Date: 24-02-2022 Exp.6 Palindrome

Aim:

To implement palindrome using INT21H.

Tool Used:

Assembler - MASM 611

Algorithm:

- In data segment declaring str1 of six characters and setting the length of it in len
- Declaring messages to be displayed
- In extra segment declaring str2 of six characters
- Load str1 in SI
- Move the length in cx
- Loop1:
  move 01h in ah
  Interrupt 21H called
  move al to SI
  increment SI
- Load str1 to SI AND Load str2+len-1 to di to directly arrange it in reverse order and move length in CX
- UP:
  cld is called to set the flag register
  LODSB
  STD
  STOSB
- Load offset of str1 in SI and Load offset of str2 in DI
- Now campare both the strings and check if it is matching and display the result.

Program:

```
data segment
str1 db 06 dup(0)
len equ $-str1
ymsg db 0ah, 07h, 'String is a Palindrome$', 07h, 0ah
nmsg db 0ah, 07h, 'String is not a Palindrome$', 07h, 0ah
data ends

extra segment
str2 db 06 dup(0)
extra ends

code segment
assume cs:code, ds:data, es: extra

start:
mov ax, data
mov ds, ax
mov ax, extra
mov es, ax

lea si, str1
```

```
mov cx, len
l1: mov ah, 01h
int 21h
mov [si], al
inc si
loop l1

lea si, str1
lea di, str2+len-1
mov cx, len

up: cld
lodsb
std
stosb
loop up

lea si, offset str1
lea di, offset str2
mov cx, len
compare:
cld
repe cmpsb
```

```
je yes

no:
xor ax, ax
mov dx, offset nmsg
mov ah, 09h
int 21h
jmp stop

yes:
xor ax, ax
mov dx, offset ymsg
mov ah, 09
int 21h

stop:
hlt

code ends
end start
```

Sample Input:

1. Hardik

2. AKAAKA

Sample Output:

Not a palindrome

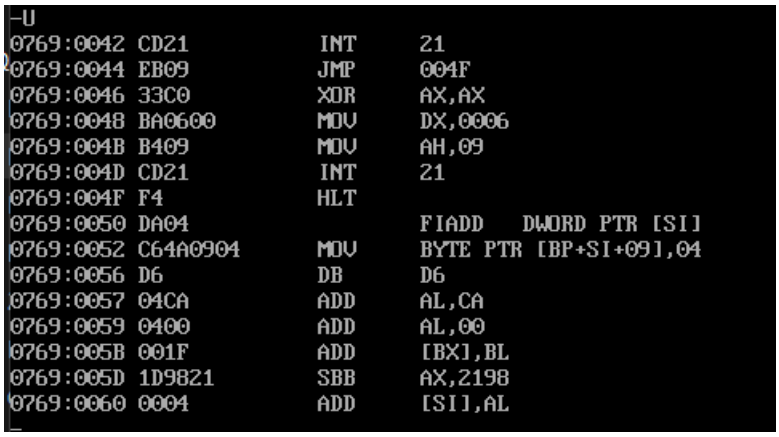
It is a palindrome

Manual Verification:

1. The reverse of HARDIK is KIDRAH and so both the strings are different so it is not a palindrome.

2. The reverse of AKAAKA is the same so it is a palindrome.

Register/ Memory Contents for I/O:



Snapshot of the Output:

```
-g 004F
HARDIK
String is not a Palindrome
AX=0900  BX=0000  CX=0005  DX=0021  SP=0000  BP=0000  SI=0001  DI=0001
DS=0764  ES=0768  SS=0763  CS=0769  IP=004F   NV UP EI PL ZR NA PE NC
0769:004F F4            HLT
-
```

```
-G 004F
AKAAKA
String is a Palindrome
AX=0900  BX=0000  CX=0000  DX=0006  SP=0000  BP=0000  SI=0006  DI=0006
DS=0764  ES=0768  SS=0763  CS=0769  IP=004F   NV UP EI PL ZR NA PE NC
0769:004F F4            HLT
```

Result:

Hence a code for the execution to find if the string is palindrome or not using INT 21H was experimented.