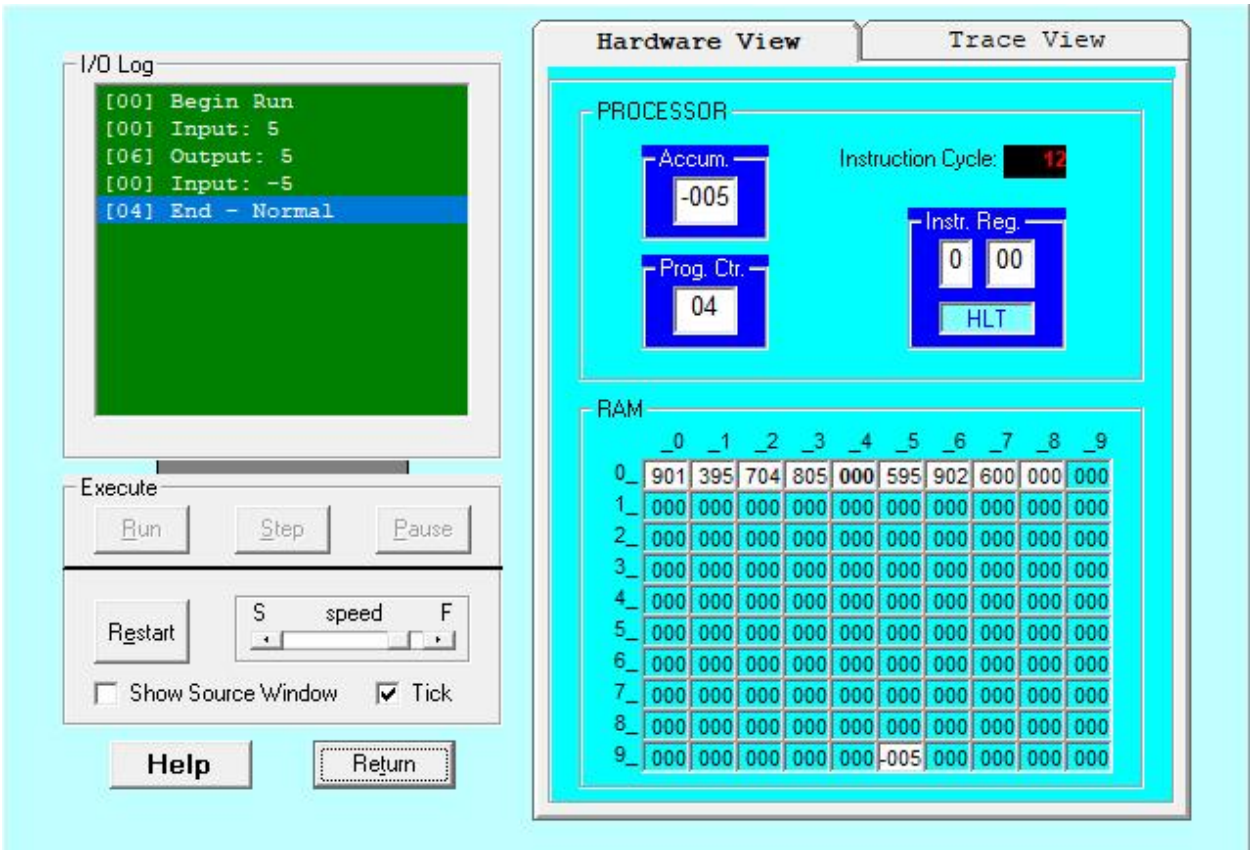
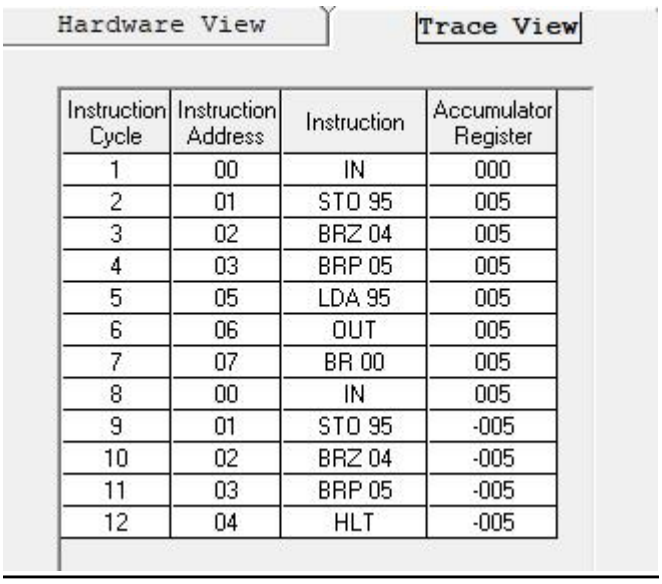
Lab 03

