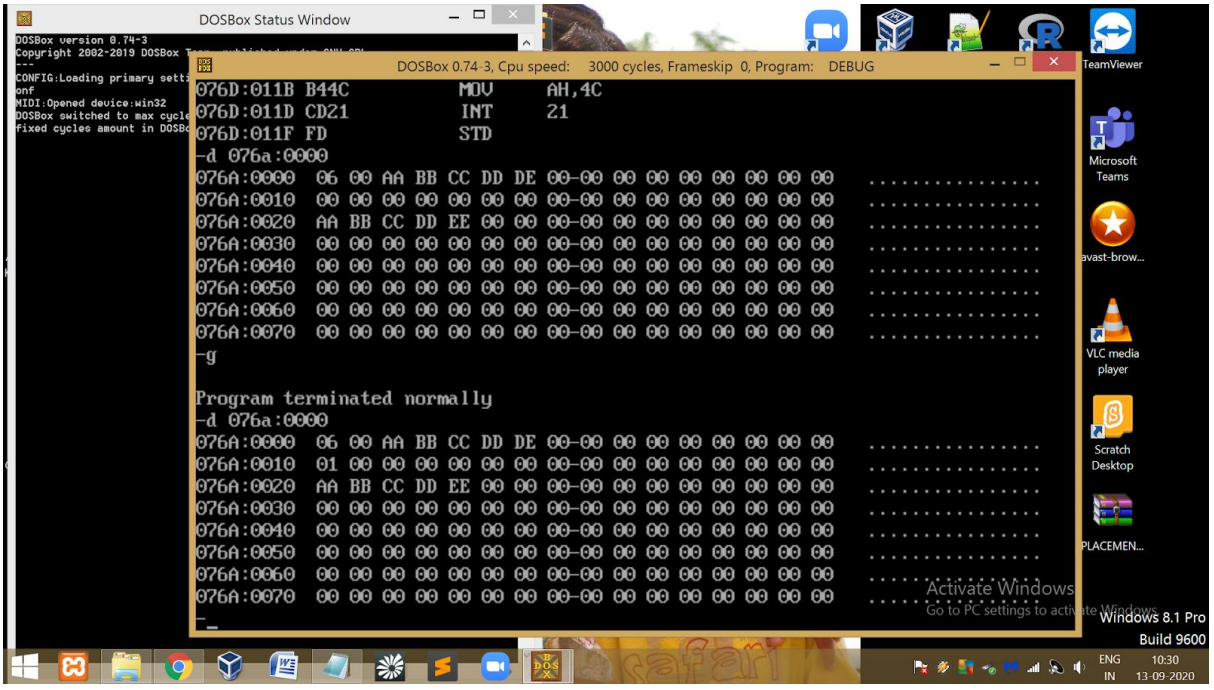
PROGRAM:

PROGRAM	**COMMENTS**
mov ax,data mov ds,ax	Load data segment to ds
mov ax,extra mov es,ax	Load extra segment to es
mov cx,count	Load count value to cx
mov si, offset str1	Load offset of str1 to si
mov di, offset str2	Load offset of str2 to di
cld	Clear directory flag
repe cmpsb	Compare string of bytes
mov status, cx	Load cx to status
mov ah,4ch int 21h	Terminate the program

UNASSEMBLED CODE:



SAMPLE INPUT/OUTPUT



RESULT:

The 2 string of bytes have been compared.

3. AIM:

Program for searching a byte in a string.

