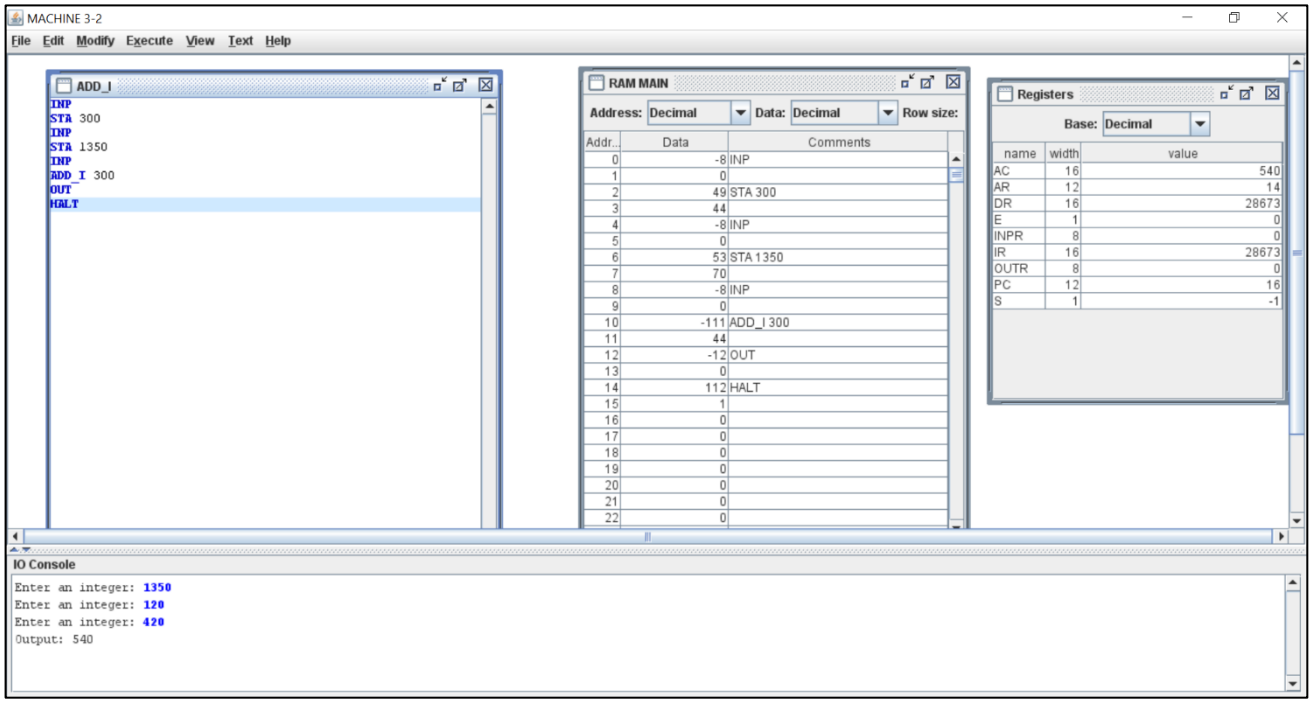
NAME – KHUSHI PANWAR, khushipanwar26@gmail.com
ROLL NO – 2021334