SOLUTION:

```
in
sto 95
brz 04
brp 05
hlt
lda 95
out
br 00
```

OUTPUT:





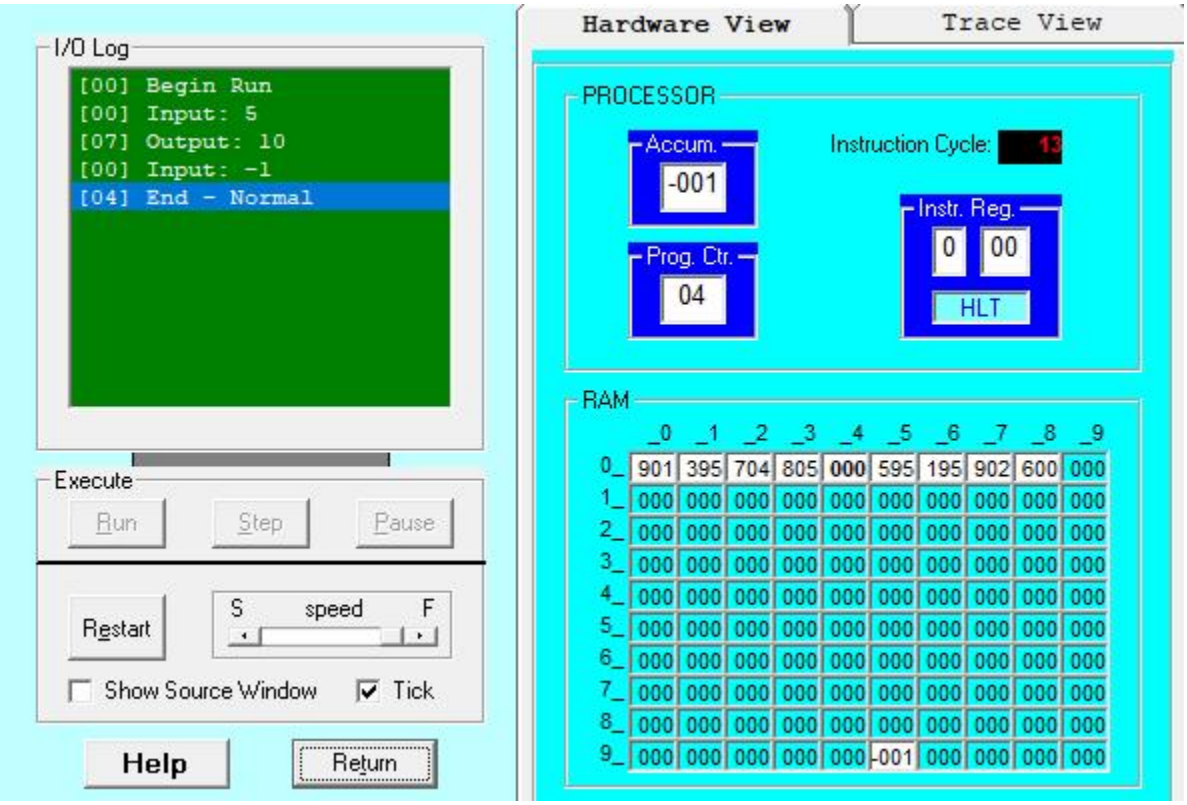
Instruction Cycle	Instruction Address	Instruction	Accumulator Register
1	00	IN	000
2	01	STO 95	005
3	02	BRZ 04	005
4	03	BRP 05	005
5	05	LDA 95	005
6	06	OUT	005
7	07	BR 00	005
8	00	IN	005
9	01	STO 95	-005
10	02	BRZ 04	-005
11	03	BRP 05	-005
12	04	HLT	-005

If A>0 then A+A

SOLUTION:

```
in
sto 95
brz 04
brp 05
hlt
lda 95
add 95
out
br 00
```

OUTPUT:

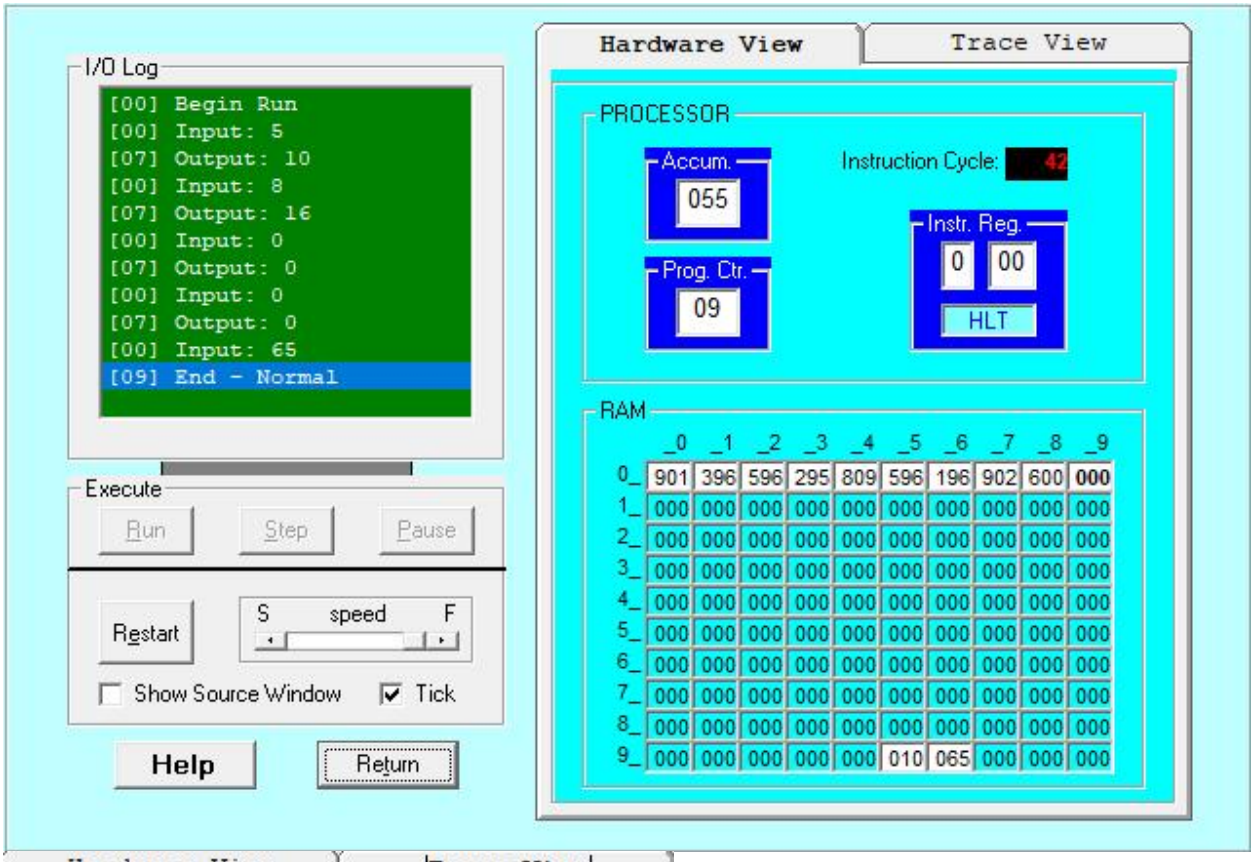


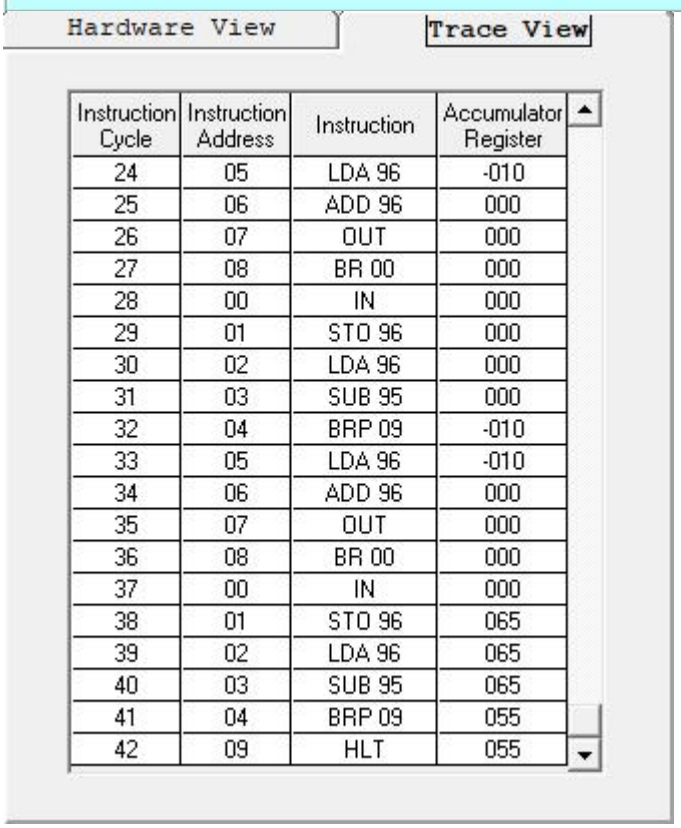
If A<10 then A+A

SOLUTION:

```
in
sto 96
lda 96
sub 95
brp 09
lda 96
add 96
out
br 00
hlt
*95
dat 010
```

