

		Simple	Low	High	
5)	22	3	4	6	= 88
	45	4	5	7	= 180
	66	3	4	6	= 36
	05	7	10	15	= 350
	02	5	7	16	= 10
					<u>364</u>

$$FP = 364 * [0.65 + 0.01 * 45]$$

$$= 400.4$$

1)	10	3	4	6	= 40
	20	4	5	7	= 100
	25	3	4	6	= 100
	4	7	10	15	= 40
	4	5	7	10	= 28
					<u>308</u>

$$FP = 308 [0.65 + 0.01 * 14]$$

$$= 243.32$$

4)	24	3		= 72	$E(f_i) = 35$
	46	4		= 184	Simple
	8	3		= 24	
	4	7		= 28	
	2	5		= 10	
				<u>318</u>	

$$FP = 318$$

FP

(CAF) 0 → No influence
 1 → simple
 2 → Moderate
 3 → Average
 4 → Significant
 5 → Essential

2)	user input	5	x	3	4	6	=	15
	user output	5	x	4	5	7	=	20
	user enquire	6	x	3	4	6	=	18
	user files	5	x	7	10	15	=	35
	interface file	5	x	5	7	10	=	25
								<u>113</u>

$$\begin{aligned}
 FP &= \text{Count Total} * [0.65 + 0.01 * E(f_i)] \\
 &= 113 * [0.65 + 0.01 * 25] \\
 &= 119.7 \quad 101.7
 \end{aligned}$$

3)	50	3	4	6	=	200
	40	4	5	7	=	200
	35	3	4	6	=	140
	6	7	10	15	=	60
	4	5	7	10	=	28
						<u>628</u>

$$\begin{aligned}
 FP &= \text{Count Total} * [0.65 + 0.01 * E(f_i)] \\
 &= 628 * [0.65 + 0.01 * 42] \\
 &= 671.96
 \end{aligned}$$