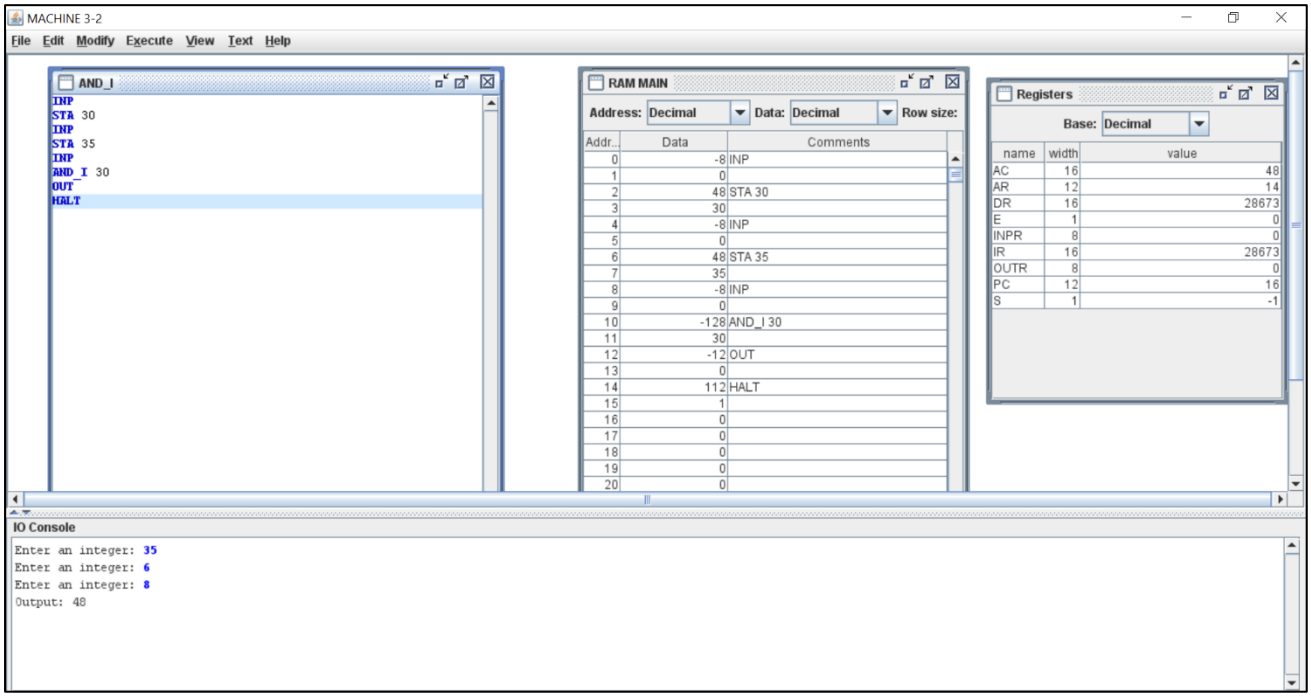
CSA PRACTICAL: ASSIGNMENT 4

1. **Write an assembly language program for simulating following memory reference instructions using INDIRECT ADDRESSING:**

