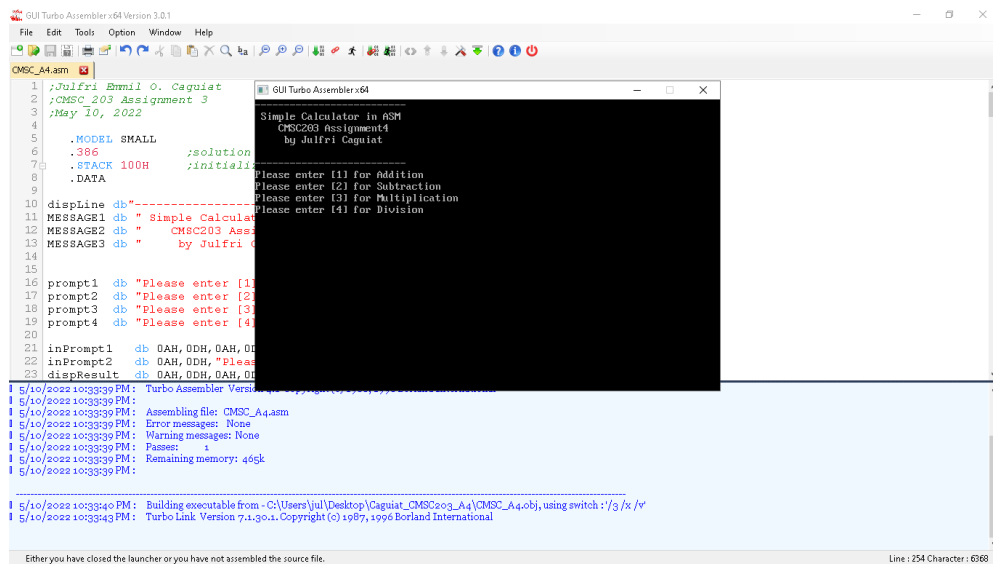


Julfri Emmil O. Caguiat  
CMSC203 Assignment 4  
May 10, 2022

## Screen Shots of Simple Calculator Program

### User Options

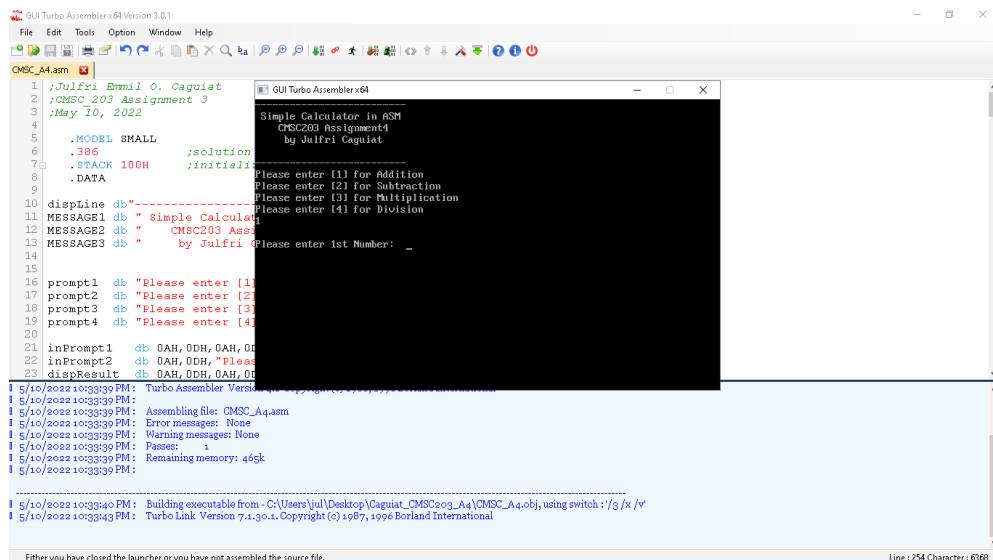


```
1 ;Julfri Emmil O. Caguiat
2 ;CMSC 203 Assignment 3
3 ;May 10, 2022
4
5 .MODEL SMALL
6 .386 ;solution
7 .STACK 100H ;initialization
8 .DATA
9
10 dispLine db "-----"
11 MESSAGE1 db " Simple Calculator in ASM"
12 MESSAGE2 db " CMSC203 Assignment4"
13 MESSAGE3 db " by Julfri Caguiat"
14
15
16 prompt1 db "Please enter [1] for Addition"
17 prompt2 db "Please enter [2] for Subtraction"
18 prompt3 db "Please enter [3] for Multiplication"
19 prompt4 db "Please enter [4] for Division"
20
21 inPrompt1 db 0AH, 0DH, 0AH, 0DH
22 inPrompt2 db 0AH, 0DH, 0AH, 0DH
23 dispResult db 0AH, 0DH, 0AH, 0DH
```

