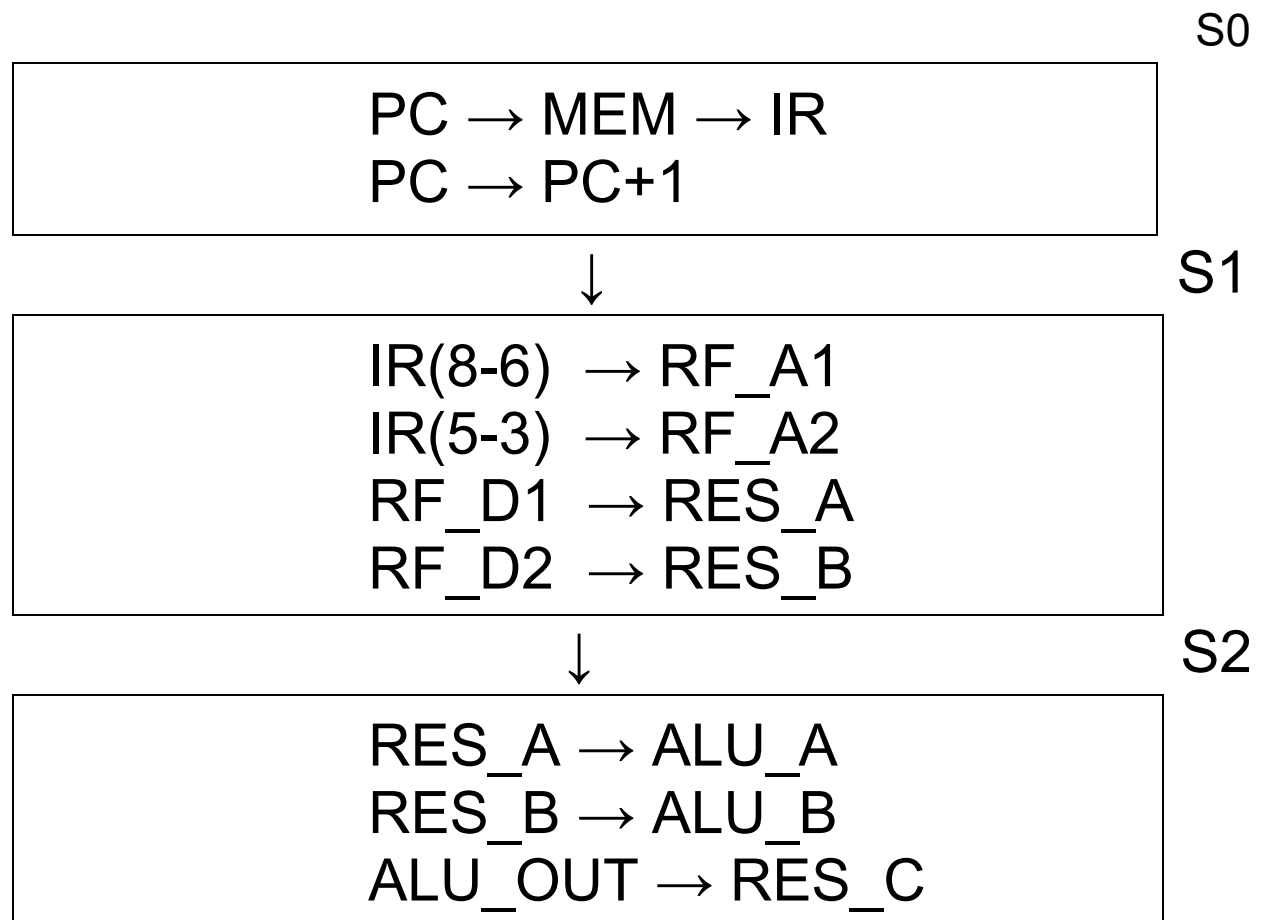


# FLOWCHART

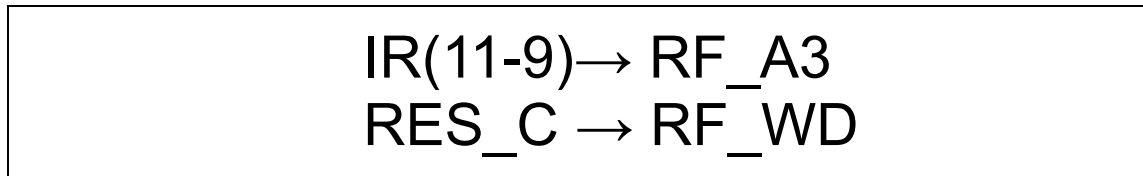
RAUSHAN KUMAR  
MONU KUMAR YADAV  
Akshay Kaushal