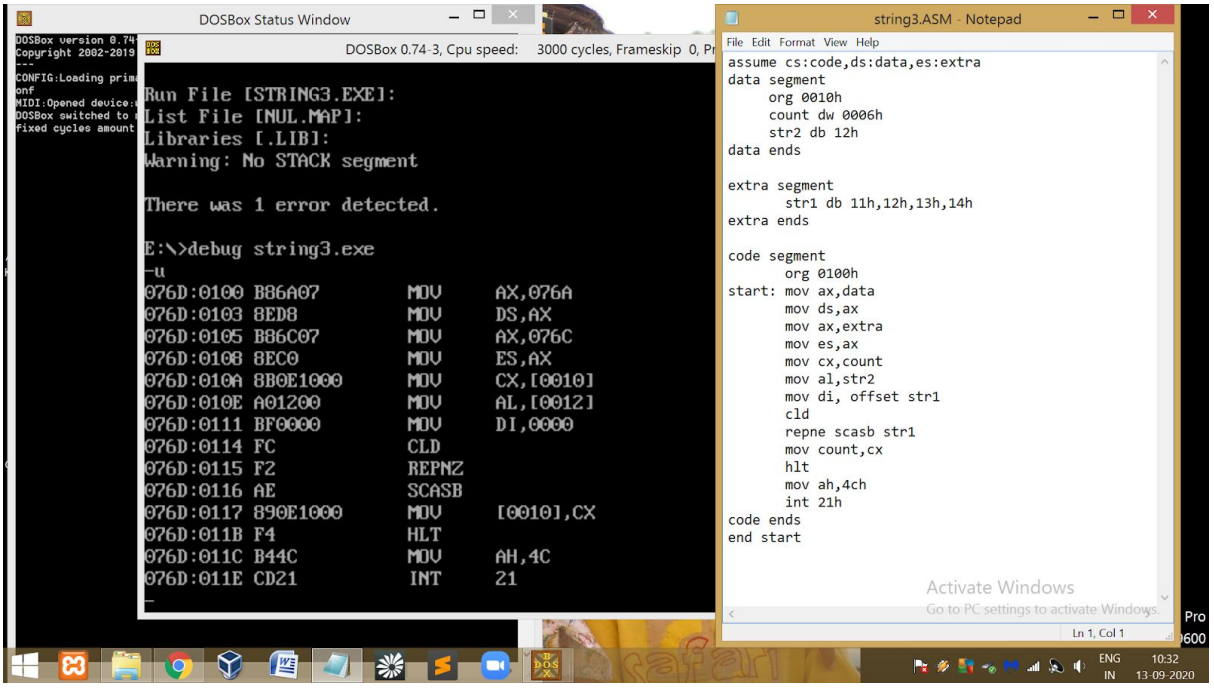
ALGORITHM:

- Initialize the data segment and extra segment.
- Move data segment address to ds and extra segment to es.
- Load count to cx
- Load str2 to al
- Load offset of str1 to di
- Clear directory flag
- Compare the 2 set of strings
- Load cx to count
- Halt until the next external interrupt is fired.
- Terminate the program

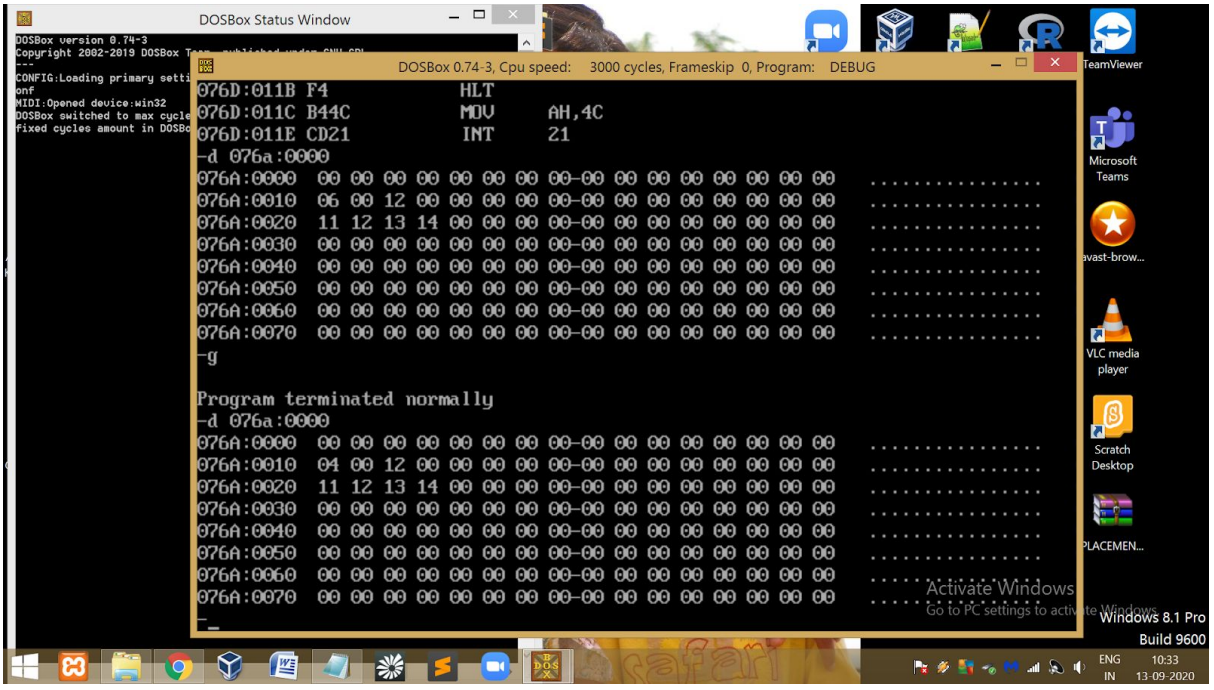
PROGRAM:

