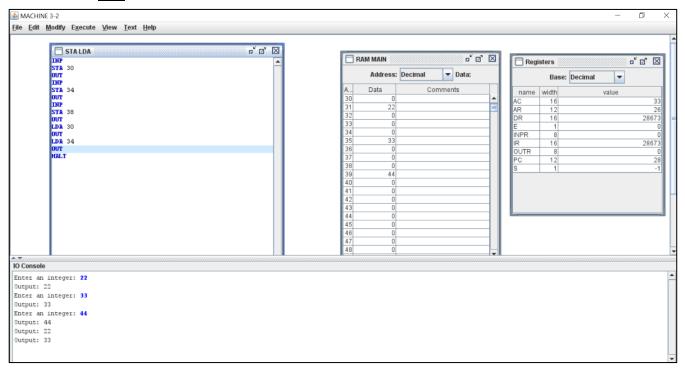# NAME – KHUSHI PANWAR, khushipanwar26@gmail.com
ROLL NO – 2021334
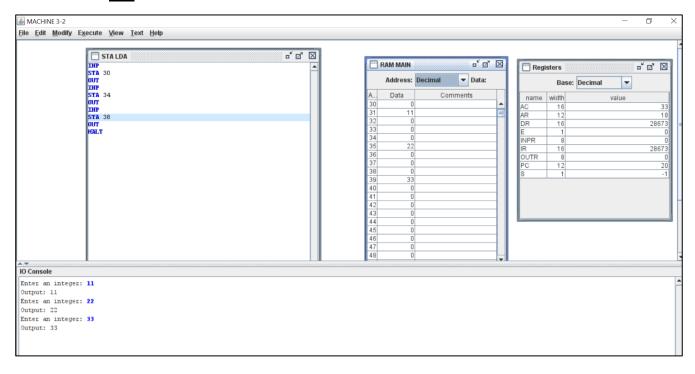# CSA PRACTICAL: ASSIGNMENT 3

1. **Write an assembly language program for simulating following memory reference instructions:**
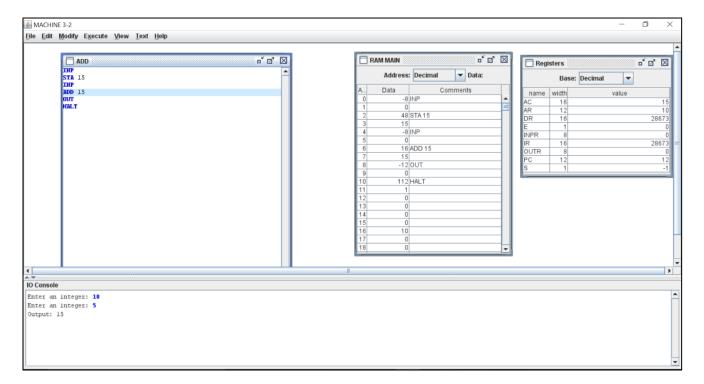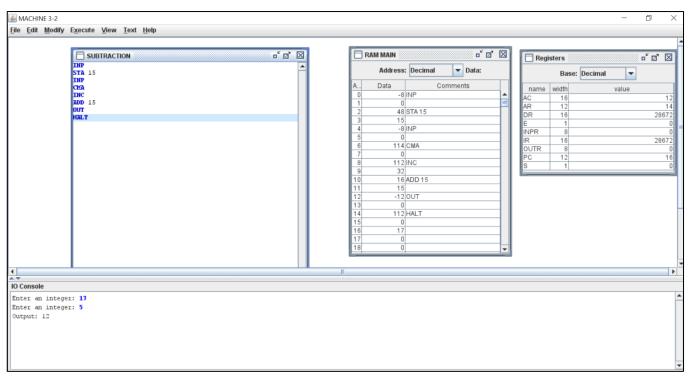
   i. **LDA**

   ii. **STA**

iii.   ADD


```
MACHINE 3-2
File  Edit  Modify  Execute  View  Text  Help

ADD
INP
STA 15
INP
ADD 15
OUT
HALT
```

RAM MAIN — Address: Decimal Data:

A...	Data	Comments
0	-8	INP
1	0	
2	48	STA 15
3	15	
4	-8	INP
5	0	
6	16	ADD 15
7	15	
8	-12	OUT
9	0	
10	112	HALT
11	1	
12	0	
13	0	
14	0	
15	0	
16	10	
17	0	
18	0	

Registers — Base: Decimal

name	width	value
AC	16	15
AR	12	10
DR	16	28673
E	1	0
INPR	8	0
IR	16	28673
OUTR	8	0
PC	12	12
S	1	-1

IO Console
```
Enter an integer: 10
Enter an integer: 5
Output: 15
```

2. Write an assembly program to simulate Subtraction operation on two user-entered numbers:


```
MACHINE 3-2
File  Edit  Modify  Execute  View  Text  Help

SUBTRACTION
INP
STA 15
INP
CMA
INC
ADD 15
OUT
HALT
```

RAM MAIN — Address: Decimal Data:

A...	Data	Comments
0	-8	INP
1	0	
2	48	STA 15
3	15	
4	-8	INP
5	0	
6	114	CMA
7	0	
8	112	INC
9	32	
10	16	ADD 15
11	15	
12	-12	OUT
13	0	
14	112	HALT
15	0	
16	17	
17	0	
18	0	

Registers — Base: Decimal

name	width	value
AC	16	12
AR	12	14
DR	16	28672
E	1	0
INPR	8	0
IR	16	28672
OUTR	8	0
PC	12	16
S	1	0

IO Console
```
Enter an integer: 17
Enter an integer: 5
Output: 12
```

3. Write an assembly program to simulate AND operation on two user-entered numbers:

```
MACHINE 3-2                                                          —  ☐  ✕
File  Edit  Modify  Execute  View  Text  Help
```

AND
```
INP
STA 15
INP
AND 15
OUT
HALT
```

RAM MAIN

Address: Decimal ▼ Data:

A..	Data	Comments
0	-8	INP
1	0	
2	48	STA 15
3	15	
4	-8	INP
5	0	
6	0	AND 15
7	15	
8	-12	OUT
9	0	
10	112	HALT
11	1	
12	0	
13	0	
14	0	
15	0	
16	4	
17	0	
18	0	

Registers

Base: Decimal ▼

name	width	value
AC	16	12
AR	12	10
DR	16	28673
E	1	0
INPR	8	0
IR	16	28673
OUTR	8	0
PC	12	12
S	1	-1

IO Console
```
Enter an integer: 4
Enter an integer: 3
Output: 12
```