5/10/2022 10:33:39 PM: Turbo Assembler Version 6.4 Copyright (c) 1987, 1996 Borland International  
5/10/2022 10:33:39 PM: Assembling file: CMSC\_A4.asm  
5/10/2022 10:33:39 PM: Error messages: None  
5/10/2022 10:33:39 PM: Warning messages: None  
5/10/2022 10:33:39 PM: Passes: 1  
5/10/2022 10:33:39 PM: Remaining memory: 465k  
5/10/2022 10:33:40 PM: Building executable from - C:\Users\jul\Desktop\Caguiat\_CMSC203\_A4\CMSC\_A4.obj, using switch : /s /x /v  
5/10/2022 10:33:43 PM: Turbo Link Version 7.4.30.1. Copyright (c) 1987, 1996 Borland International

Either you have closed the launcher or you have not assembled the source file. Line : 254 Character : 6168

### Addition Function



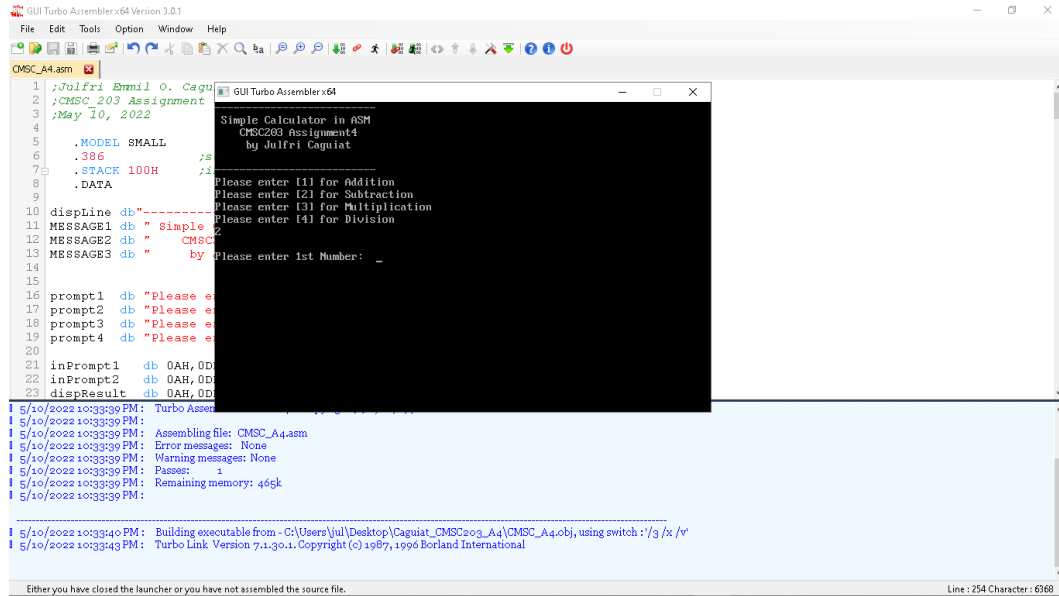
```
1 ;Julfri Emmil O. Caguiat
2 ;CMSC 203 Assignment 3
3 ;May 10, 2022
4
5 .MODEL SMALL
6 .386 ;solution
7 .STACK 100H ;initialization
8 .DATA
9
10 dispLine db "-----"
11 MESSAGE1 db " Simple Calculator in ASM"
12 MESSAGE2 db " CMSC203 Assignment4"
13 MESSAGE3 db " by Julfri Caguiat"
14
15
16 prompt1 db "Please enter [1] for Addition"
17 prompt2 db "Please enter [2] for Subtraction"
18 prompt3 db "Please enter [3] for Multiplication"
19 prompt4 db "Please enter [4] for Division"
20
21 inPrompt1 db 0AH, 0DH, 0AH, 0DH
22 inPrompt2 db 0AH, 0DH, 0AH, 0DH
23 dispResult db 0AH, 0DH, 0AH, 0DH
```