PROGRAM	**COMMENTS**
mov ax,data mov ds,ax	Load data segment to ds
mov ax,extra mov es,ax	Load extra segment to es
mov cx,count	Load count value to cx
mov al,str2	Load str2 to al
mov di, offset str1	Load offset of str1 to di
cld	Clear directory flag
repne scasb str1	Scan for str2 in str1
mov count, cx	Load cx to count
mov ah,4ch int 21h	Terminate the program

UNASSEMBLED CODE:



SAMPLE INPUT/OUTPUT



RESULT:

Program for searching a byte in a string is thus shown

4. AIM:

Program for moving a string without using string instructions

ALGORITHM:

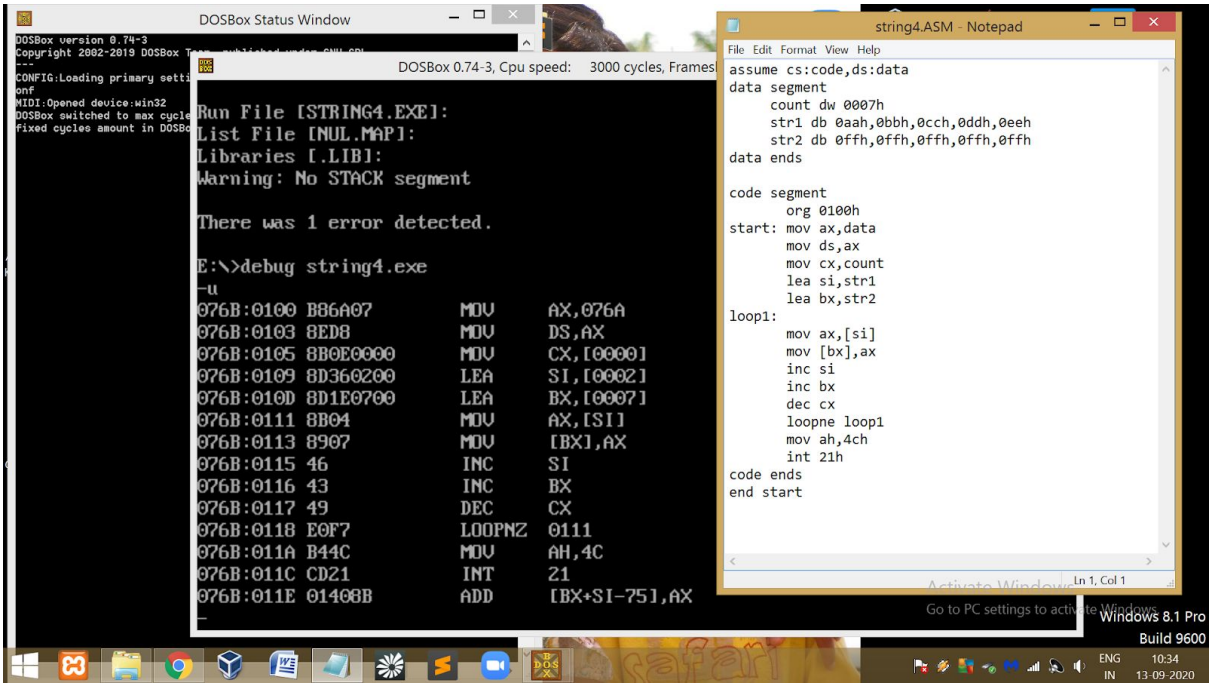
- Initialize the data segment
- Move data segment address to ds
- Load count to cx
- Load effective address of str1 to si and str2 to bx
- In loop0
    - Move data of si to ax and ax to location of bx
    - Increment si,bx and decrement cx
    - end if count = 0 and ZF=0

