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Code Conversion

**VIT**[®]
Vellore Institute of Technol
(Deemed to be University under section 3 of UGC Act)**Aim:**

To find the code conversions for BCD and ASCII

Tool Used:

Assembler - MASM 611

Algorithm:

1. Assume two numbers bcd and ascii
2. Start the program by initializing the code segment and clear the content
3. Store the first 4 binary numbers of bcd and add 30 to it.
4. Then store the last 4 binary numbers of bcd and add 30 to it.
5. Split the ascii code into 2 halves and subtract 30 from each
6. Print the results

Program:

ASSUME CS:CODE,DS:DATA

DATA SEGMENT

ORG 1000H

ASI EQU 3532H

BCD EQU 01110100

ANSB DW ?

ANSA DW ?

DATA ENDS

CODE SEGMENT

START:

MOV AX,DATA

```
MOV DS,AX
XOR AX,AX
MOV AL,BCD
MOV BL,0FH
MOV AH,AL
AND AL,BL
MOV CX,04H
SHR AH,CL
OR AX,3030H
MOV ANSB,AX
XOR AX,AX
MOV AX,ASI
AND AX,0F0FH
MOV ANSA,AX
HLT
CODE ENDS
END START
```

Sample Input:

ASI - 3532H

BCD - 74H

Sample Output:

ASCII : 37 34

BCD : 05 02

Manual Verification:

BCD to Decimal Converter

BCD:

Decimal Number

74

Register/ Memory Contents for I/O:

```
-u
0865:0022 A30210      MOV     [1002],AX
0865:0025 F4          HLT
0865:0026 C4F6        LES     SI,SI
0865:0028 8946F6      MOV     [BP-0A],AX
0865:002B 894EF8      MOV     [BP-08],CX
0865:002E 8956FA      MOV     [BP-06],DX
0865:0031 885EFC      MOV     [BP-04],BL
0865:0034 887EFF      MOV     [BP-01],BH
0865:0037 8CCB        MOV     AX,CS
0865:0039 0F          DB      0F
0865:003A 02C0        ADD     AL,AL
0865:003C 80E460      AND     AH,60
0865:003F 80CC92      OR      AH,92
```

Snapshot of the Output:

```
-g 0025
AX=0502 BX=000F CX=0004 DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=0764 ES=0754 SS=0763 CS=0865 IP=0025  NU UP EI PL NZ NA PO NC
0865:0025 F4          HLT
-d 0764:1000 1005
0764:1000 34 37 02 05 00 00          47....
```

Result:

The code conversions are verified.