



# **Ahsanullah University of Science & Technology**

## **Department of Computer Science & Engineering**

**Course No** : CSE2214  
**Course Title** : Assembly Language Programming Sessional  
**Assignment No** : 07

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**Section** : C

### Question NO : 01

Write a program that prompts the user to enter a character, and in subsequent lines prints its ASCII code in binary and the number of 1 bits in its ASCII code

### ANSWER:

- .MODEL SMALL
- STACK 100H
- DATA

M1 DB 'TYPE A CHARACTER : ', '\$'

M2 DB 0AH, 0DH, 'THE ASCII CODE OF '

~~M3 DB~~

C1 DB ?, 'IN BINARY IS: ', '\$\$'

M3 DB 0AH, 0DH, 'THE NUMBER OF 1BIT IS'

~~C2 DB~~ ?, '\$'

### . CODE

MAIN PROC

MOV AX, @DATA

MOV DS, AX

MOV AH, 9

LEA DX, M1

INT 21H

MOV AH,1  
INT 21H

MOV BL,AL  
MOV C1,AL

MOV AH,9  
LEA DX,M2  
INT 21H

MOV BH,0  
MOV CX,8  
MOV AH,2

L1: SHL BL,1  
JC L2  
MOV DL,'0'  
INT 21H  
JMP L3

L2: MOV DL,'1'  
INT 21H  
INC BH

L3: LOOP L1

ADD BH,30H  
MOV C2,BH  
MOV AH,9  
LEA DX,M3  
INT 21H

EXIT:

MOV AH,4CH  
INT 21H

MAIN ENDP  
END MAIN

### Question no:02

Write a program that prompts the user to type a binary number of 16 digits or less and outputs it in hex on the next line, if the user enters an illegal character, he or she should be prompted to begin again.

### Answer:

- .MODEL SMALL
- .STACK 100H
- .DATA

```
M1 DB 0AH,0DH, 'TYPE A BINARY NUMBER  
UP TO 16 BIT : ', '$'
```

```
M2 DB 0AH,0DH, 'IN HEXA IT IS: ', '$'
```

.CODE

MAIN PROC

```
MOV AX, @DATA
```

```
MOV DS, AX
```

```
MOV AH, 9
```

```
LEA DX, M1
```

```
INT 21H
```

```
MOV BX, 0
```

```
MOV AH, 1
```

```
MOV CX, 16
```

```
CNT : INT 21H
      CMP AL, 0DH
      JE OUTPUT

      AND AL, 01H
      SHL BX, 1
      OR BL, AL
      LOOP CNT
```

```
OUTPUT : MOV AH, 9
          LEA DX, M2
          INT 21H

          MOV DH, 4
```

```
L1 : MOV CL, 4
      MOV DL, BH
      SHR DL, CL
      MOV AH, 2

      CMP DL, 9
      JG LETTER
      AD DL, 30H
      INT 21H
      JMP L2
```

LETTER :

```
ADD DL, 37H
INT 21H
```

```
L2 : ROL BX, CL

      DEC DH
      CMP DH, 0
      JNE L1
```

EXIT:

```
MOV AH, 4CH
INT 21H

MAIN ENDP
```

END MAIN