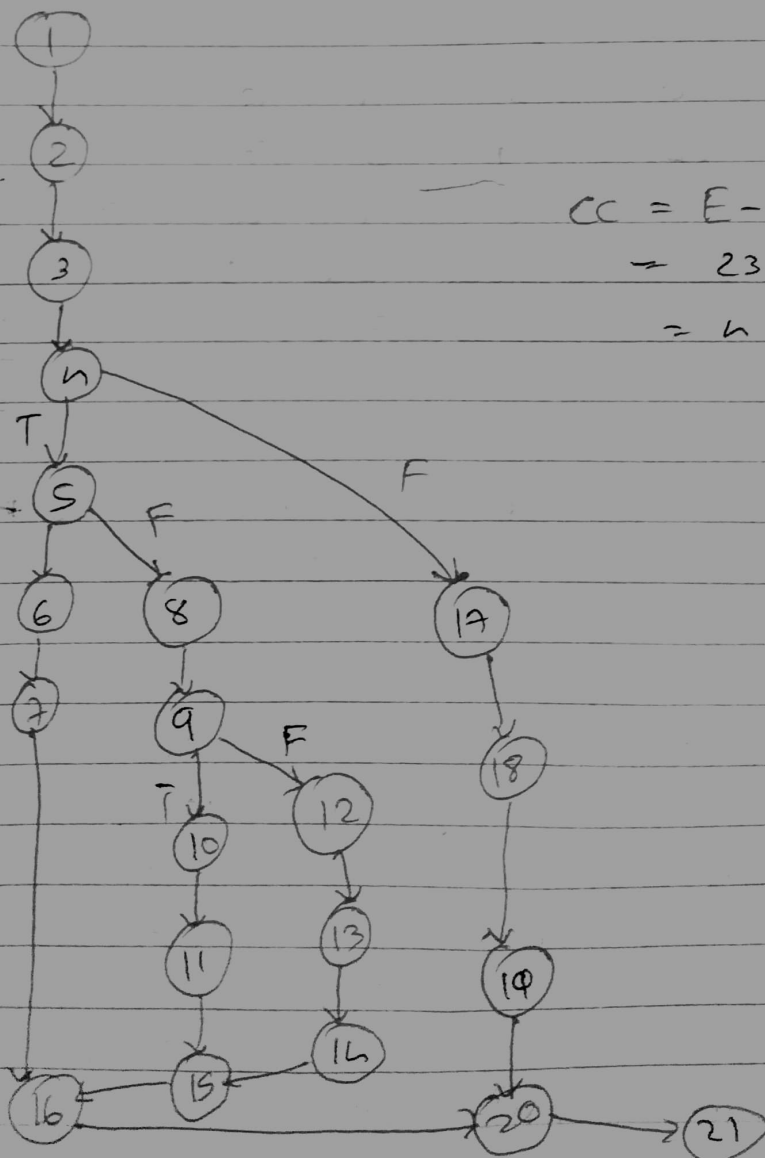
CoCoMo Model

	a_1	a_2	b_1	b_2
Organic	2.4	1.05	2.2	0.38
Semidetached	3.0	1.12	2.5	0.35
Embedded	3.6	1.20	2.5	0.32

$$\text{Effort} = a_1 \times (\text{KLOC})^{a_2} \text{ PM}$$

$$T_{dev} = b_1 \times (\text{Effort})^{b_2} \text{ Months}$$

3) CC



$$CC = E - N + 2(P)$$

$$= 23 - 21 + 2$$

$$= 4$$

Cyclomatic complexity :

Ex: 1 void main()

int i, j, k;

readIn (i, j, k);

if ((i < j) || (i > k)) {

writeIn ("then part");

if (j < k)

writeIn ("j less than k");

else writeIn ("j not less k");

else writeIn ("else part");

}

CC

$$= E - N + 2 + P$$

$$= 14 - 12 + 2 + 2$$

$$= 4$$

(Condition)

