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Recursion 2

Question 1:

Implement the following recursive algorithm on array:

A	DW	78, 24, 45, 87	
N	DW	5	(Size of Array)
i	DW	0	(Local Counter)

```
Minimum = FindMin (i) {  
    if (i == N-1) {  
        return A[i]  
    }  
    else {  
        Minimum = FindMin (i+1)  
        Return (MIN (Minimum, A[i]) )  
    }  
}
```

// means that the functions returns answer in minimum.

// return which ever is minimum of the two parameters.

Answer:

ORG 100h

.DATA

A	DW	5, 4, 3, 2, 1	; (Global) Array that holds terms
I	DW	0	; (Local) Array's index
N	DW	5	; (Global) Number of terms remaining
MIN	DW	0	; (Global) Holds minimum value

.CODE

MAIN PROC

```

    LEA SI, A
    PUSH 0
    CALL FINDMIN

RET
MAIN ENDP

FINDMIN PROC

    MOV BP, SP

    MOV BX, [BP+2]
    MOV DX, N
    ADD DX, N
    SUB DX, 2
    CMP BX, DX
    JNE AGAIN

    MOV BX, [BP+2]
    MOV DX, [SI+BX]
    MOV MIN, DX
    JMP EXIT

AGAIN:  ADD I, 2
        PUSH I
        CALL FINDMIN

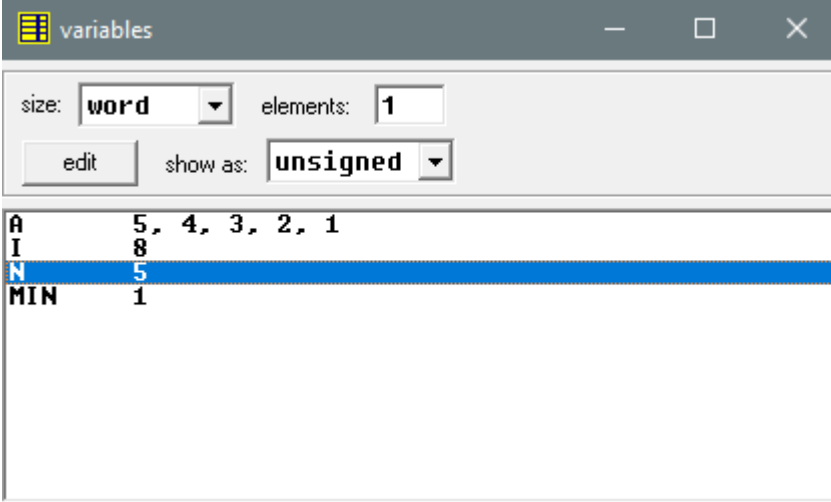
        MOV BP, SP
        MOV BX, [BP+2]
        MOV AX, [SI+BX]
        CMP MIN, AX
        JLE EXIT
        MOV MIN, AX

EXIT:
RET 2

FINDMIN ENDP

```

Output:



The screenshot shows a window titled "variables" with a toolbar containing a list icon, a minus sign, a maximize button, and a close button. Below the toolbar, there are controls for "size" (set to "word"), "elements" (set to "1"), an "edit" button, and "show as" (set to "unsigned"). The main area contains a table with the following data:

A	5, 4, 3, 2, 1
I	8
N	5
MIN	1