Faculty of Computing

Lab # 12

Computer Architecture

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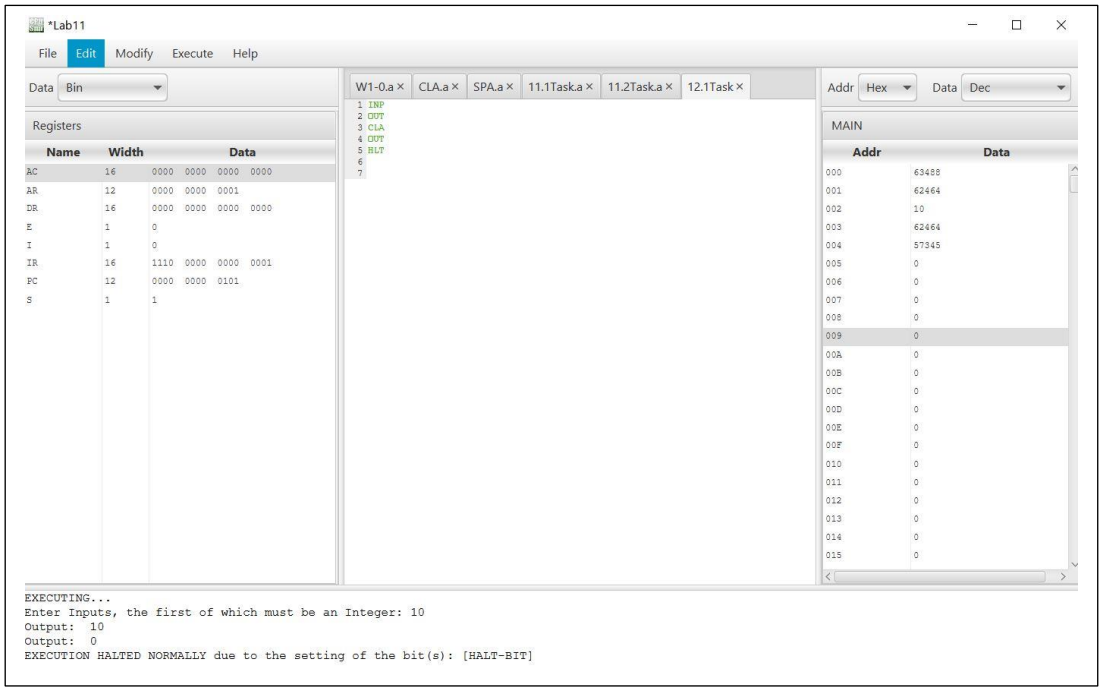
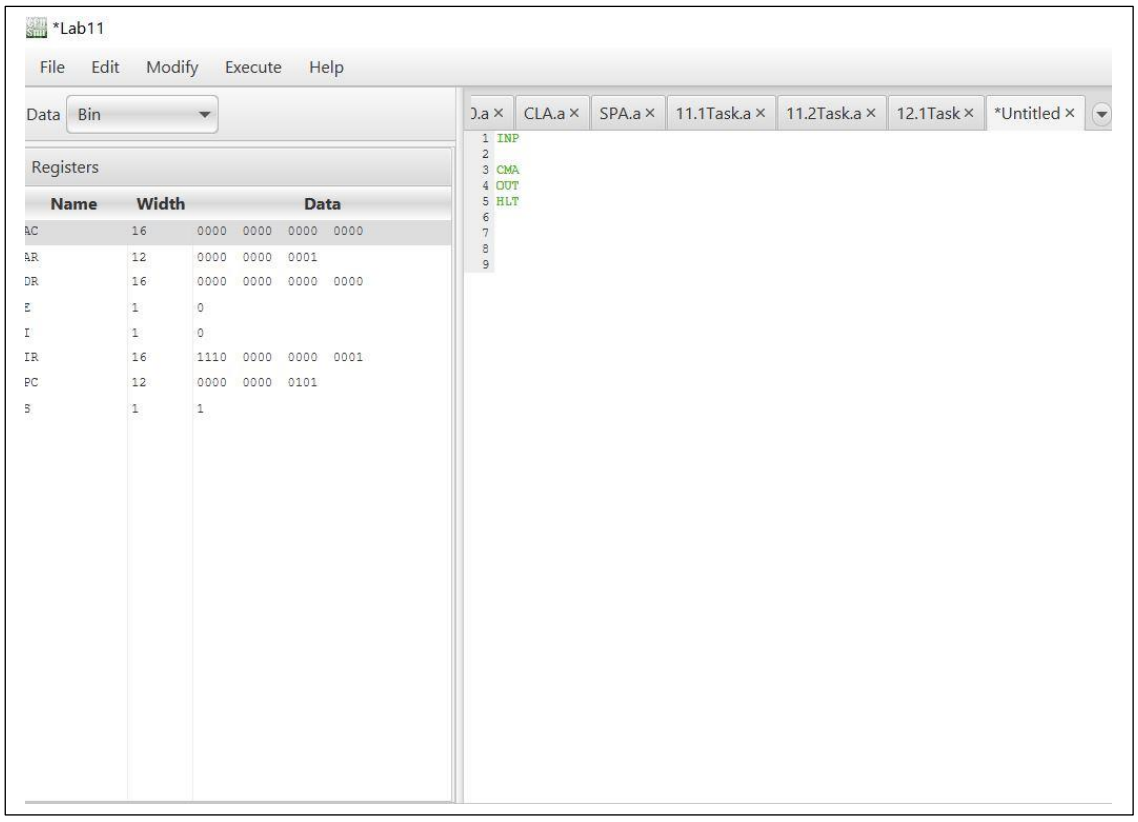
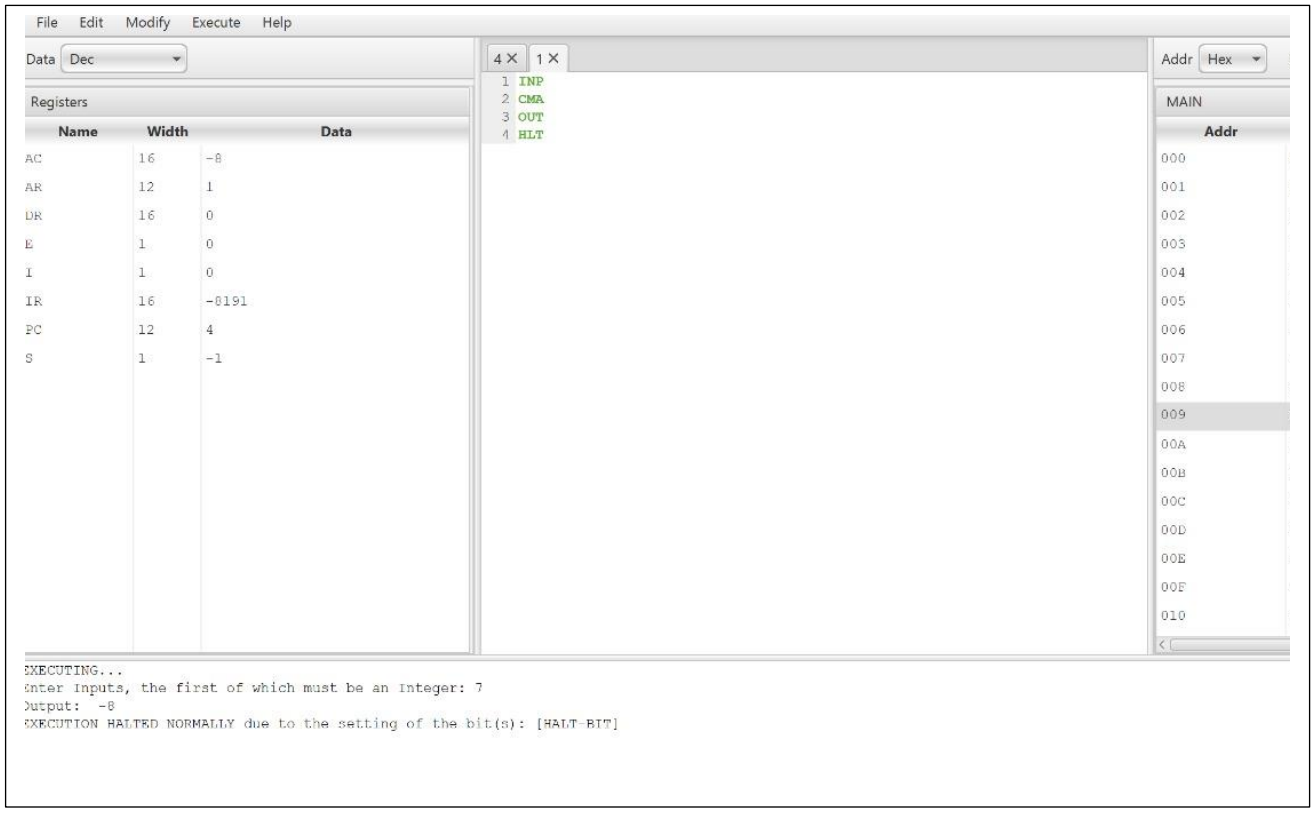
Semester: BSCS-4

