

LAB REPORT
ON
CSE 3110

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Task 1: Write a program that lets the user enter time in seconds, up to 65535, and outputs the time as hours, minutes and seconds. Use INDEC and outdec TO DO THE I/O

Code:

INDEC.asm

INDEC PROC

PUSH BX

PUSH CX

PUSH DX

@BEGIN:

MOV AH,2

MOV DL,'?'

INT 21H

XOR BX,BX

XOR CX,CX

MOV AH,1

INT 21H

CMP AL,'_'

JE @MINUS

CMP AL,'+'

JE @PLUS

JMP @REPEAT2

@MINUS:

MOV CX,1

@PLUS:

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

MOV AX,BX

OR CX,CX

JE @EXIT

NEG AX

@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

INDEC ENDP

OUTDEC.asm

OUTDEC PROC

PUSH AX

PUSH BX

PUSH CX

PUSH DX

OR AX,AX

JGE @END_IF1

PUSH AX

MOV DL,'-'

MOV AH,2

INT 21H

POP AX

NEG AX

@END_IF1:

```
XOR CX,CX
MOV BX,10D
@REPEAT1:
XOR DX,DX
DIV BX
PUSH DX
INC CX
OR AX,AX
JNE @REPEAT1
MOV AH,2
@PRINT_LOOP:
POP DX
OR DL,30H
INT 21H
LOOP @PRINT_LOOP
POP DX
POP CX
POP BX
POP AX
RET
OUTDEC ENDP
```

Main program:

```
.MODEL SMALL
.STACK 64
.DATA
M1 DB 0AH,0DH,'THE TIME IS $'
```

```
.CODE
MAIN PROC
MOV AX,@DATA ;intialize DS
MOV DS,AX
CALL INDEC
MOV DX,0 ;make sure no thing in DX
MOV BX,3600 ;60min*60sec=1hr
DIV BX
PUSH AX
PUSH DX
MOV AH,9
LEA DX,M1
INT 21H
POP DX
POP AX
CALL OUTDEC
PUSH DX
MOV AH,2
MOV DL,','
INT 21H

POP AX
MOV BX,60
MOV DX,0
DIV BX
CALL OUTDEC
PUSH DX

MOV AH,2
```

```
MOV DL,':'  
INT 21H  
POP AX  
CALL OUTDEC  
  
MOV AH,4CH  
INT 21H  
MAIN ENDP  
INCLUDE OUTDEC.ASM  
INCLUDE INDEC.ASM  
END MAIN
```

Output:

