

If you want to get the .asm file, please feel free to download them [here](#).

(I will make the repository public after the deadline of assignment5. So if you do duplicate checking, remember I'm not cheating :-)

1.

```
1  .MODEL  SMALL
2  .STACK  64
3  .DATA
4
5  COUNT DW 100
6  ARRAY DB  0
7
8  .CODE
9  MAIN    PROC FAR
10         MOV  AX,@DATA
11         MOV  DS,AX
12
13         MOV  CX,COUNT
14         MOV  BX,OFFSET ARRAY
15         MOV  AL,0
16
17  _LOOP:  MOV  [BX],AL
18         INC  BX
19         INC  AX
20         DEC  CX
21         JNZ  _LOOP
22
23  ;_DEBUG: MOV  BX,OFFSET ARRAY+20
24
25         MOV  AH,4CH
26         INT  21H
27  MAIN    ENDP
28         END  MAIN
```

2.

```
1  DTSEG SEGMENT
2  INI_WORD DW  7FFH ;you can freely change from -7FFH to 7FFH
3  ABS_WORD DW  0
4  DTSEG ENDS
5
6  CDSEG SEGMENT
7  MAIN    PROC FAR
8         ASSUME CS:CDSEG,DS:DTSEG
9         MOV  AX,DTSEG
10        MOV  DS,AX
11
12        MOV  AX,INI_WORD
13        CMP  AX,0
14        JGE  DST
15        MOV  BX,AX
16        MOV  AX,0
17        SUB  AX,BX
```

```

18  DST:    MOV [ABS_WORD],AX
19
20  ;_DEBUG: MOV BX,ABS_WORD
21  ;        MOV CX,INI_WORD
22
23          MOV AH,4CH
24          INT 21H
25  MAIN    ENDP
26  CDSEG  ENDS
27          END MAIN

```

3.

```

1  STSEG SEGMENT
2      DB 128 DUP
3  STSEG ENDS
4
5  DTSEG SEGMENT
6      A DW 0000,0000
7      B DW 0000,0000
8      C DW 0000,0000
9      D DW 0000,0000
10 DTSEG ENDS
11
12 CDSEG SEGMENT
13 ;-----MAIN FUNC-----
14 MAIN    PROC FAR
15          ASSUME CS:CDSEG,DS:DTSEG
16          MOV AX,DTSEG
17          MOV DS,AX
18          ;A=-1
19          MOV AX,-1
20          MOV [A],AX
21          SAR AX,15
22          MOV [A]+2,AX
23          ;B=1
24          MOV AX,1
25          MOV [B],AX
26          SAR AX,15
27          MOV [B]+2,AX
28          ;ABS(A)
29          PUSH [A]
30          PUSH [A]+2
31
32          CALL ABS
33          ;C=ABS(A)
34          MOV BP,SP
35          MOV CX,[BP]
36          MOV BX,[BP]+2
37          ADD SP,4
38
39          MOV [C],BX
40          MOV [C]+2,CX
41          ;ADD(A,B)
42          PUSH [A]
43          PUSH [A]+2
44          PUSH [B]

```

```

45         PUSH [B]+2
46
47         CALL _ADD
48         ;D=ADD(A,B)
49         MOV BP,SP
50         MOV AX,[BP]+2
51         MOV BX,[BP]
52         ADD SP,8
53
54         MOV [D],AX
55         MOV [D]+2,BX
56
57         MOV AH,4CH
58         INT 21H
59 MAIN     ENDP
60 ;-----ABS FUNC-----
61 ABS     PROC
62
63         MOV BP,SP
64         MOV CX,[BP]+2
65         MOV BX,[BP]+4
66
67         CMP CX,0
68         JGE DST
69         NOT BX
70         NOT CX
71         ADD BX,1
72         JNC DST
73         ADD CX,1
74 DST:    MOV [BP]+2,CX
75         MOV [BP]+4,BX
76         RET
77 ABS     ENDP
78 ;-----ADD FUNC-----
79 _ADD    PROC
80
81         MOV BP,SP
82         MOV DX,[BP]+2
83         MOV CX,[BP]+4
84         MOV BX,[BP]+6
85         MOV AX,[BP]+8
86
87         ADD AX,CX
88         JNC DST_ADD
89         ADD DX,1
90 DST_ADD: ADD BX,DX
91
92         MOV [BP]+2,BX
93         MOV [BP]+4,AX
94
95         RET
96 _ADD    ENDP
97
98
99 CDSEG ENDS
100        END MAIN

```

4.

```
1  CDSEG SEGMENT
2  MAIN      PROC FAR
3              ASSUME CS:CDSEG;,DS:DTSEG
4              ;MOV AX,DTSEG
5              ;MOV DS,AX
6
7              SUB SP,4 ;int a
8
9              CALL FOO
10
11             MOV BP,SP
12             ;MOV [BP],RETURN_VAL
13             ADD SP,4
14
15             MOV AH,4CH
16             INT 21H
17 MAIN      ENDP
18
19 FOO       PROC
20
21             SUB SP,12 ;int a,b,c
22             ;...
23             ADD SP,12 ;clean
24
25             RET
26 FOO       ENDP
27
28 CDSEG ENDS
29             END MAIN
```