- Terminate the program

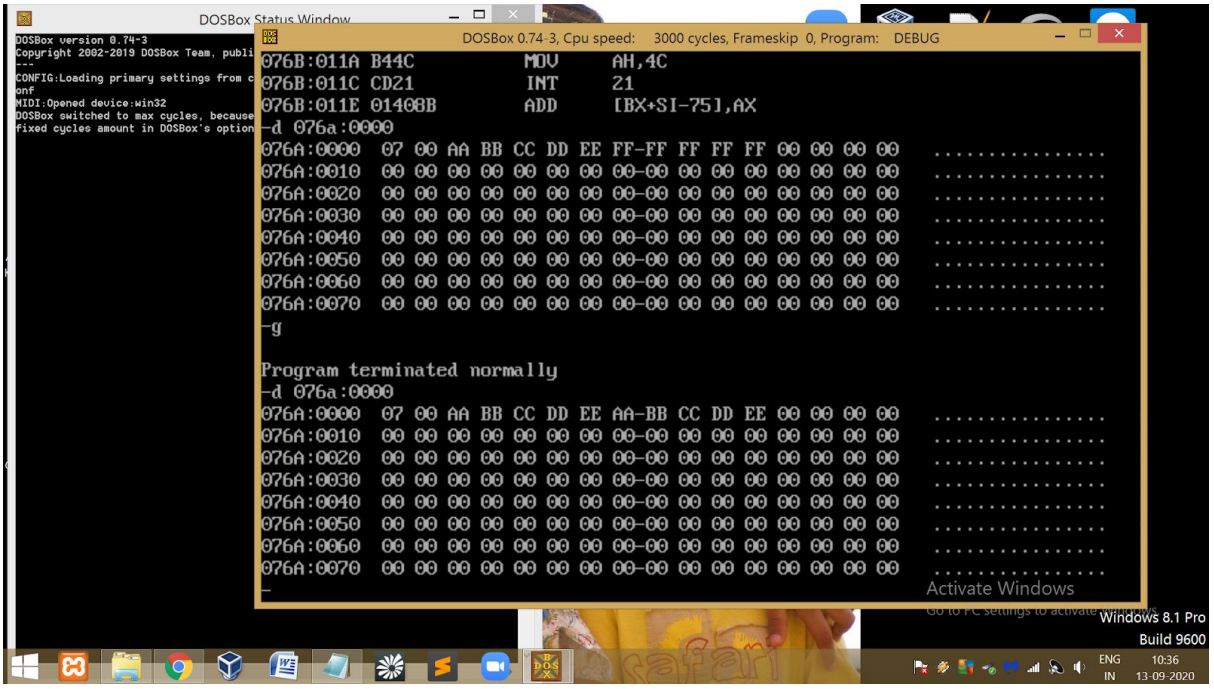
PROGRAM:

PROGRAM	**COMMENTS**
mov ax,data mov ds,ax	Load data segment to ds
mov cx,count	Load count value to cx
lea si,str1	Load effective address of str1 to si
lea bx,str2	Load effective address of str2 to bx
loop0: mov ax,[si]	Load data from [ds:si] to ax
mov [bx],ax	Load data from ax to bx
inc si	Increment si
inc bx	Increment bx
dec cx	Decrement cx
loopne loop0	End loop if count = 0 and ZF=0
mov ah,4ch int 21h	Terminate the program

UNASSEMBLED CODE:



SAMPLE INPUT/OUTPUT



RESULT:

Thus moving a string of bytes without using string instructions is thus shown.