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18CS10048

1. Leaders:

$\rightarrow$ 100 : n = 10
101 : i = 0
$\rightarrow$ 102 : if i<n goto 106
$\rightarrow$ 103: goto 118
$\rightarrow$ 104 : i = i+1
$\cdot$ 105: goto 102
$\rightarrow$ 106: t1 = i<<2
107: t2 = a[t1]
108: t3 = t2%2

109 : if t3 != 0 goto 114 $\leftarrow$
110: t4 = i<<2 $\leftarrow$
111 : t5 = c+t4
112: *t5=0
113: goto 104
114: t6 = i<<2 $\leftarrow$
115: t7 = c+t6
116: *t7 = 1
117: goto 104
118: return $\leftarrow$

Basic Blocks & Control Flow Graphs
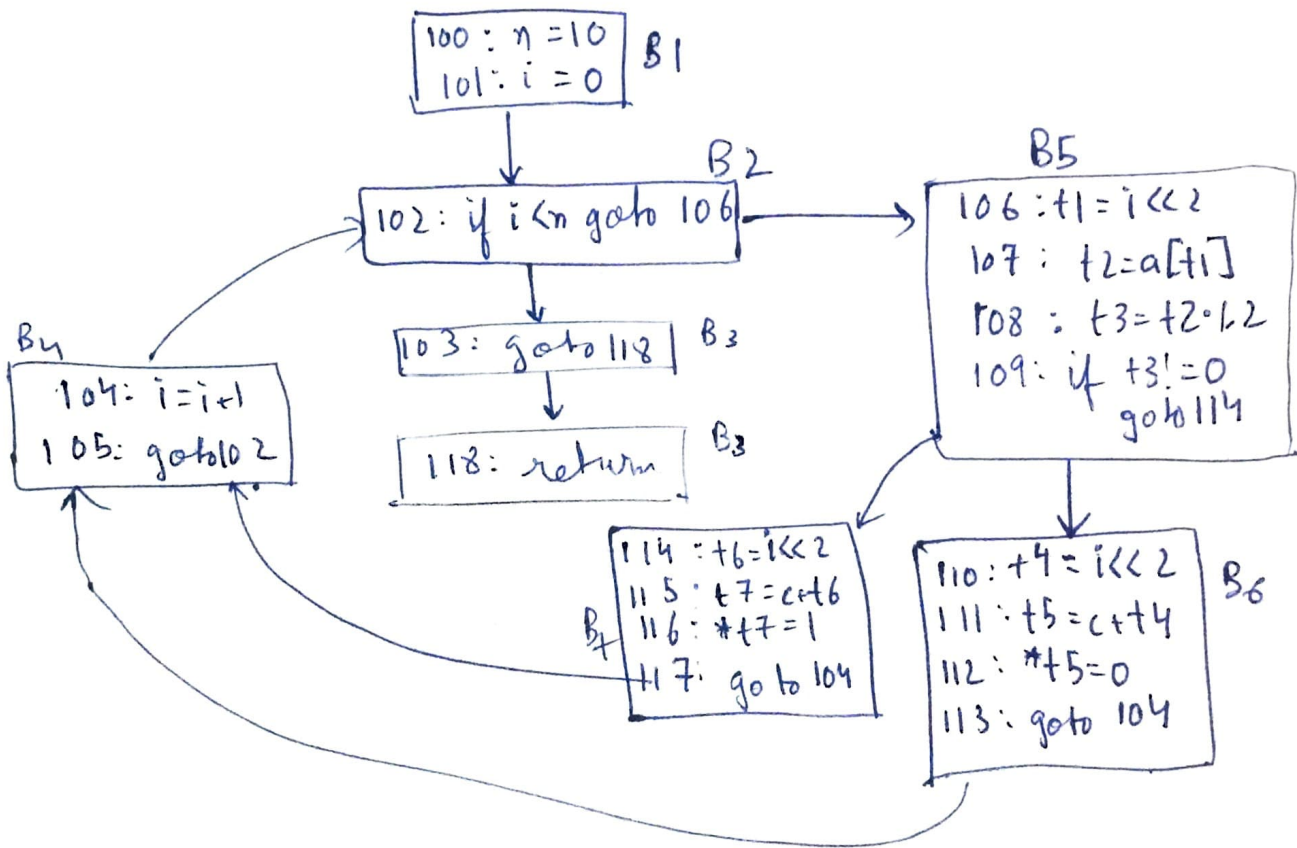
2. Quads after value numbering: —

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

Quad 7 & 6 can be deleted

Value Number Table :-

Name	VN
a	1
b	2
i	3
1	4
+1	5
c	~~3~~
+2	6
+3	5
+4	7
d	8

Name Table :

Index	Name	Val
1	a	10
2	b	20
3	i, c	
4	1	
5	+1, +3	
6	+2	
7	+4	40
8	d	

Hash Table.

Expression	VN
i + 1	5
10 + +1	6
+2 + 40	8