R-Type instruction

Op_code	Rc	Rb	a	c	fn
15 – 12	11–9	8–6	5–3	2	1–0



S3

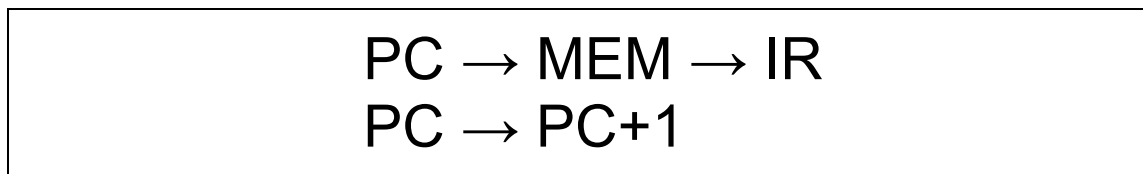


I-Type instruction

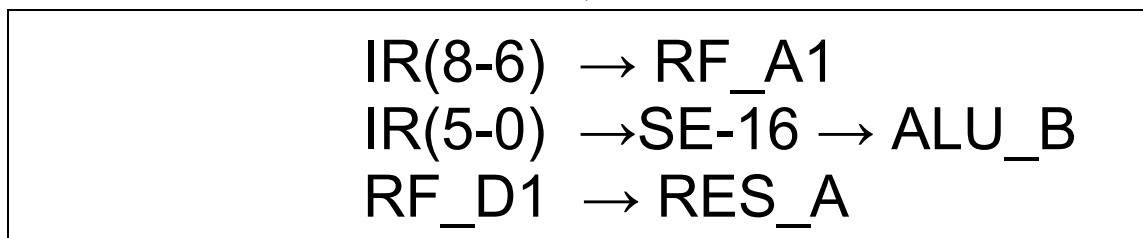
ADI:-

Op_code	Rb	Ra	IMM-6BIT
15 – 12	11 – 9	8 – 6	5 — 0

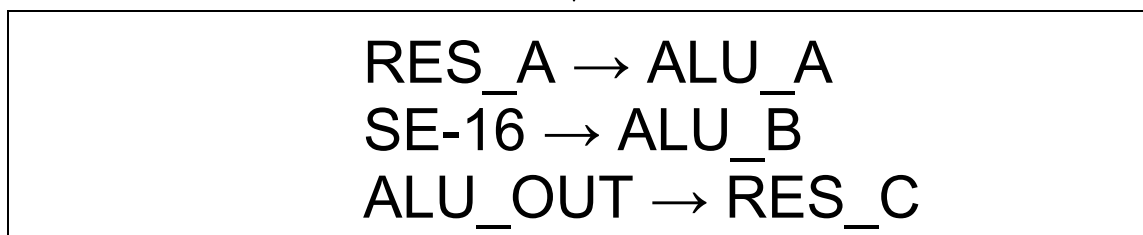
S0



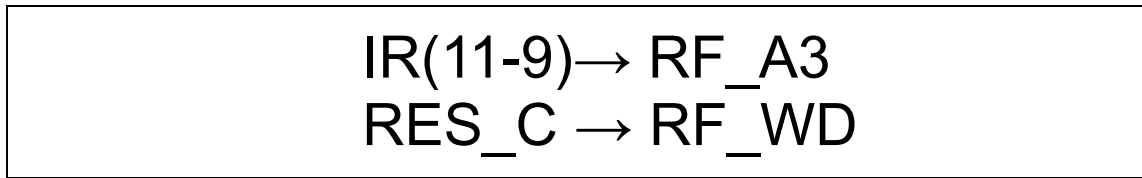
S4



S5



S3



LW:-

Op\_code

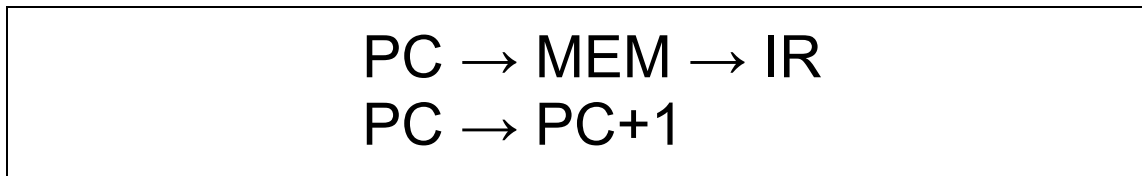
Rb

Ra

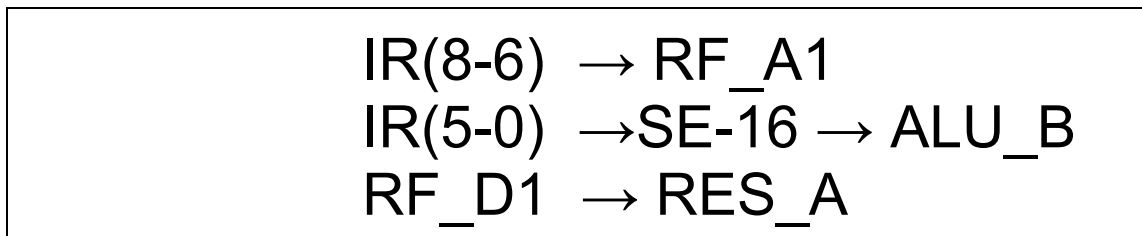
IMM-6BIT

15 – 12	11 – 9	8 – 6	5 — 0
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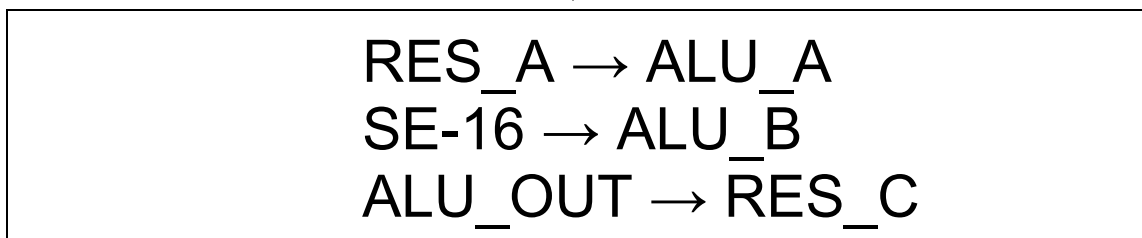
S0



S4



S5



S6

$RES\_C \rightarrow ADDR\_M$   
 $RD \rightarrow DR \rightarrow RF\_WD$   
 $IR(11-9) \rightarrow RF\_A3$

SW:-

Op_code	Rb	Ra	IMM-6BIT