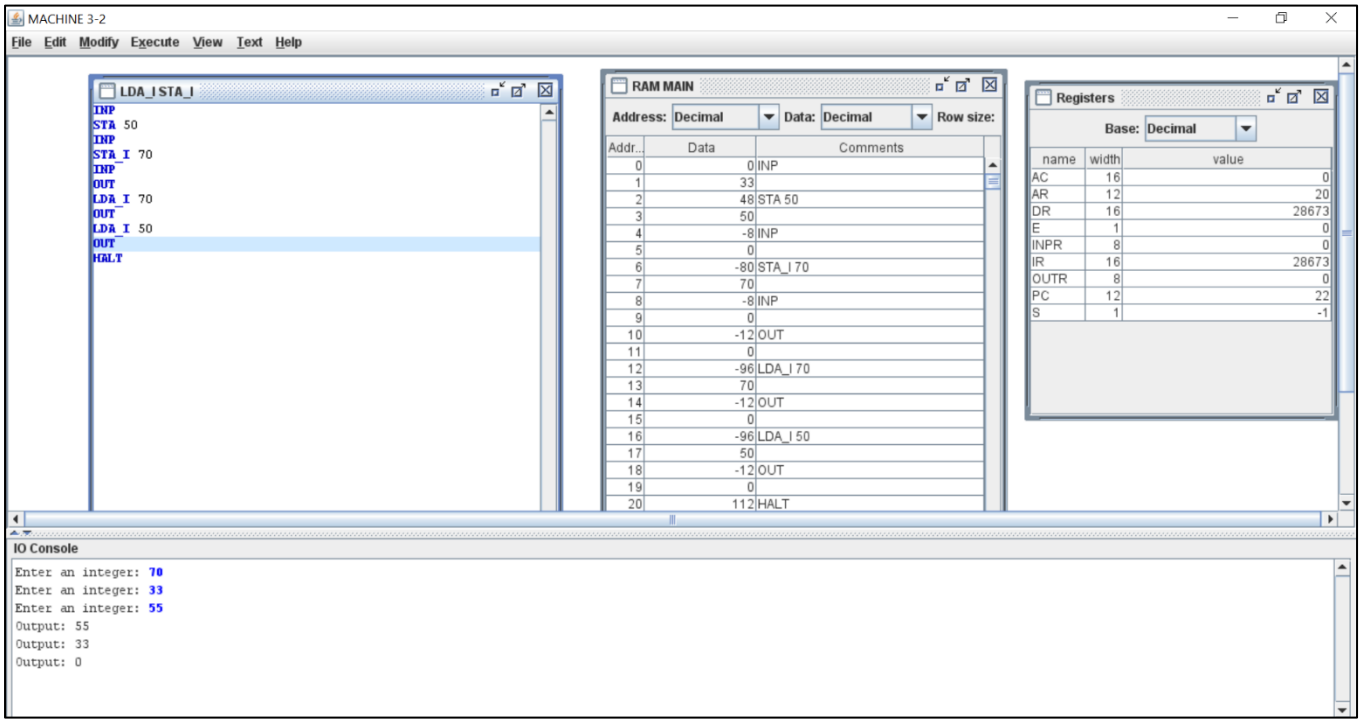
   i. **ADD_I**



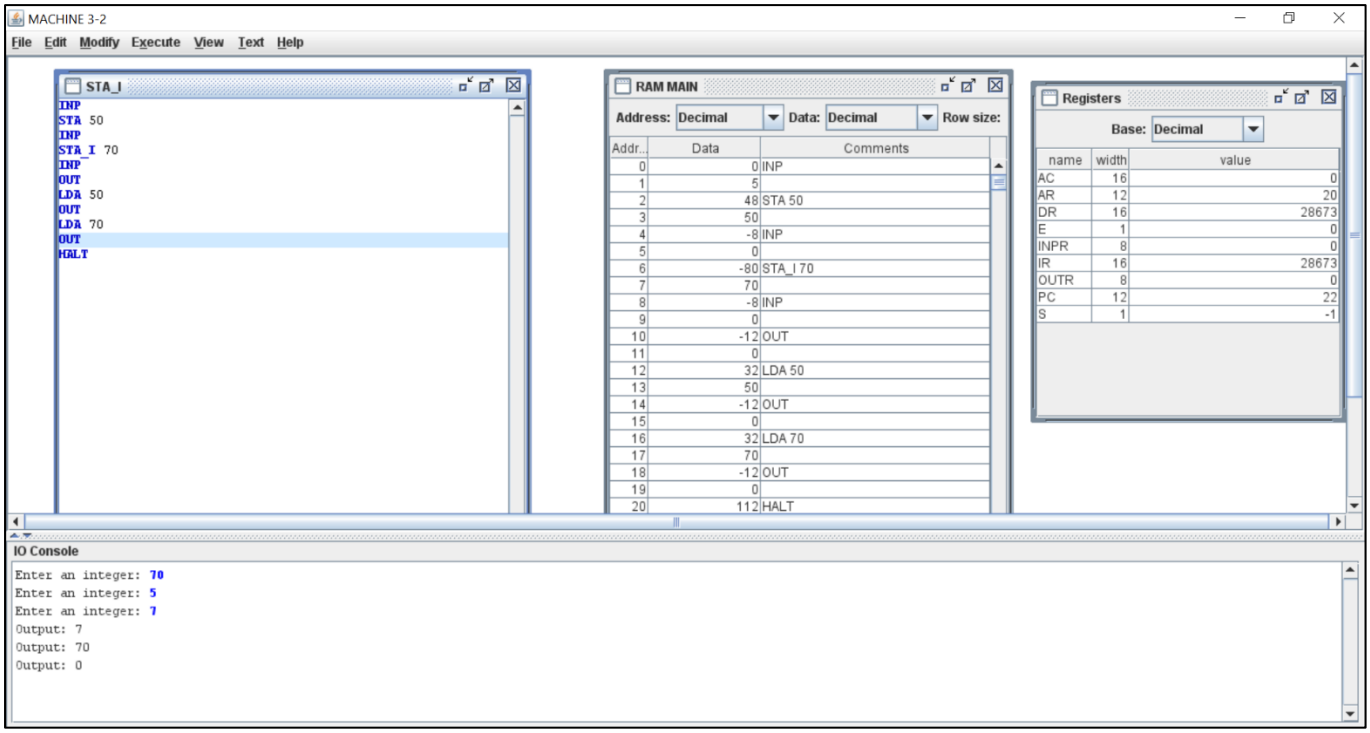
   ii. **AND_I**



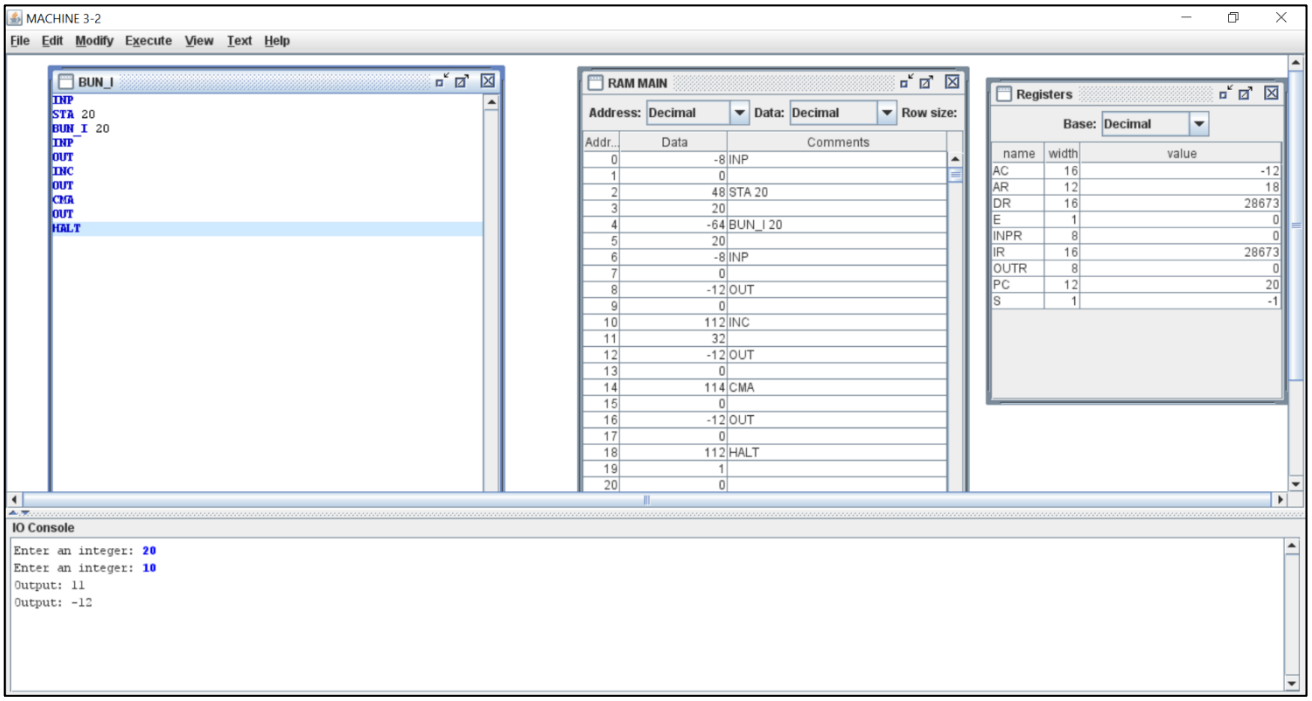
iii. LDA_I



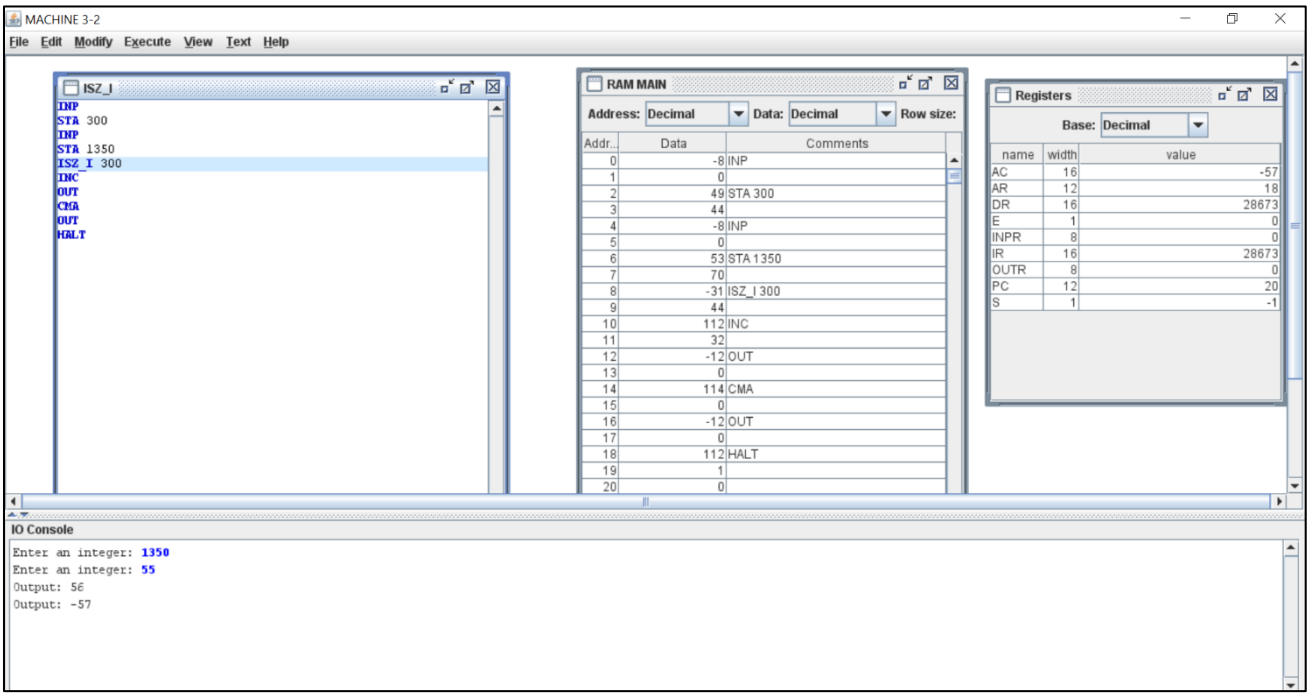
iv. STA_I



v. BUN_I


MACHINE 3-2
File Edit Modify Execute View Text Help
BUN_I
INP
STA 20
BUN_I 20
INP
OUT
INC
OUT
CMA
OUT
HALT
RAM MAIN
Address: Decimal Data: Decimal Row size:
Addr... Data Comments
0 -8 INP
1 0
2 48 STA 20
3 20
4 -64 BUN_I 20
5 20
6 -8 INP
7 0