Task 1:

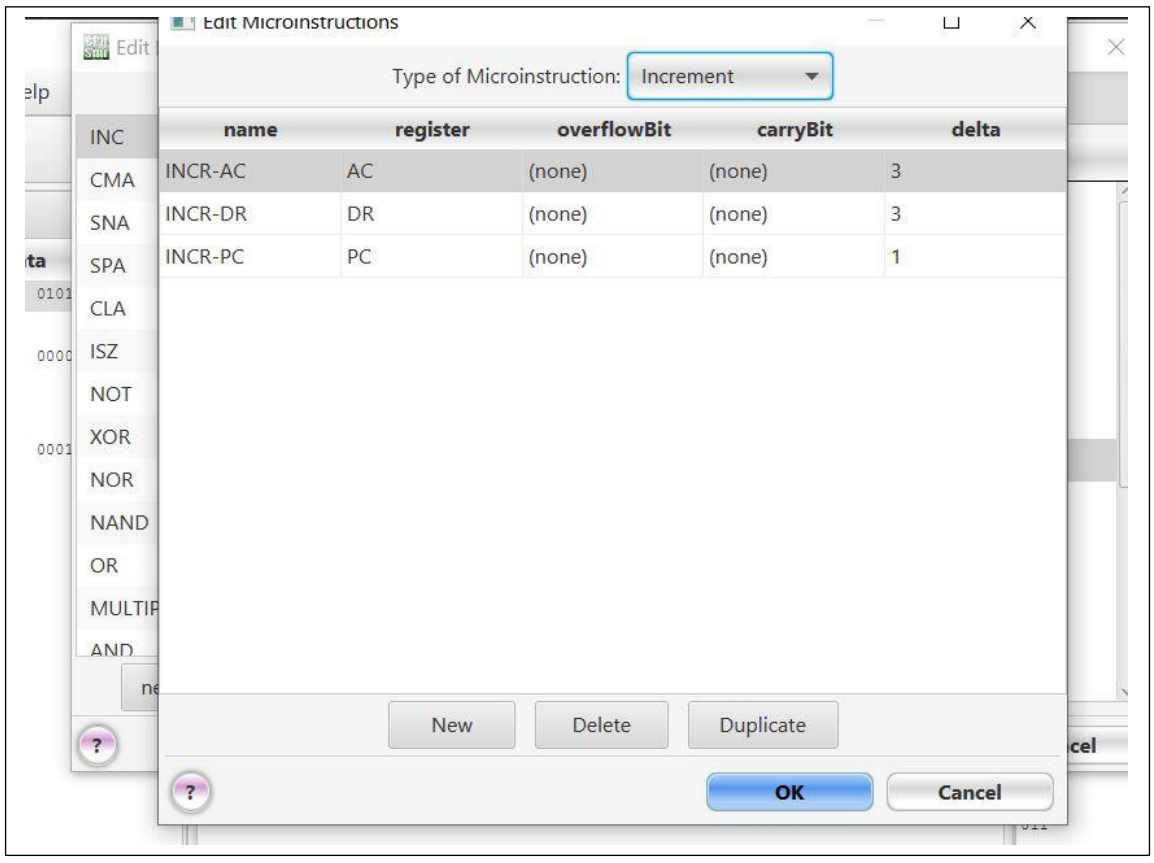

*Lab11
File
Edit
Modify
Execute
Help
Data
Bin
Registers
Name
Width
Data
AC 16 0000 0000 0000 0000
AR 12 0000 0000 0001
DR 16 0000 0000 0000 0000
E 1 0
I 1 0
IR 16 1110 0000 0000 0001
PC 12 0000 0000 0101
S 1 1
W1-0.a
CLA.a
SPA.a
11.1Task.a
11.2Task.a
12.1Task
1 INP