15 – 12	11 – 9	8 – 6	5 — 0

S0

$PC \rightarrow MEM \rightarrow IR$   
 $PC \rightarrow PC+1$



S4

$IR(8-6) \rightarrow RF\_A1$   
 $IR(5-0) \rightarrow SE-16 \rightarrow ALU\_B$   
 $RF\_D1 \rightarrow RES\_A$



S5

$RES\_A \rightarrow ALU\_A$   
 $SE-16 \rightarrow ALU\_B$   
 $ALU\_OUT \rightarrow RES\_C$



S7

$RES\_C \rightarrow ADDR\_M$   
 $IR(11-9) \rightarrow RF\_A2$   
 $RF\_D2 \rightarrow RES\_B$   
 $RES\_B \rightarrow WD$

BEQ:-

Op_code	Rb	Ra	IMM-6BIT
15 – 12	11 – 9	8 – 6	5 — 0

S0

$PC \rightarrow MEM \rightarrow IR$   
 $PC \rightarrow PC+1$



S8

$IR(11-9) \rightarrow RF\_A2$   
 $IR(8-6) \rightarrow RF\_A1$   
 $RF\_D1 \rightarrow RES\_A \rightarrow ALU\_A$   
 $RF\_D2 \rightarrow RES\_B \rightarrow ALU\_B$