5/10/2022 10:33:39 PM: Turbo Assembler Version 6.4 Copyright (c) 1987, 1996 Borland International  
5/10/2022 10:33:39 PM: Assembling file: CMSC\_A4.asm  
5/10/2022 10:33:39 PM: Error messages: None  
5/10/2022 10:33:39 PM: Warning messages: None  
5/10/2022 10:33:39 PM: Passes: 1  
5/10/2022 10:33:39 PM: Remaining memory: 465k  
5/10/2022 10:33:40 PM: Building executable from - C:\Users\jul\Desktop\Caguiat\_CMSC203\_A4\CMSC\_A4.obj, using switch : /s /x /v  
5/10/2022 10:33:43 PM: Turbo Link Version 7.4.30.1. Copyright (c) 1987, 1996 Borland International

Either you have closed the launcher or you have not assembled the source file. Line : 254 Character : 6168



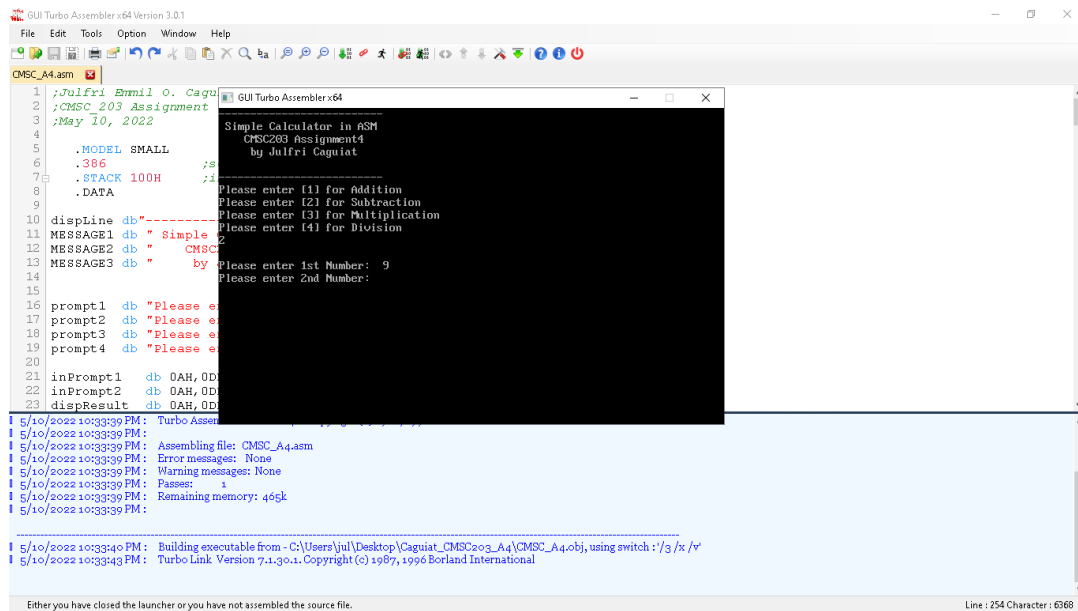
## Subtraction Function



```
1 ;Julfri Ermil O. Caguiat
2 ;CMSC_203 Assignment
3 ;May 10, 2022
4
5 .MODEL SMALL
6 .386
7 .STACK 100H
8 .DATA
9
10 dispLine db "-----"
11 MESSAGE1 db " Simple Calculator"
12 MESSAGE2 db " CMSC203 Assignment4"
13 MESSAGE3 db " by Julfri Caguiat"
14
15
16 prompt1 db "Please enter (1) for Addition"
17 prompt2 db "Please enter (2) for Subtraction"
18 prompt3 db "Please enter (3) for Multiplication"
19 prompt4 db "Please enter (4) for Division"
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21 inPrompt1 db 0AH, 0D
22 inPrompt2 db 0AH, 0D
23 dispResult db 0AH, 0D
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5/10/2022 10:33:39 PM: Turbo Assembler v64 Version 3.0.1  
5/10/2022 10:33:39 PM: Assembling file: CMSC\_A4.asm  
5/10/2022 10:33:39 PM: Error messages: None  
5/10/2022 10:33:39 PM: Warning messages: None  
5/10/2022 10:33:39 PM: Passes: 1  
5/10/2022 10:33:39 PM: Remaining memory: 465k  
5/10/2022 10:33:40 PM: Building executable from - C:\Users\jul\Desktop\Caguiat\_CMSC203\_A4\CMSC\_A4.obj, using switch: /3 /x /v  
5/10/2022 10:33:43 PM: Turbo Link Version 7.1.30.1. Copyright (c) 1987, 1996 Borland International

Either you have closed the launcher or you have not assembled the source file. Line : 254 Character : 6168



```
1 ;Julfri Ermil O. Caguiat
2 ;CMSC_203 Assignment
3 ;May 10, 2022
4
5 .MODEL SMALL
6 .386
7 .STACK 100H
8 .DATA
9
10 dispLine db "-----"
11 MESSAGE1 db " Simple Calculator"
12 MESSAGE2 db " CMSC203 Assignment4"
13 MESSAGE3 db " by Julfri Caguiat"
14
15
16 prompt1 db "Please enter (1) for Addition"
17 prompt2 db "Please enter (2) for Subtraction"
18 prompt3 db "Please enter (3) for Multiplication"
19 prompt4 db "Please enter (4) for Division"
20
21 inPrompt1 db 0AH, 0D
22 inPrompt2 db 0AH, 0D
23 dispResult db 0AH, 0D
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5/10/2022 10:33:39 PM: Turbo Assembler v64 Version 3.0.1  
5/10/2022 10:33:39 PM: Assembling file: CMSC\_A4.asm  
5/10/2022 10:33:39 PM: Error messages: None  
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5/10/2022 10:33:39 PM: Passes: 1  
5/10/2022 10:33:39 PM: Remaining memory: 465k  
5/10/2022 10:33:40 PM: Building executable from - C:\Users\jul\Desktop\Caguiat\_CMSC203\_A4\CMSC\_A4.obj, using switch: /3 /x /v  
5/10/2022 10:33:43 PM: Turbo Link Version 7.1.30.1. Copyright (c) 1987, 1996 Borland International

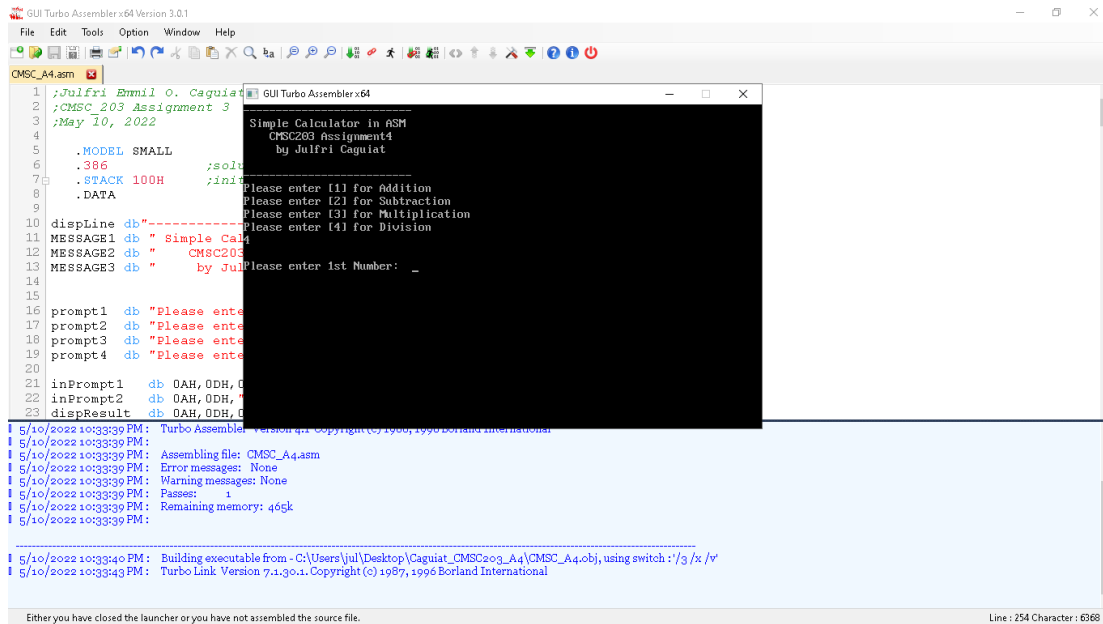
Either you have closed the launcher or you have not assembled the source file. Line : 254 Character : 6168

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GUI Turbo Assembler x64 Version 3.0.1
File Edit Tools Option Window Help
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1 ;Julfri Brmil O. Caguai
2 ;CMSC 203 Assignment 3
3 ;May 10, 2022
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5 .MODEL SMALL
6 .386
7 .STACK 100H
8 .DATA
9
10 dispLine db "-----"
11 MESSAGE1 db " Simple Calculator in ASM"
12 MESSAGE2 db " CMSC203 Assignment4"
13 MESSAGE3 db " by Julfri Caguai"
14
15
16 prompt1 db "Please enter [1] for Addition"
17 prompt2 db "Please enter [2] for Subtraction"
18 prompt3 db "Please enter [3] for Multiplication"
19 prompt4 db "Please enter [4] for Division"
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21 inPrompt1 db 0AH,0DH,0
22 inPrompt2 db 0AH,0DH,0
23 dispResult db 0AH,0DH,0
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```
GUI Turbo Assembler x64 Version 3.0.1
File Edit Tools Option Window Help
CMSC_A4.asm
1 ;Julfri Brmml o. Caguaiat
2 ;CMSC 203 Assignment 3
3 ;May 10, 2022
4
5 .MODEL SMALL
6 .386 ;sol
7 .STACK 100H ;ini
8 .DATA
9
10 dispLine db "-----"
11 MESSAGE1 db " Simple Cal
12 MESSAGE2 db " CMSC203
13 MESSAGE3 db " by Julfri
14
15
16 prompt1 db "Please ente
17 prompt2 db "Please ente
18 prompt3 db "Please ente
19 prompt4 db "Please ente
20
21 inPrompt1 db 0AH, 0DH, 0
22 inPrompt2 db 0AH, 0DH, 0
23 dispResult db 0AH, 0DH, 0
24
5/10/2022 10:33:39 PM: Turbo Assembler Version 7.1.30.1 Copyright (c) 1987, 1996 Borland International
5/10/2022 10:33:39 PM:
5/10/2022 10:33:39 PM: Assembling file: CMSC_A4.asm
5/10/2022 10:33:39 PM: Error messages: None
5/10/2022 10:33:39 PM: Warning messages: None
5/10/2022 10:33:39 PM: Passes: 1
5/10/2022 10:33:39 PM: Remaining memory: 465k
5/10/2022 10:33:39 PM:
5/10/2022 10:33:40 PM: Building executable from - C:\Users\jul\Desktop\Caguaiat_CMSC203_A4\CMSC_A4.obj, using switch : /g /x /v
5/10/2022 10:33:43 PM: Turbo Link Version 7.1.30.1 Copyright (c) 1987, 1996 Borland International
Either you have closed the launcher or you have not assembled the source file. Line : 254 Character : 6368
```

```
GUI Turbo Assembler x64 Version 3.0.1
File Edit Tools Option Window Help
CMSC_A4.asm
1 ;Julfri Brmml o. Caguaiat
2 ;CMSC 203 Assignment 3
3 ;May 10, 2022
4
5 .MODEL SMALL
6 .386 ;sol
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8 .DATA
9
10 dispLine db "-----"
11 MESSAGE1 db " Simple Cal
12 MESSAGE2 db " CMSC203
13 MESSAGE3 db " by Julfri
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16 prompt1 db "Please ente
17 prompt2 db "Please ente
18 prompt3 db "Please ente
19 prompt4 db "Please ente
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21 inPrompt1 db 0AH, 0DH, 0
22 inPrompt2 db 0AH, 0DH, 0
23 dispResult db 0AH, 0DH, 0
24
5/10/2022 10:33:39 PM: Turbo Assembler Version 7.1.30.1 Copyright (c) 1987, 1996 Borland International
5/10/2022 10:33:39 PM:
5/10/2022 10:33:39 PM: Assembling file: CMSC_A4.asm
5/10/2022 10:33:39 PM: Error messages: None
5/10/2022 10:33:39 PM: Warning messages: None
5/10/2022 10:33:39 PM: Passes: 1
5/10/2022 10:33:39 PM: Remaining memory: 465k
5/10/2022 10:33:39 PM:
5/10/2022 10:33:40 PM: Building executable from - C:\Users\jul\Desktop\Caguaiat_CMSC203_A4\CMSC_A4.obj, using switch : /g /x /v
5/10/2022 10:33:43 PM: Turbo Link Version 7.1.30.1 Copyright (c) 1987, 1996 Borland International
Either you have closed the launcher or you have not assembled the source file. Line : 254 Character : 6368
```

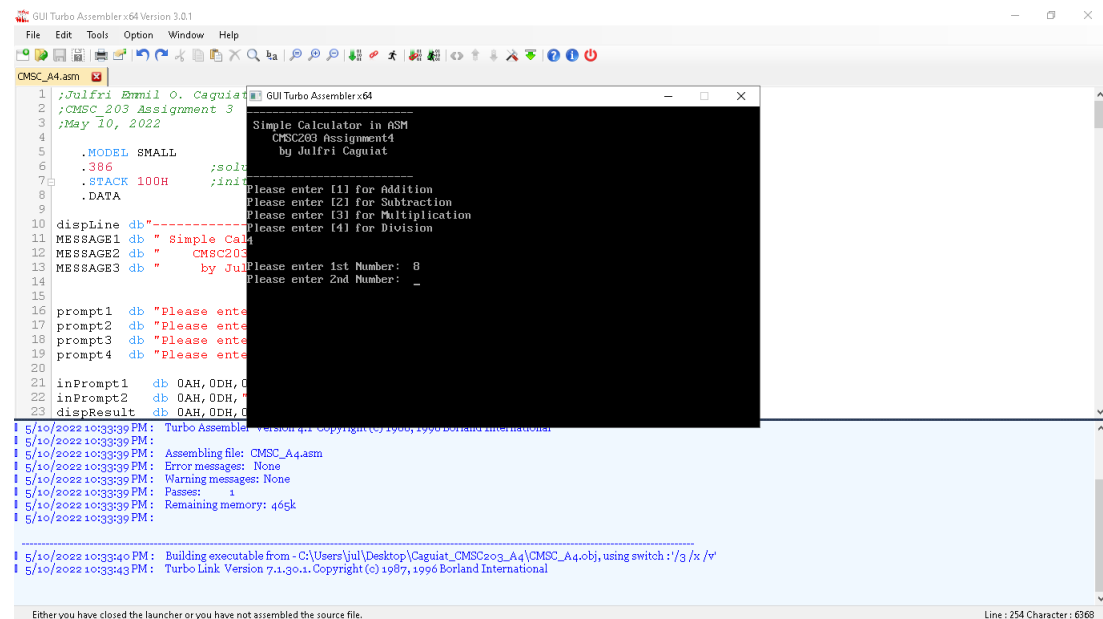
## Division Function