2 OUT
3 CLA
4 OUT
5 HLT
Addr
Hex
Data
Dec
MAIN
Addr
Data
000 63488
001 62464
002 10
003 62464
004 57345
EXECUTING...
Enter Inputs, the first of which must be an Integer: 10
Output: 10
Output: 0
EXECUTION HALTED NORMALLY due to the setting of the bit(s): [HALT-BIT]

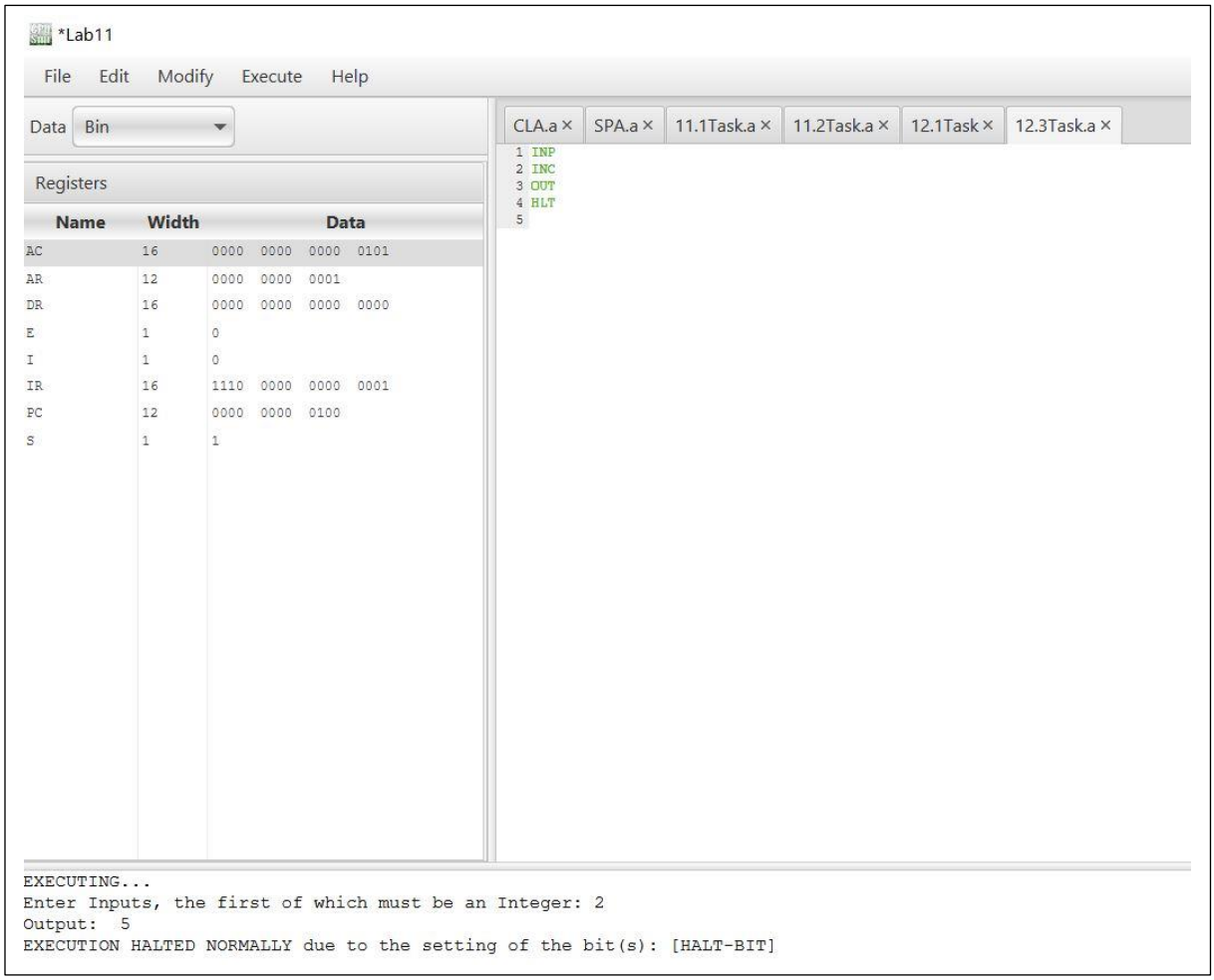
Task 2:


*Lab11
File
Edit
Modify
Execute
Help
Data
Bin
Registers
Name
Width
Data
AC 16 0000 0000 0000 0000
AR 12 0000 0000 0001
DR 16 0000 0000 0000 0000
E 1 0
I 1 0
IR 16 1110 0000 0000 0001
PC 12 0000 0000 0101
S 1 1
CLA.a
SPA.a
11.1Task.a
11.2Task.a
12.1Task
*Untitled
1 INP
2
3 CMA
4 OUT
5 HLT
6
7
8
9

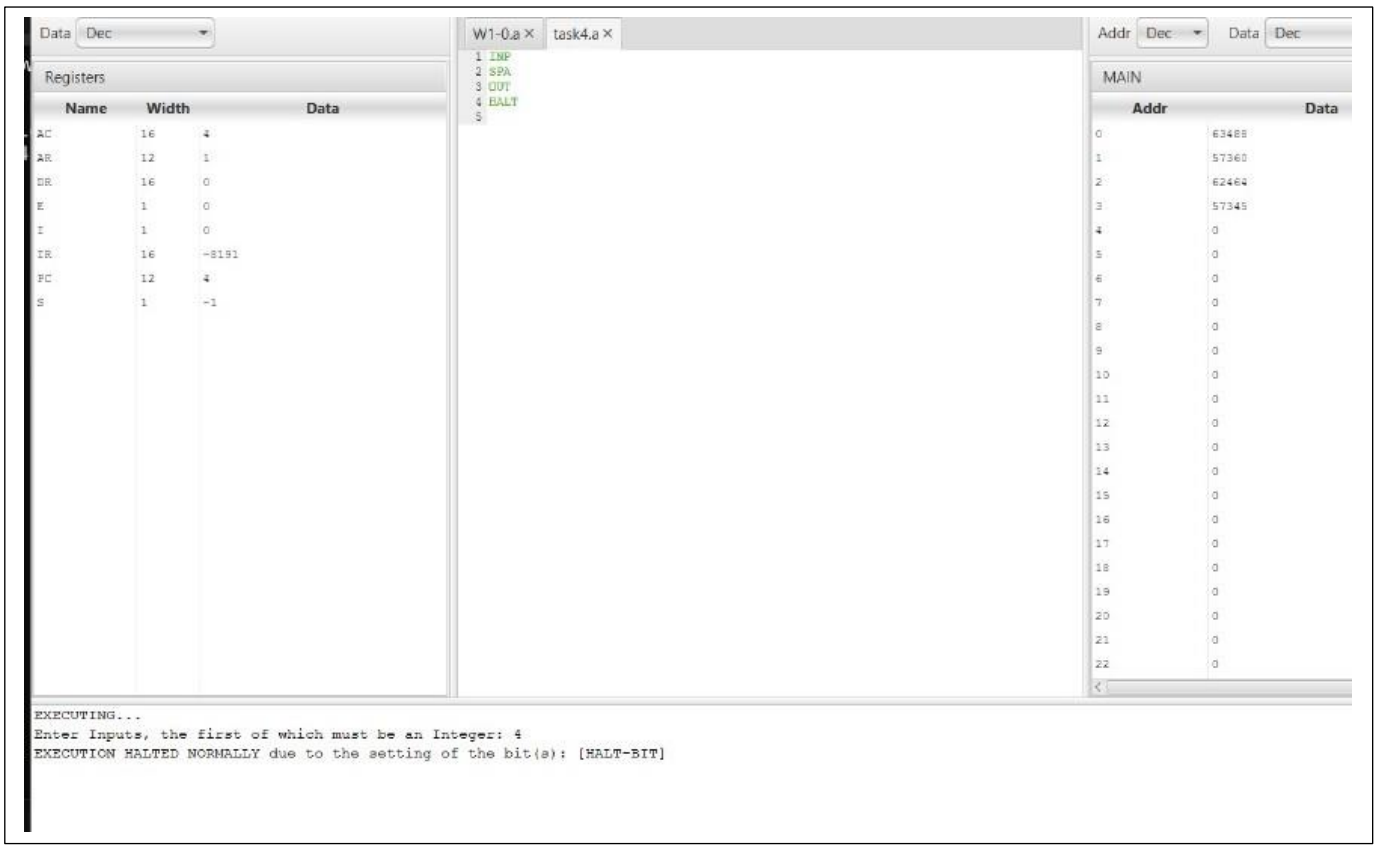

File Edit Modify Execute Help
Data Dec
Registers
Name Width Data
AC 16 -8
AR 12 1
DR 16 0
E 1 0
I 1 0
IR 16 -8191
PC 12 4
S 1 -1
4 × 1 ×
1 INP
2 CMA
3 OUT
4 HLT
Addr Hex
MAIN
Addr
000
001
002
003
004
005
006
007
008
009
00A
00B
00C
00D
00E
00F
010
EXECUTING...
Enter Inputs, the first of which must be an Integer: 7
Output: -8
EXECUTION HALTED NORMALLY due to the setting of the bit(s): [HALT-BIT]

Task 3:

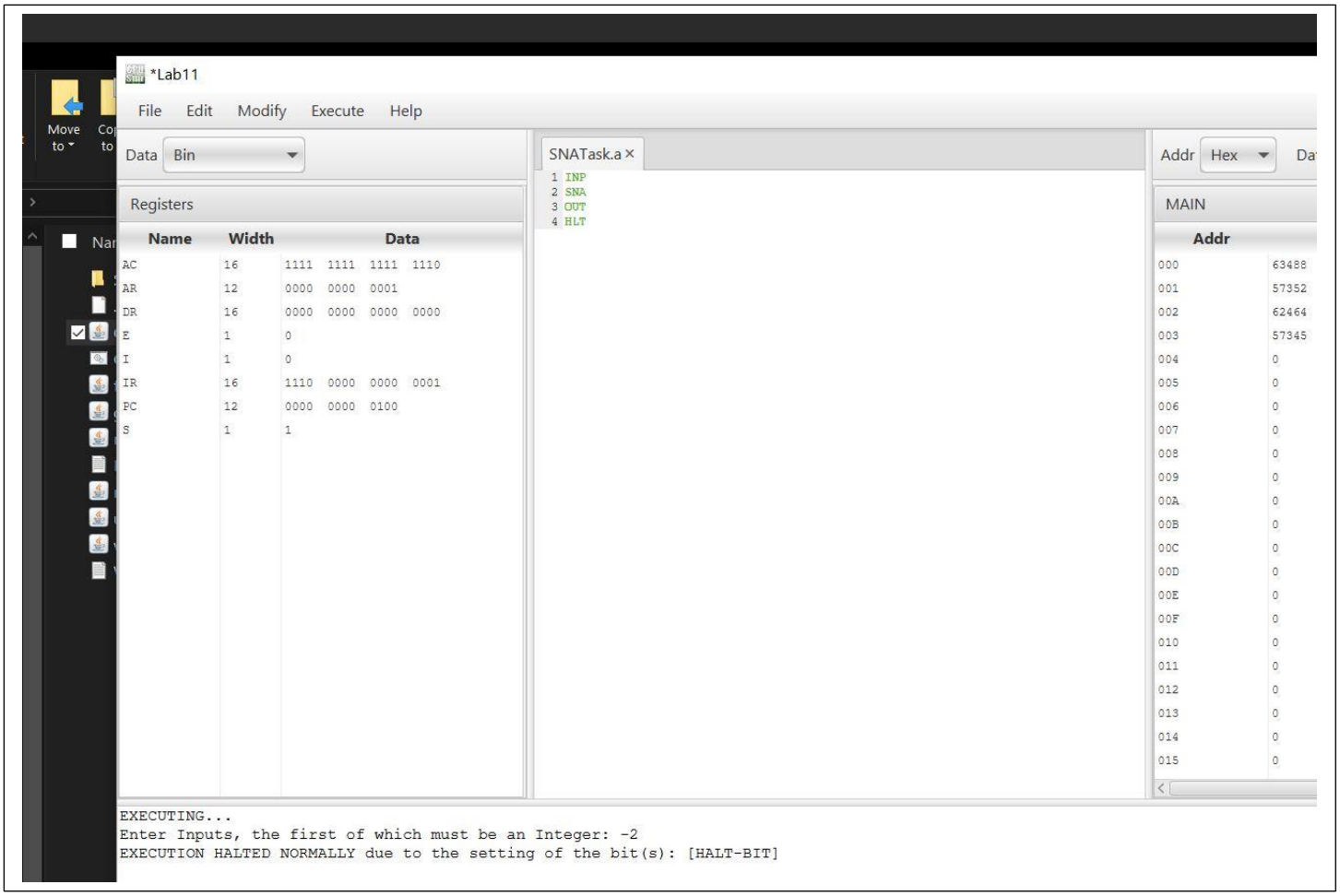

Edit Microinstructions
Type of Microinstruction: Increment
name register overflowBit carryBit delta
INCR-AC AC (none) (none) 3
INCR-DR DR (none) (none) 3
INCR-PC PC (none) (none) 1
INC
CMA
SNA
SPA
CLA
ISZ
NOT
XOR
NOR
NAND
OR
New
Delete
Duplicate
OK
Cancel


*Lab11
File Edit Modify Execute Help
Data Bin
CLA.a × SPA.a × 11.1Task.a × 11.2Task.a × 12.1Task × 12.3Task.a ×
1 INP
2 INC
3 OUT
4 HLT
5
Registers
Name Width Data
AC 16 0000 0000 0000 0101
AR 12 0000 0000 0001
DR 16 0000 0000 0000 0000
E 1 0
I 1 0
IR 16 1110 0000 0000 0001
PC 12 0000 0000 0100
S 1 1
EXECUTING...
Enter Inputs, the first of which must be an Integer: 2
Output: 5
EXECUTION HALTED NORMALLY due to the setting of the bit(s): [HALT-BIT]

Task 4:


Data Dec
W1-0.a × task4.a ×
1 INP
2 SPA
3 OUT
4 HALT
5
Addr Dec Data Dec
Registers
Name Width Data
AC 16 4
AR 12 1