S9

$IR(5-0) \rightarrow SE-16 \rightarrow ALU\_B$   
 $PC \rightarrow ALU\_A$   
 $ALU\_OUT \rightarrow RES\_C$

S10



```
IF(A==B){
    RES_C → PC}
```

JLR:-

Op\_code

Ra

Rb

IMM-6BIT

15 – 12

11 – 9

8 – 6

000000

S0

```
PC → MEM → IR
PC → PC+1
```



S11

```
PC → ALU_A
+1 → ALU_B
IR(11-9) → RF_A3
ALU_OUT → RF_WD
```



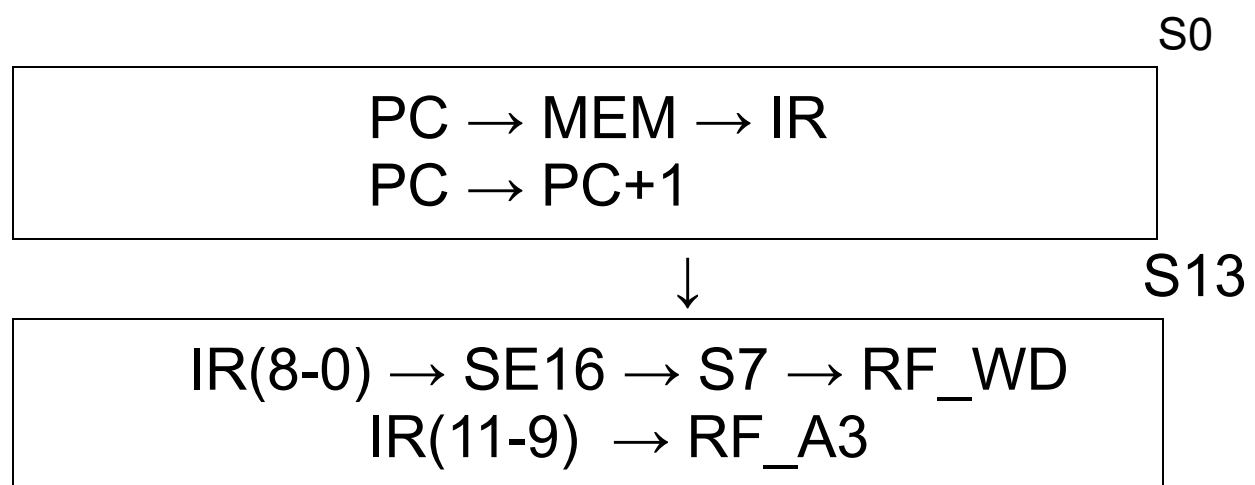
S12

```
IR(8-6) → RF_A1
RF_D1 → RES_A → PC
```