OUTPUT:





Instruction Cycle	Instruction Address	Instruction	Accumulator Register
24	05	LDA 96	-010
25	06	ADD 96	000
26	07	OUT	000
27	08	BR 00	000
28	00	IN	000
29	01	STO 96	000
30	02	LDA 96	000
31	03	SUB 95	000
32	04	BRP 09	-010
33	05	LDA 96	-010
34	06	ADD 96	000
35	07	OUT	000
36	08	BR 00	000
37	00	IN	000
38	01	STO 96	065
39	02	LDA 96	065
40	03	SUB 95	065
41	04	BRP 09	055
42	09	HLT	055

Square of number (1-31)

SOLUTION:

```
in
sto 99
lda 98
add 99
sto 98
lda 97
add 96
sto 97
sub 99
brz 11
br 02
lda 98
out
hlt
*96
dat 001
dat 000
dat 000
```

OUTPUT:

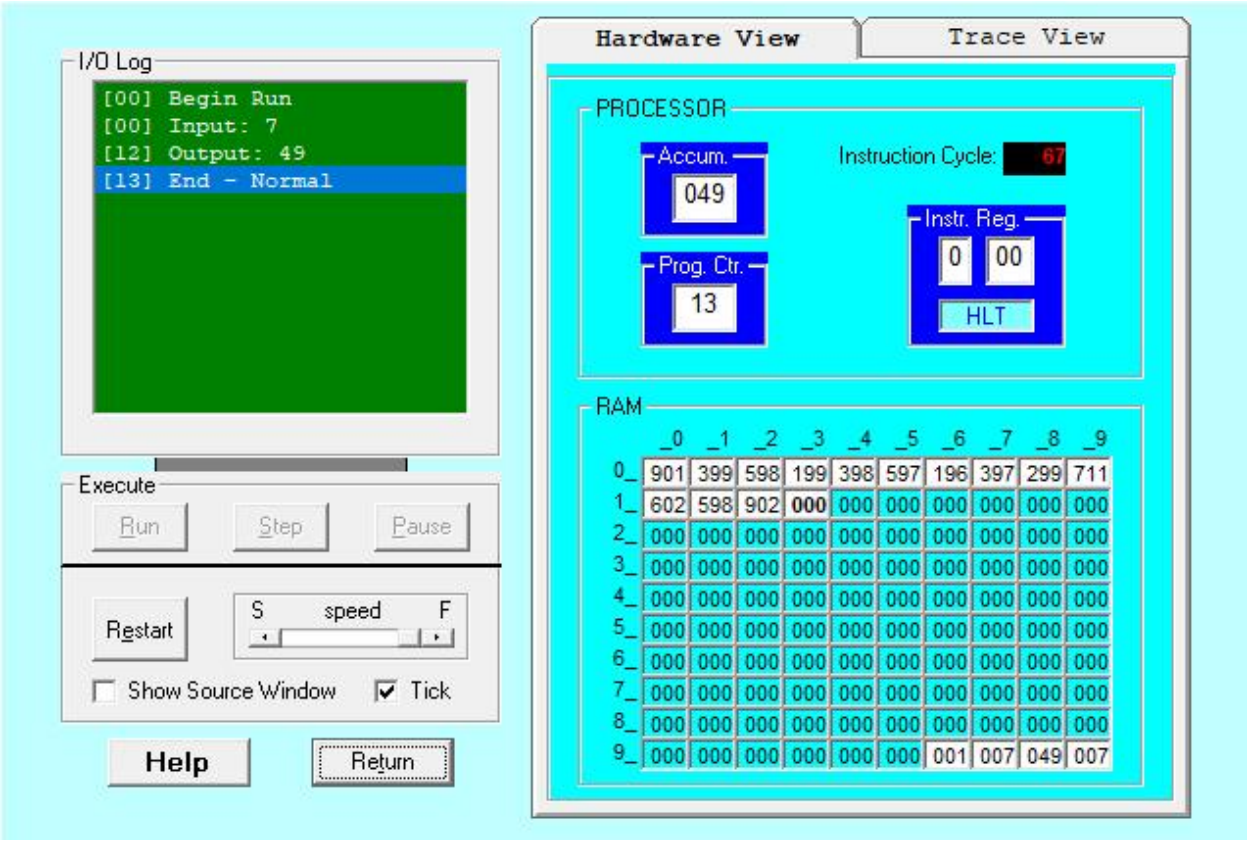


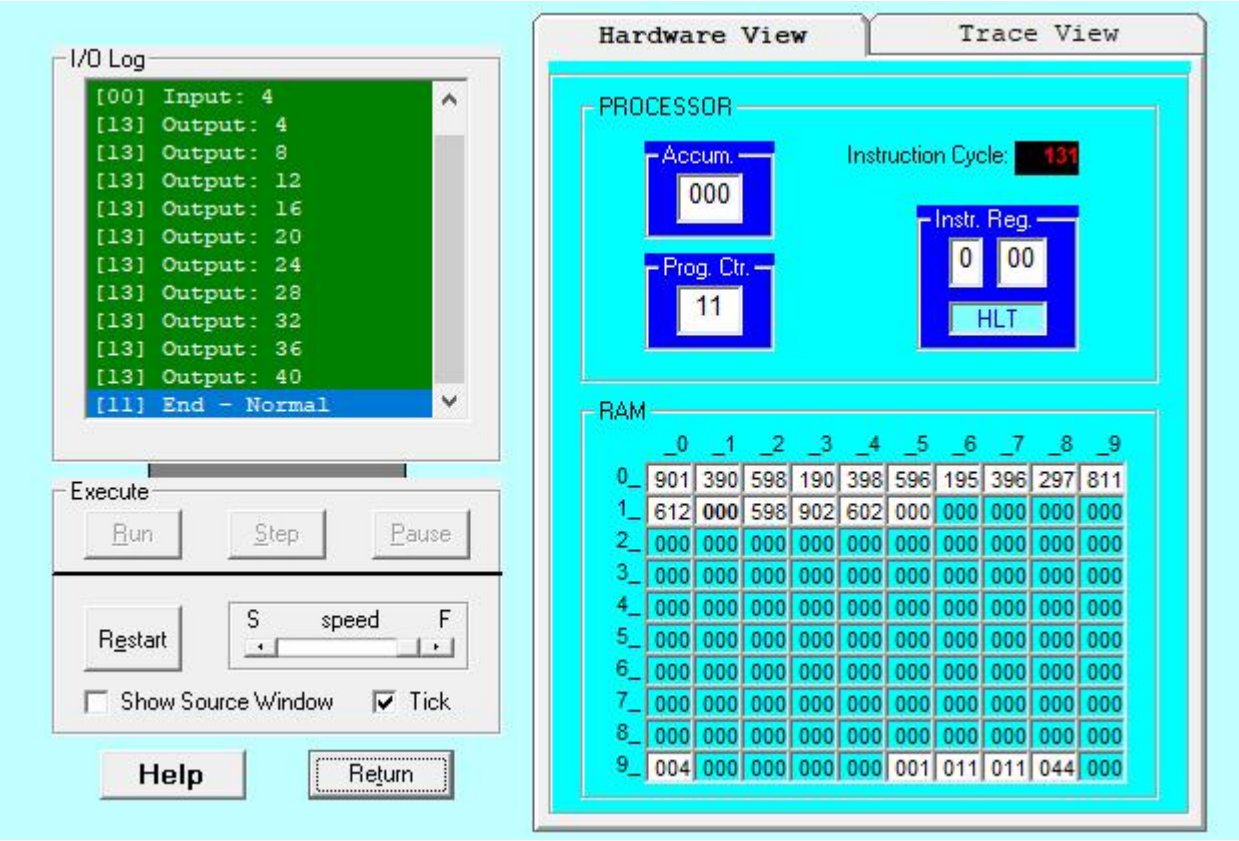
Table print

SOLUTION:

```
in
sto 99
lda 98
add 99
sto 98
out
lda 97
add 96
sto 97
sub 95
brz 12
br 02
hlt
*95
dat 010
dat 001
dat 000
dat 000
```

OUTPUT:

AHSAN SAJJAD **02-131212-049**



Hardware View | Trace View

Instruction Cycle	Instruction Address	Instruction	Accumulator Register
113	04	STO 98	040
114	05	LDA 96	040
115	06	ADD 95	009
116	07	STO 96	010
117	08	SUB 97	010
118	09	BRP 11	-001
119	10	BR 12	-001
120	12	LDA 98	-001
121	13	OUT	040
122	14	BR 02	040
123	02	LDA 98	040
124	03	ADD 90	040
125	04	STO 98	044
126	05	LDA 96	044
127	06	ADD 95	010
128	07	STO 96	011
129	08	SUB 97	011
130	09	BRP 11	000
131	11	HLT	000