DR 16 0
E 1 0
I 1 0
IR 16 -8191
PC 12 4
S 1 -1
MAIN
Addr Data
0 63488
1 57360
2 62464
3 57345
4 0
5 0
6 0
7 0
8 0
9 0
10 0
11 0
12 0
13 0
14 0
15 0
16 0
17 0
18 0
19 0
20 0
21 0
22 0
EXECUTING...
Enter Inputs, the first of which must be an Integer: 4
EXECUTION HALTED NORMALLY due to the setting of the bit(s): [HALT-BIT]

Task 5:


*Lab11
File Edit Modify Execute Help
Data Bin
SNATask.a ×
1 INP
2 SNA
3 OUT
4 HLT
Addr Hex
Registers
Name Width Data
AC 16 1111 1111 1111 1110
AR 12 0000 0000 0001
DR 16 0000 0000 0000 0000
E 1 0
I 1 0
IR 16 1110 0000 0000 0001
PC 12 0000 0000 0100
S 1 1
MAIN
Addr
000 63488
001 57352
002 62464
003 57345
004 0
005 0
006 0
007 0
008 0
009 0
00A 0
00B 0
00C 0
00D 0
00E 0
00F 0
010 0
011 0
012 0
013 0
014 0
015 0
EXECUTING...
Enter Inputs, the first of which must be an Integer: -2
EXECUTION HALTED NORMALLY due to the setting of the bit(s): [HALT-BIT]