## J-Type instruction:-

LHI:-

Op_code	Ra	IMM-9BIT
15 – 12	11 – 9	8 – 0



JRI:-

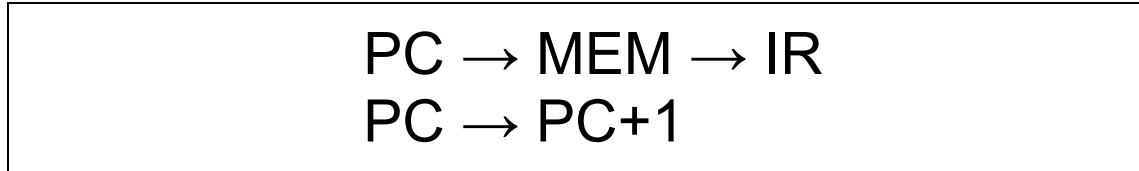
Op\_code

Ra

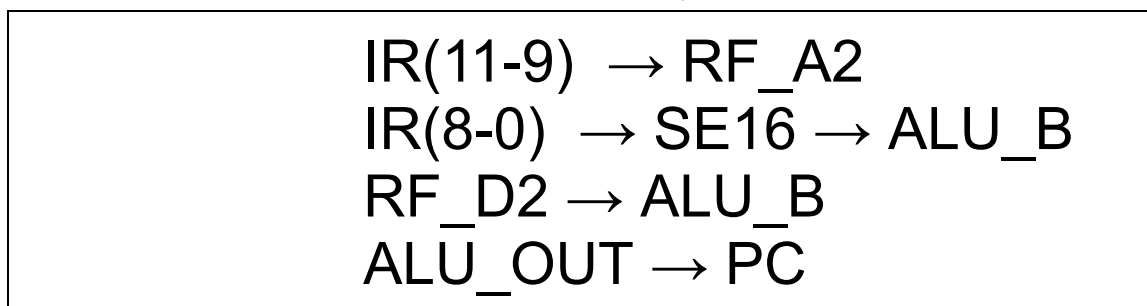
IMM-9BIT

15 – 12	11 – 9	8 – 0
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S0



S14





LM:-

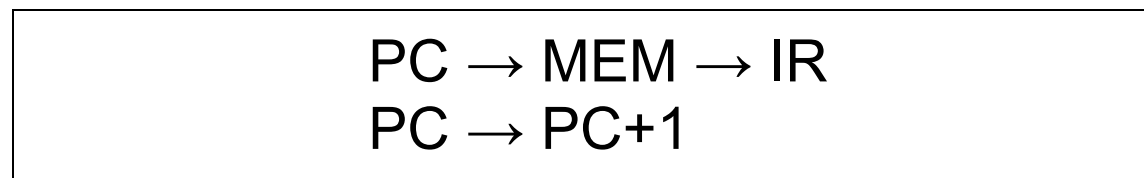
Op\_code

Ra

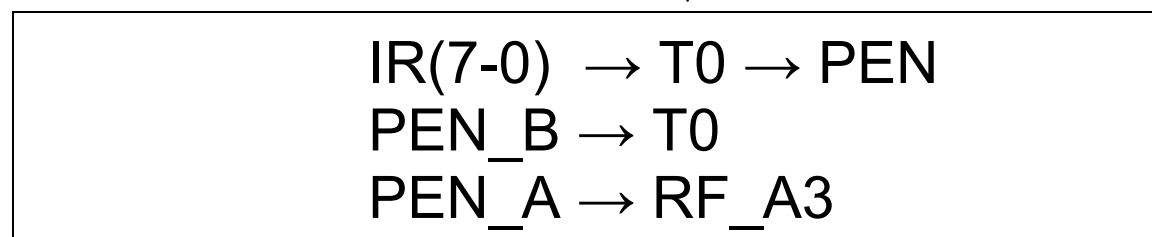
IMM-9BIT

15 – 12	11 – 9	8 – 0
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S0



S15



WHILE(PEN\_A!=000)