8 -12 OUT
9 0
10 112 INC
11 32
12 -12 OUT
13 0
14 114 CMA
15 0
16 -12 OUT
17 0
18 112 HALT
19 1
20 0
Registers
Base: Decimal
name width value
AC 16 -12
AR 12 18
DR 16 28673
E 1 0
INPR 8 0
IR 16 28673
OUTR 8 0
PC 12 20
S 1 -1
IO Console
Enter an integer: 20
Enter an integer: 10
Output: 11
Output: -12

vi. ISZ_I


MACHINE 3-2
File Edit Modify Execute View Text Help
ISZ_I
INP
STA 300
INP
STA 1350
ISZ_I 300
INC
OUT
CMA
OUT
HALT
RAM MAIN
Address: Decimal Data: Decimal Row size:
Addr... Data Comments
0 -8 INP
1 0
2 49 STA 300
3 44
4 -8 INP
5 0
6 53 STA 1350
7 70
8 -31 ISZ_I 300
9 44
10 112 INC
11 32
12 -12 OUT
13 0
14 114 CMA
15 0
16 -12 OUT
17 0
18 112 HALT
19 1
20 0
Registers
Base: Decimal
name width value
AC 16 -57
AR 12 18
DR 16 28673
E 1 0
INPR 8 0
IR 16 28673
OUTR 8 0
PC 12 20
S 1 -1
IO Console
Enter an integer: 1350
Enter an integer: 55
Output: 56
Output: -57

2. Write an assembly language program for simulating BUN instruction (memory reference) :