```
1 ;Julfri Ernill O. Caguiat
2 ;CMSC_203 Assignment 3
3 ;May 10, 2022
4
5 .MODEL SMALL
6 .386 ;solit
7 .STACK 100H ;init
8 .DATA
9
10 dispLine db "-----"
11 MESSAGE1 db " Simple Calculator in ASM"
12 MESSAGE2 db " CMSC203 Assignment4"
13 MESSAGE3 db " by Julfri Caguiat"
14
15
16 prompt1 db "Please enter [1] for Addition"
17 prompt2 db "Please enter [2] for Subtraction"
18 prompt3 db "Please enter [3] for Multiplication"
19 prompt4 db "Please enter [4] for Division"
20
21 inPrompt1 db 0AH, 0DH, 0
22 inPrompt2 db 0AH, 0DH, 0
23 dispResult db 0AH, 0DH, 0
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5/10/2022 10:33:39 PM: Turbo Assembler Version 4.1 Copyright (c) 1986, 1996 Borland International  
5/10/2022 10:33:39 PM: Assembling file: CMSC\_A4.asm  
5/10/2022 10:33:39 PM: Error messages: None  
5/10/2022 10:33:39 PM: Warning messages: None  
5/10/2022 10:33:39 PM: Passes: 1  
5/10/2022 10:33:39 PM: Remaining memory: 465k  
5/10/2022 10:33:40 PM: Building executable from - C:\Users\jul\Desktop\Caguiat\_CMSC203\_A4\CMSC\_A4.obj, using switch: /3 /x /v  
5/10/2022 10:33:43 PM: Turbo Link Version 7.1.30.1 Copyright (c) 1987, 1996 Borland International

Either you have closed the launcher or you have not assembled the source file. Line : 254 Character : 6368



```
1 ;Julfri Ernill O. Caguiat
2 ;CMSC_203 Assignment 3
3 ;May 10, 2022
4
5 .MODEL SMALL
6 .386 ;solit
7 .STACK 100H ;init
8 .DATA
9
10 dispLine db "-----"
11 MESSAGE1 db " Simple Calculator in ASM"
12 MESSAGE2 db " CMSC203 Assignment4"
13 MESSAGE3 db " by Julfri Caguiat"
14
15
16 prompt1 db "Please enter [1] for Addition"
17 prompt2 db "Please enter [2] for Subtraction"
18 prompt3 db "Please enter [3] for Multiplication"
19 prompt4 db "Please enter [4] for Division"
20
21 inPrompt1 db 0AH, 0DH, 0
22 inPrompt2 db 0AH, 0DH, 0
23 dispResult db 0AH, 0DH, 0
24
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5/10/2022 10:33:39 PM: Turbo Assembler Version 4.1 Copyright (c) 1986, 1996 Borland International  
5/10/2022 10:33:39 PM: Assembling file: CMSC\_A4.asm  
5/10/2022 10:33:39 PM: Error messages: None  
5/10/2022 10:33:39 PM: Warning messages: None  
5/10/2022 10:33:39 PM: Passes: 1  
5/10/2022 10:33:39 PM: Remaining memory: 465k  
5/10/2022 10:33:40 PM: Building executable from - C:\Users\jul\Desktop\Caguiat\_CMSC203\_A4\CMSC\_A4.obj, using switch: /3 /x /v  
5/10/2022 10:33:43 PM: Turbo Link Version 7.1.30.1 Copyright (c) 1987, 1996 Borland International

Either you have closed the launcher or you have not assembled the source file. Line : 254 Character : 6368

The screenshot shows the Turbo Assembler x86 Version 3.0.1 interface. The main window displays the assembly code for 'CMSC\_A4.asm'. The code includes comments, model, stack, and data declarations, followed by a simple calculator program that prompts the user for four numbers and calculates their sum. The status bar at the bottom indicates 'Either you have closed the launcher or you have not assembled the source file.'

