**ASSIGNMENT # 02**

**MICROPROCESSOR AND**

**ASSEMBLY LANGUAGE (CS-330)**

**SUBMITTED BY**

**MUNIB-UL-HASSAN**

**ROLL NO #**

**CS19-037**

****

**SUBMITTED TO**

**DEPARTMENT OF COMPUTER SCIENCE**

**SIR SYED UNIVERSITY OF ENGINEERING AND TECHNIOLOGY**

**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.**

**CODE:**

.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.**

**CODE:**

.MODEL SMALL

.STACK 64

.DATA

SALARY DW 986, 5673, 4323, 1298, 3700, 1200, 4300 ,300

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 ‘IbM’ and replaces the lowercase ‘b’ with uppercase ‘B’.**

CODE:

.MODEL SMALL

.STACK 64

.DATA

DATA1 DB 'IbM','$'

.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= x2 + 2x + 5 for x values of 0 to 9.**

CODE:

.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**

CODE:

.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