S16



SM:-

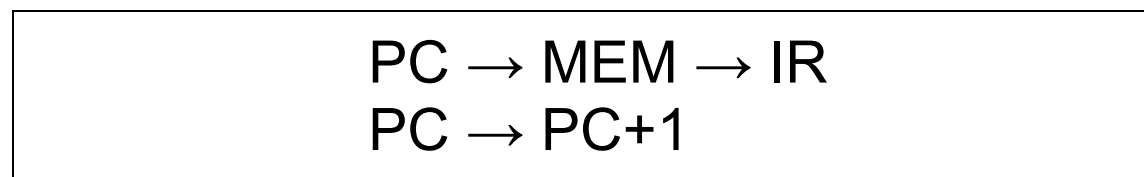
Op\_code

Ra

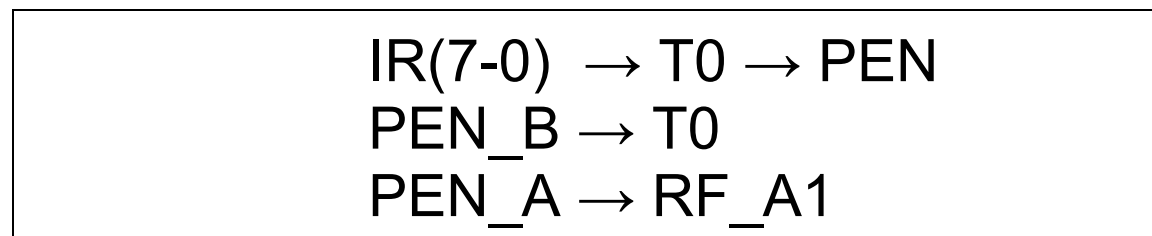
IMM-9BIT

15 – 12	11 – 9	8 – 0
---------	--------	-------

S0

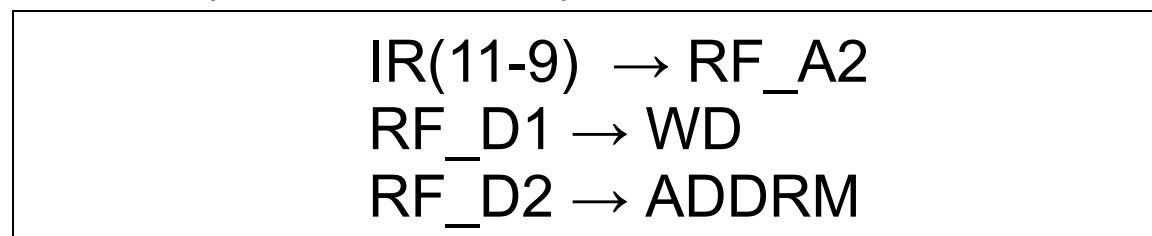


S17



WHILE(PEN\_A!=000)

S18



JAL:-

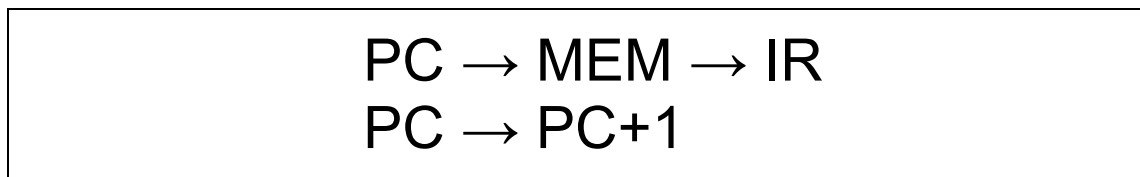
Op\_code

Ra

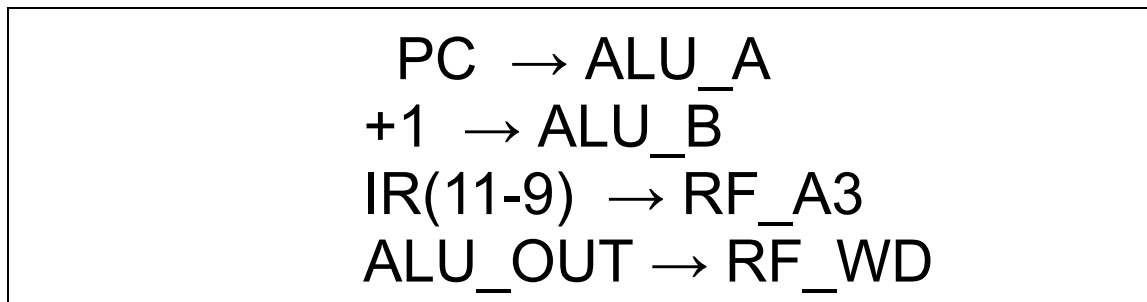
IMM-9BIT

15 – 12	11 – 9	8 – 0
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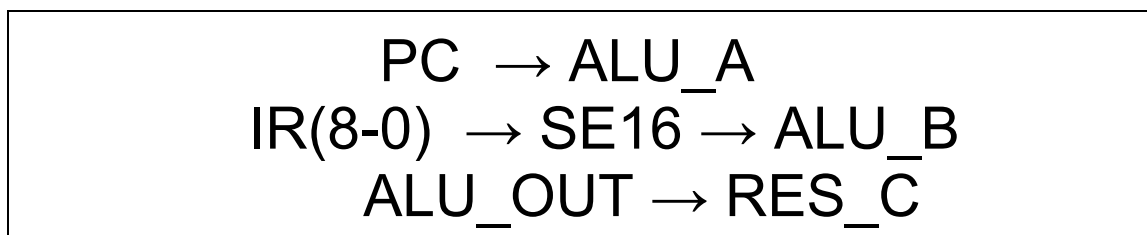
S0



S11



S19



RES\_C → PC