```

1 ;Julfri Enmil O. Caguaiat
2 ;CMSC 203 Assignment 3
3 ;May 10, 2022
4
5 .MODEL SMALL
6 .386
7 .STACK 100H
8 .DATA
9
10 dispLine db "-----"
11 MESSAGE1 db " Simple Calculator"
12 MESSAGE2 db " CMSC203"
13 MESSAGE3 db " by Julfri Caguaiat"
14
15
16 prompt1 db "Please enter [1] for Addition"
17 prompt2 db "Please enter [2] for Subtraction"
18 prompt3 db "Please enter [3] for Multiplication"
19 prompt4 db "Please enter [4] for Division"
20
21 inPrompt1 db 0AH, 0DH, "Please enter 1st Number: 0"
22 inPrompt2 db 0AH, 0DH, "Please enter 2nd Number: 2"
23 dispResult db 0AH, 0DH, "The Result is equals to: 4"
24
25 prompt1 db "Please enter [1] for Addition"
26 prompt2 db "Please enter [2] for Subtraction"
27 prompt3 db "Please enter [3] for Multiplication"
28 prompt4 db "Please enter [4] for Division"
29
30 program successfully executed !
31 Press any key to continue.
32
33 inPrompt1 db 0AH, 0DH, "Please enter 1st Number: 0"
34 inPrompt2 db 0AH, 0DH, "Please enter 2nd Number: 2"
35 dispResult db 0AH, 0DH, "The Result is equals to: 4"
36
37 prompt1 db "Please enter [1] for Addition"
38 prompt2 db "Please enter [2] for Subtraction"
39 prompt3 db "Please enter [3] for Multiplication"
40 prompt4 db "Please enter [4] for Division"
41
42 program successfully executed !
43 Press any key to continue.
44
45 inPrompt1 db 0AH, 0DH, "Please enter 1st Number: 0"
46 inPrompt2 db 0AH, 0DH, "Please enter 2nd Number: 2"
47 dispResult db 0AH, 0DH, "The Result is equals to: 4"
48
49 prompt1 db "Please enter [1] for Addition"
50 prompt2 db "Please enter [2] for Subtraction"
51 prompt3 db "Please enter [3] for Multiplication"
52 prompt4 db "Please enter [4] for Division"
53
54 program successfully executed !
55 Press any key to continue.
56
57 inPrompt1 db 0AH, 0DH, "Please enter 1st Number: 0"
58 inPrompt2 db 0AH, 0DH, "Please enter 2nd Number: 2"
59 dispResult db 0AH, 0DH, "The Result is equals to: 4"
60
61 prompt1 db "Please enter [1] for Addition"
62 prompt2 db "Please enter [2] for Subtraction"
63 prompt3 db "Please enter [3] for Multiplication"
64 prompt4 db "Please enter [4] for Division"
65
66 program successfully executed !
67 Press any key to continue.
68
69 inPrompt1 db 0AH, 0DH, "Please enter 1st Number: 0"
70 inPrompt2 db 0AH, 0DH, "Please enter 2nd Number: 2"
71 dispResult db 0AH, 0DH, "The Result is equals to: 4"
72
73 prompt1 db "Please enter [1] for Addition"
74 prompt2 db "Please enter [2] for Subtraction"
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