

Microprocessor and Interfacing

Lab Assignment: 2

Question-1:

Execute the assembly program to calculate the number of iterations of each number in the following array;

Array: 1 5 1 2 2 9 5 2 1 7 8

Source Code:

```
LEA SI, Array  
LEA DI, Array
```

Start:

```
LEA SI, Array  
MOV BL, [DI]  
INC DI  
MOV DL, 0000h  
MOV CX, 10
```

```
NIMRA PROC  
LOOP1:
```

```
MOV AL, [SI]  
CMP AL, BL
```

```
JE Found
```

```
INC SI  
LOOP LOOP1  
NIMRA ENDP
```

```
Jmp Start  
RET
```

Found:

```
ADD DL, 1
INC SI
LOOP LOOP1:
```

ret

OUTPUT:

The screenshot shows the noname.com emulator interface. On the left, the assembly code is displayed, starting with `org 100h` and `LEA SI, Array`. The registers window on the right shows the state of the CPU registers. The `AX` register contains `00 00`, `SI` contains `0124h`, and `DI` contains `0000h`. The `IP` register is at `0103`. The `CS` register is at `0700`. The `DS` register is at `0700`. The `ES` register is at `0700`. The `SP` register is at `FFFE`. The `BP` register is at `0000`. The `SI` register is at `0124`. The `DI` register is at `0000`. The `DS` register is at `0700`. The `ES` register is at `0700`.

The screenshot shows the noname.com emulator interface. On the left, the assembly code is displayed, starting with `org 100h` and `LEA SI, Array`. The registers window on the right shows the state of the CPU registers. The `AX` register contains `00 07`, `SI` contains `0124h`, and `DI` contains `0000h`. The `IP` register is at `0154`. The `CS` register is at `F400`. The `DS` register is at `0700`. The `ES` register is at `0700`. The `SP` register is at `FFFA`. The `BP` register is at `0000`. The `SI` register is at `012E`. The `DI` register is at `012E`. The `DS` register is at `0700`. The `ES` register is at `0700`.

-----THE END-----