Date:

# EXPERIMENT NO. 7

#### AIM: Create an array. Perform addition of all even numbers from array and save

#### answer in one variable.

**ALGORITHM:**

**CODE:**

81 2 3 4

.model small

; 23cs081

.data

a db 81h, 02h, 03h, 04h

ans db 1 dup(?)

.code

mov dx,@data

mov ds,dx

mov si,offset a

mov bl,00h

mov al,00h

mov cl,04h

lb:

call fun\_sum

loop lb

mov ans,bl

hlt

fun\_sum proc

mov al,[si]

test al,01h

JNZ label2

add bl,al

label2:

inc si

ret

fun\_sum endp

**STEP-BY-STEP EXECUTION:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Instruction in Assembly Language** | **Screenshot of the Instruction in program memory** | **Value in Instruction Pointer** | **Operation executed by instruction** | **(Before execution of instruction) Content of to be affected Registers/Memory locations and flags** | **(After execution of instruction) Content of affected Registers/Memory locations and flags** |
| mov dx,@data |  |  | It is load the address of the data  segment into the DX register. | DX: 0000 | DX: 0710 |
| mov ds,dx |  |  | It moves the value from the DX register into the DS Register. | DS: 0700 | DS: 0710 |
| mov si,offset a |  |  | a into the SI (Source  Index) register. The SI register is often used as an index for accessing data in memory,especially in string  operations. | SI: 0000 | SI: 0000 |
| mov bl,00h |  |  | mov 00h in to lower 8 bit in to bx register. | BX: 0000 | BX: 0000 |
| mov al,00h |  |  | mov 00h in to lower 8 bit in to ax register. | AX: 0000 | AX: 0000 |
| mov cl,04h |  |  | mov 04h in to lower 8 bit in to cx register. | CX: 0000 | CX: 0004 |
| call fun\_sum |  |  | Call the function fun\_sum | SP: 0000 | SP: FFFE |
| mov al,[si] |  |  | mov data at si in to 8 bit in to ax register. | AX: 0000 | AX: 0081 |
| test al,01h |  |  | It performs a bitwise AND operation between the al register and the immediate value 01h.(it check al is zero or not) | No change |  |
| JNZ label2 |  |  | Jump on lable l2 if z it not zero | Z=0 do jumped |  |
| add bl,al | jumped |  | It add bl add al and store in bx |  |  |
| inc si |  |  | Increment si | Si:0000 | SI: 0001 |
| ret |  |  | Return from procedure |  |  |

**CONCLUSION:**