Palindrome

palindrome.asm

```
DATA SEGMENT
    String1 DB "MALAYALAM","$"
    PALINMSG DB "Palindrome$"
    NONPALINMSG DB "Not Palindrome$"
DATA ENDS

EXTRA SEGMENT
    String2 DB 09H DUP (?)
EXTRA ENDS

CODE SEGMENT
    ASSUME CS:CODE,DS:DATA,ES:EXTRA

PRINTMSG MACRO MSG
    MOV DX, OFFSET MSG
    MOV AH, 09H
    INT 21H
ENDM

START:

    MOV AX,DATA
    MOV DS,AX
    MOV AX,EXTRA
    MOV ES,AX

    LEA SI, String1
    LEA DI, String2 + 08H

    MOV CX, 0009H

REVLOOP:
    CLD
    LODSB
    STD
    STOSB
    LOOP REVLOOP

    LEA SI, String1
    LEA DI, String2

    MOV CX, 0009H

    CLD
    REPE CMPSB
    JNZ SKIP
    PRINTMSG PALINMSG
    JMP FIN
SKIP:
    PRINTMSG NONPALINMSG
FIN:
    MOV AH, 4CH
    INT 21H

CODE ENDS
END START
```

```
D:\> masm Palindrome.asm
D:\> link palindrome.obj
D:\> palindrome.exe
PALINDROME
```

Fibonacci

fibo.asm

```
DATA SEGMENT
    COUNT DB 0AH
    SEP DB 0AH, "$"
    A DW 0000H
    B DW 0001H
    TEMP DW ?
DATA ENDS

CODE SEGMENT
    ASSUME CS:CODE,DS:DATA

PRINTMSG MACRO MSG
    LEA DX,MSG
    MOV AH, 09H
    INT 21H
ENDM

DECHEX PROC
    MOV DX, 000FH
    AND DX,AX
    MOV CL, 04
    ROR AX,CL
    CMP DL,09H
    JLE HEXSKIP
    ADD DL, 07H
HEXSKIP:
    ADD DL,30H
    RET
DECHEX ENDP

PRINTNUM PROC
    MOV CL,12
    ROR AX,CL
    MOV SI,AX
    MOV BL,04H
JBCK:
    CALL DECHEX
    MOV AH,02H
    INT 21H
    MOV AX,SI
    MOV CL, 04
    ROL AX,CL
    MOV SI,AX
    DEC BL
    JNZ JBCK
    RET
PRINTNUM ENDP

START:
    MOV AX, DATA
    MOV DS,AX

INIT:
    MOV CL, COUNT
    CMP CL, 00H
    JLE LAST
    DEC CL
    MOV COUNT, CL
    MOV AX,A
    ADD AX,B
    MOV TEMP, AX
    MOV AX,A
    CALL PRINTNUM
    PRINTMSG SEP
    MOV AX,B
    MOV A,AX
    MOV AX, TEMP
    MOV B,AX
    JMP INIT

LAST:
    MOV AH, 4CH
    INT 21H

CODE ENDS
END START
```

```
D:\> masm fibo.asm
D:\> link fibo.obj
D:\> fibo.exe
0000
0001
0001
0002
0003
0005
0008
000D
0015
0022
```

Sum of Two 16 bit Numbers

add.asm

```
DATA SEGMENT
    A DW 6667H
    B DW 9999H
    SUM DW 0000H
    CARRY DB 00H
    MSG1 DB "SUM OF $"
    MSG2 DB " AND $"
    MSG3 DB " = $"
DATA ENDS

CODE SEGMENT
    ASSUME CS:CODE,DS:DATA

PRINTMSG MACRO MSG
    LEA DX,MSG
    MOV AH, 09H
    INT 21H
ENDM

DECHEX PROC
    MOV DX, 000FH
    AND DX,AX
    MOV CL, 04
    ROR AX,CL
    CMP DL,09H
    JLE HEXSKIP
    ADD DL, 07H
HEXSKIP:
    ADD DL,30H
    RET
DECHEX ENDP

PRINTNUM PROC
    MOV CL,12
    ROR AX,CL
    MOV SI,AX
    MOV BL,04H
JBCK:
    CALL DECHEX
    MOV AH,02H
    INT 21H
    MOV AX,SI
    MOV CL, 04
    ROL AX,CL
    MOV SI,AX
    DEC BL
    JNZ JBCK
    RET
PRINTNUM ENDP

START:
    MOV AX, DATA
    MOV DS,AX

    MOV AX,B
    ADD AX,A
    JNC SKIPCARRY
    MOV CARRY, 1H;
SKIPCARRY:
    MOV SUM,AX
    PRINTMSG MSG1
    MOV AX, A
    CALL PRINTNUM
    PRINTMSG MSG2
    MOV AX,B
    CALL PRINTNUM
    PRINTMSG MSG3
    MOV AL,CARRY
    CMP AL,00H
    JE NOCARRY
    MOV DL,31H
    MOV AH,02H
    INT 21H
NOCARRY:
    MOV AX,SUM
    CALL PRINTNUM
    MOV AH, 4CH
    INT 21H
```

```
CODE ENDS
END START
```

```
D:\> masm add.asm
D:\> link add.obj
D:\> add.exe
SUM OF 6667 AND 9999 = 10000
```