Ahsanullah University of Science & Technology

Department of Computer Science & Engineering

Course No : CSE2214
Course Title : Assembly Language Programming Sessional
Assignment No : 11

Date of Performance : 09.09.2020

Date of Submission : 21.09.2020

Submitted To : Ms. Tahsin Aziz & Md. Siam Ansari

Submitted By-

Group : A1
Name : Mustofa Ahmed
Id : 18.01.04.005
Section : A

Question No: 01

Write a program that (a) lets the user input a string, (b) prints it forward and backward without punctuation and blanks on successive lines, and (c) decides whether it is palindrome and prints the conclusion.

Answer:

```
.MODEL SMALL
.STACK 100H
.DATA
MSG1 DB 0AH,0DH,'Enter a string : ','$'
MSG2 DB 0AH,0DH,'The reversed string is : ','$'
MSG3 DB 0AH,0DH,'The forward string is : ','$'
MSG4 DB 0AH,0DH,'The backward string is : ','$'
PRINT_PALINDROME DB 0AH,0DH,'The string is palindrome$'
PRINT_NOT_PALINDROME DB 0AH,0DH,'The string is not palindrome$'

TEXT1 DB 100 DUP('$')
TEXT2 DB 100 DUP('$')

.CODE
MAIN PROC
   MOV AX,@DATA
   MOV DS,AX
   MOV ES,AX

   CLD

   MOV AH,9
   LEA DX,MSG1
   INT 21H

   XOR CX,CX ; need to clear before starting
```

```
MOV AH,1


LEA SI,TEXT1

WHILE_:
INT 21H
CMP AL,0DH
JE END_WHILE

CMP AL,33D
JE WHILE_:

CMP AL,34D
JE WHILE_:

CMP AL,39D
JE WHILE_:

CMP AL,' '
JE WHILE_:

CMP AL,44D
JE WHILE_:


CMP AL,45D
JE WHILE_:

CMP AL,46D
JE WHILE_:
```

```
CMP AL,58D
JE WHILE_:


CMP AL,59D
JE WHILE_:


CMP AL,95D
JE WHILE_:

CMP AL,96D
JE WHILE_:

PUSH AX
INC CX
MOV [SI], AL
INC SI

JMP WHILE_

END_WHILE:

MOV AH,9
LEA DX,MSG2
INT 21H

JCXZ EXIT  ; if CX register is 0

LEA DI,TEXT2
MOV BX,CX

MOV AH,2
```

```
TOP:
POP DX
MOV [DI],DL
INC DI
INT 21H
LOOP TOP

MOV AH,9
LEA DX,MSG3
INT 21H

MOV AH,9
LEA DX,TEXT1
INT 21H

MOV AH,9
LEA DX,MSG4
INT 21H

MOV AH,9
LEA DX,TEXT2
INT 21H

CALL NEWLINE

LEA SI,TEXT1
LEA DI,TEXT2

MOV CX,BX
REPE CMPSW

JZ PALINDROME
```

```
MOV AH,9
LEA DX,PRINT_NOT_PALINDROME
INT 21H

JMP EXIT
PALINDROME:

MOV AH,9
LEA DX,PRINT_PALINDROME
INT 21H

EXIT:

MOV AH,4CH
INT 21H
MAIN ENDP

PROC NEWLINE

PUSH AX
PUSH DX

MOV AH,2
MOV DL,0DH
INT 21H

MOV DL,0AH
INT 21H

POP DX
POP AX

RET
```

```
    NEWLINE ENDP


END MAIN
```

Question No: 02

Write a program that reads a string STRING, a decimal integer S that represents a position in STRING, a decimal integer N that represents the number of bytes to be removed (both integers between 0 and 80), calls DELETE to remove N bytes at position S, and prints the resulting string.

Answer:

```
.MODEL SMALL
.STACK 100H
.DATA
MSG1 DB 0AH,0DH,'Enter a string : ','$'
MSG2 DB 0AH,0DH,'The resulting string is : ','$'
MSG3 DB 0AH,0DH,'Enter a decimal number S : ','$'
MSG4 DB 0AH,0DH,'Enter a decimal number N : ','$'


TEXT1 DB 100 DUP('$')

.CODE
MAIN PROC
    MOV AX,@DATA
    MOV DS,AX
    MOV ES,AX
```

```
CLD

MOV AH,9
LEA DX,MSG1
INT 21H

XOR CX,CX

MOV AH,1

LEA SI,TEXT1

WHILE_:
INT 21H
CMP AL,0DH
JE END_WHILE

MOV [SI], AL
INC SI
INC CX

JMP WHILE_

END_WHILE:

MOV AH,9
LEA DX,MSG3
INT 21H


CALL INDEC
MOV BX,AX
SUB BX,1
```

```
MOV AH,9
LEA DX,MSG4
INT 21H

CALL INDEC

CALL NEWLINE



LEA DI,TEXT1
ADD DI,BX

SUB CX,BX
SUB CX,AX

LEA SI,TEXT1
ADD SI,BX
ADD SI,AX

REP MOVSB

MOV [DI],'$'

MOV AH,9
LEA DX,TEXT1
INT 21H

MOV AH,4CH
INT 21H
MAIN ENDP
```

```
   PROC NEWLINE

   PUSH AX
   PUSH DX

   MOV AH,2
   MOV DL,0DH
   INT 21H

   MOV DL,0AH
   INT 21H

   POP DX
   POP AX

   RET
   NEWLINE ENDP


   INDEC PROC
PUSH BX
PUSH CX
PUSH DX

BEGIN:


XOR BX,BX
XOR CX,CX
MOV AH,1
INT 21H

REPEAT2:
```

```
CMP AL,'0'
JNGE NOT_DIGIT
CMP AL,'9'
JNLE NOT_DIGIT

AND AX,000FH
PUSH AX
MOV AX,10

MUL BX
POP BX
ADD BX,AX
MOV AH,1
INT 21H

CMP AL,0DH
JNE REPEAT2

CMP AL,0
JL REPEAT2
CMP AL,80
JG REPEAT2

MOV AX,BX

EXIT:
POP DX
POP CX
POP BX

RET

NOT_DIGIT:
```

```
MOV AH,2
MOV DL,0DH
INT 21H
MOV DL,0AH
INT 21H
JMP BEGIN

RET
INDEC ENDP


END MAIN
```