

## **ASSIGNMENT # 02**

### **MICROPROCESSOR AND ASSEMBLY LANGUAGE(CS-330)**

**SUBMITTED BY  
MUNIB-UL-HASSAN**

**ROLL NO #  
CS19-037**



**SUBMITTED TO  
MISS TEHMINA**

**DEPARTMENT OF COMPUTER SCIENCE  
SIR SYED UNIVERSITY OF ENGINEERING AND TECHNOLOGY**

**Question # 01: Write a program that calculates the total sum paid to a salesperson for eight months. The following are the monthly paychecks for those months: \$986, \$5673, \$4323, \$1298, \$3700, \$1200, \$4300 and \$2300.**

**CODING:**

```
.MODEL SMALL
.STACK 64
.DATA
COUNT EQU 08
SALARY DW 986, 5673, 4323, 1298, 3700, 1200, 4300 , 2300
ORG 0010H
SUM DW 2 DUP(?)
.CODE
MAIN PROC FAR
MOV AX,@DATA
MOV DS, AX
MOV CX, COUNT
MOV SI, OFFSET SALARY
MOV AX, 00
MOV BX, AX
BACK: ADD AX, [SI]
ADC BX,0
INC SI
INC SI
DEC CX
JNZ BACK
MOV SUM, AX
MOV SUM+2, BX
MOV AH, 4CH
INT 21H
MAIN ENDP
END MAIN
```

**Question # 02: Write a program to find the highest value from monthly paychecks given in Question # 01.**

**CODING:**

```
.MODEL SMALL
.STACK 64
.DATA
SALARY DW 986, 5673, 4323, 1298, 3700, 1200, 4300 , 2300 ORG 0010H
HIGHEST DW ?
.CODE
    MAIN PROC FAR
    MOV AX, @DATA
    MOV DS , AX
    MOV CX, 8
    MOV BX, OFFSET SALARY
    SUB AX , AX
    AGAIN: CMP AX , [BX]
    JA NEXT
    MOV AX , [BX]
    NEXT: ADD BX , 2
    LOOP AGAIN
    MOV HIGHEST, AX
    MOV AH, 4CH
    INT 21H
    MAIN: ENDP
    END MAIN
```

**Question # 03: Write a program that scans the initials 'lBM' and replaces the lowercase 'b' with Uppercase 'B'.**

**CODING:**

```
.MODEL SMALL
.STACK 64
.DATA
DATA1 DB 'lBM','$'
.CODE
MAIN PROC FAR
MOV AX, @DATA
MOV DS, AX
MOV ES, AX
CLD
MOV DI, OFFSET DATA1 MOV CX, 04
MOV AL, ' b '
REPNE SCASB
JNE OVER
DEC DI
MOV BYTE PTR [DI], ' B '
OVER: MOV AH, 09
MOV DX, OFFSET DATA1
INT 21H
MAIN: ENDP
END MAIN
```

**Question # 04: Write a program using a lookup table and XLAT to retrieve the y value in the Equation  $y = x^2 + 2x + 5$  for x values of 0 to 9.**

**CODING:**

```
.MODEL SMALL
.STACK 64
.DATA
Y_EQ    DB    05,08,13,20,29,40,53,68,85,104
X_VAL   DB    ?
STORE DB ?
.CODE
MAIN: PROC FAR
MOV AX , @DATA
MOV DS , AX
LEA BX , Y_EQ
MOV AL , X_VAL
XLAT
MOV STORE , AL
MOV AH , 4CH
INT 21
MAIN: ENDP
END MAIN
```

**Question # 05: Write a program that find number of zeros in a byte sized operand.**

**CODING:**

```
.MODEL SMALL
.STACK 64
.DATA
DATA1 DB 95H
COUNT DB ?
.CODE
MAIN : PROC FAR
MOV AX , @DATA
MOV DS , AX
SUB BL, BL
MOV DL, 8
MOV AL, DATA1
AGAIN: ROL AL, 1
JC NEXT
INC BL
NEXT: DEC DL
JNZ AGAIN
MOV COUNT, BL
MOV AH , 4CH
INT 21H
MAIN : ENDP
END MAIN
```