

Name :- Sumit Kumar Yadav

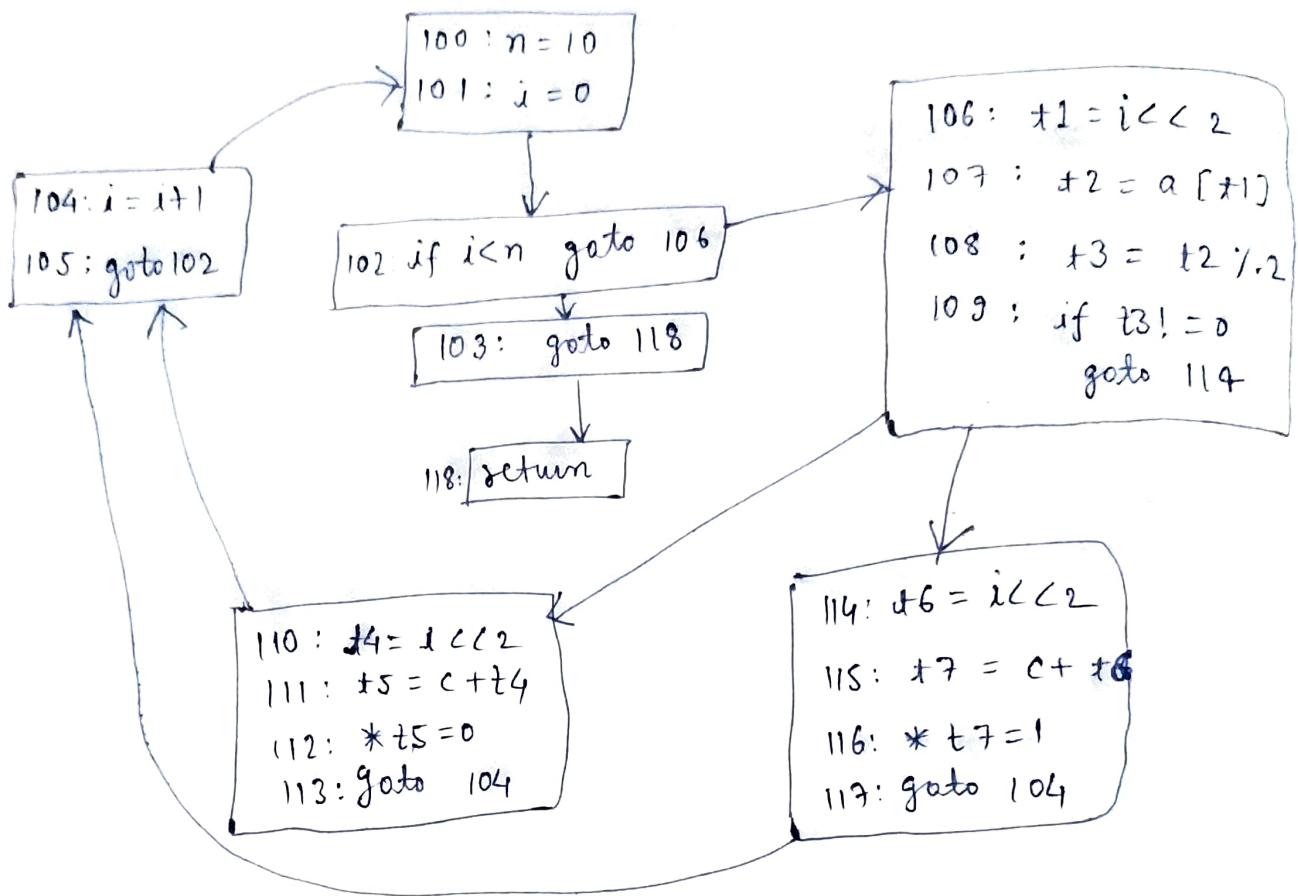
Roll No. :- 18CS30042

// Assignment - 8

① Given TAC: leaders are shown :

```
→ 100 : n = 10
    101 : i = 0
→ 102 : if i < n goto 106
→ 103 : goto 118
→ 104 : i = i + 1
    105 : goto 102
→ 106 : t1 = i < 2
    107 : t2 = a[t1]
    108 : t3 = t2 % 2
    109 : if t3 != 0 goto 114
→ 110 : t4 = i < 2
    111 : t5 = c + t4
    112 : *t5 = a
    113 : goto 104
→ 114 : t6 = i < 2
    115 : t7 = c + t6
    116 : *t7 = 1
    117 : goto 104
→ 118 : return
```

Now, basic blocks and CFG:



② After numbering:

01: $a = 10$
 02: $b = 20$
 03: $t1 = i * j$
 04: $t2 = 10 + t1$
 05: $c = i$
 06: $t3 = t1$
 07: $t4 = 40$
 08: $d = t2 + 40$

\therefore Value number Table :-

Name	VN
a	1
b	2
i	3
d	4
t1	5
c	3
t2	6
t3	5
t4	7
d	8

Name Table:-

Index	Name	Value
1	a	10
2	b	20
3	i, c	
4	j	
5	t1, t3	
6	t2	
7	t4	40
8	d	

Hash Table:-

Expression	VN
$i * j$	5
$10 + t1$	6
$t2 + 40$	8