$$CC = P + 1$$

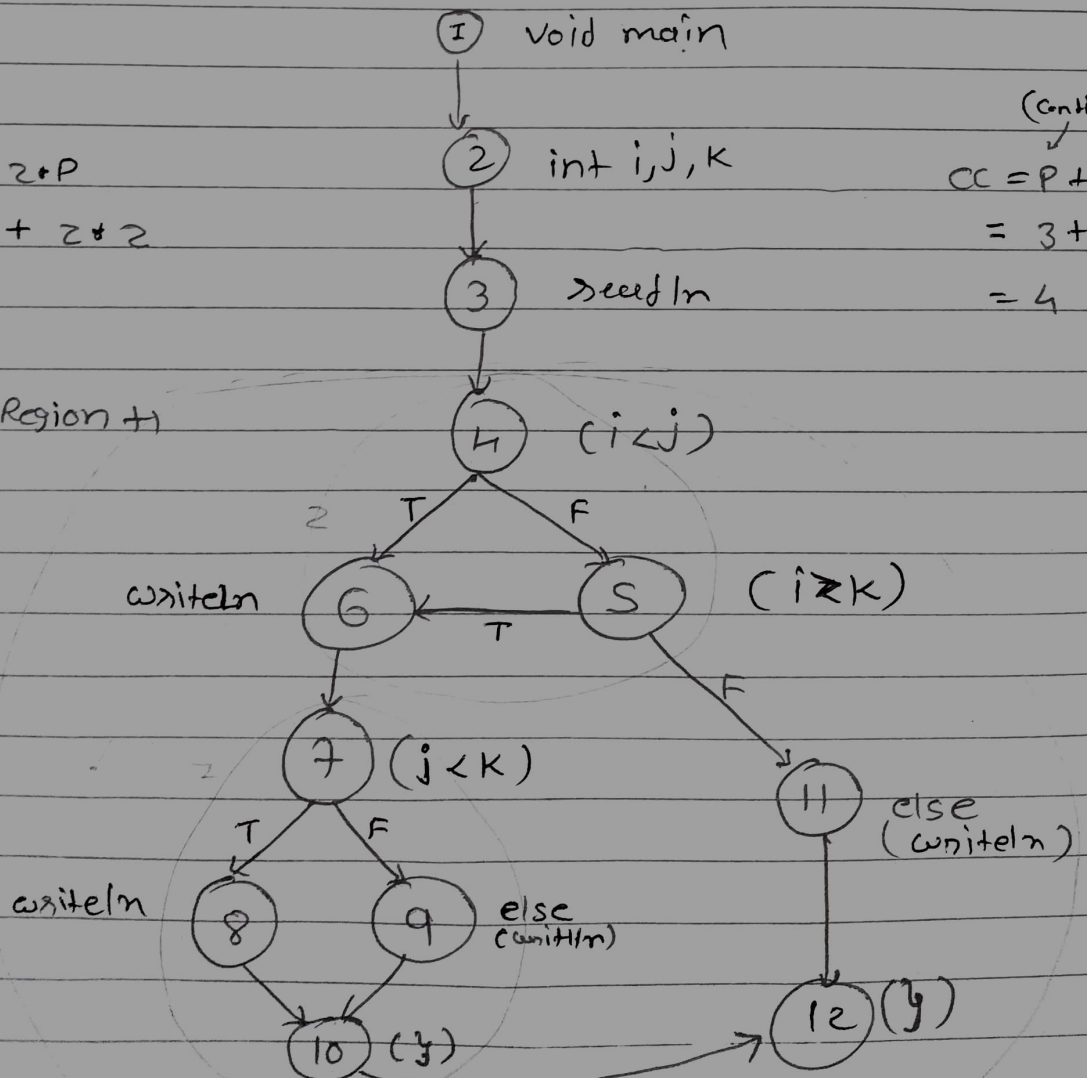
$$= 3 + 1$$

$$= 4$$

CC = close Region + 1

$$= 3 + 1$$

$$= 4$$



Ex: 2

$i = 0$

$n = 4$

while ($i < n - 1$) do

$j = i + 1$

 while ($j < n$) do

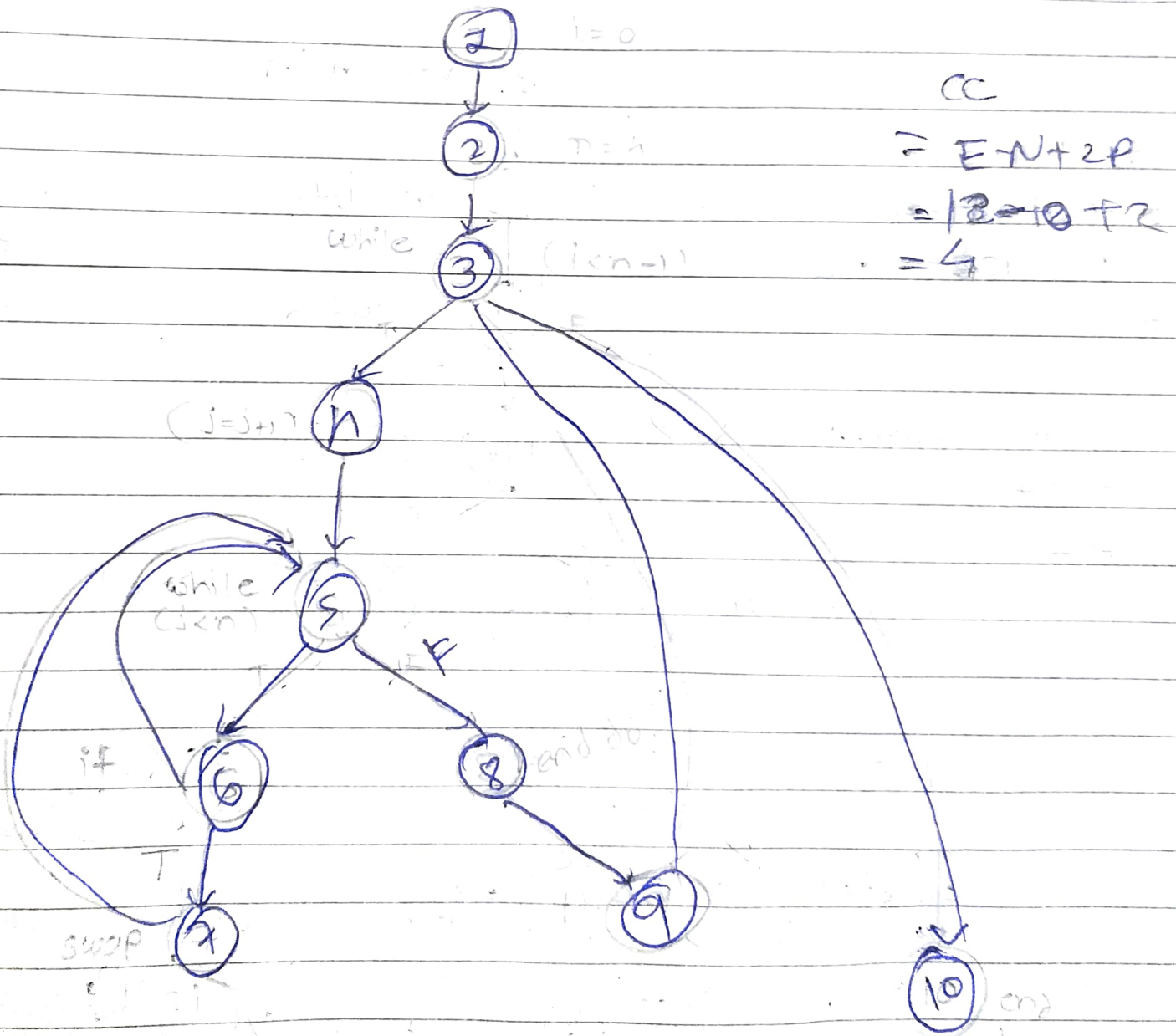
 if $A[i] < A[j]$ then

 swap ($A[i]$, $A[j]$)

 end do ;

$i = i + 1$

end do



COCOMO Model

1) KLOC = 300 - semi

$$\text{effort} = 3.0 (300)^{1.12} \text{ PM} \\ = 1784.42 \text{ PM}$$

$$T_{dev} = 2.5 (1784.42)^{0.35} \\ = 34.35 \text{ M}$$

$$P = \frac{\text{effort}}{T_{dev}} = \frac{1784.42}{34.35} = 52$$

2) KLOC = 30 Embedded

$$e = 3.6 (30)^{1.20} \text{ PM} \\ = 213.23 \text{ PM}$$

$$T_{dev} = 2.5 (213.23)^{0.32} \\ = 13.90 \text{ M} \approx 14 \text{ M}$$

$$\text{person} = \frac{\text{effort}}{T_{dev}} = \frac{213.23}{13.90} = 15$$

3) 30,000 lines semi embedded
30 KLOC

$$\text{effort} = 3.0 (30)^{1.12} \text{ PM} \\ = 135.36 \text{ PM}$$

$$T_{dev} = 2.5 (135.36)^{0.32} \\ = 13.93 \\ \approx 14 \text{ M}$$

$$e = 3.6 (30)^{1.20} \text{ PM}$$

$$= 213.23 \\ T_{dev} = 2.5 (213.23)^{0.32} \\ = 13.90 \\ \approx 14 \text{ M}$$

$$5) \text{ Kloc} = 0.9 + 0.7 + 0.9 + 2 = 4.5 \text{ Kloc}$$

- project type

organic (0-50 Kloc)

4.5 Kloc

- size

4.5 Kloc

- effort estimation

$$e = a_1 \times (\text{Kloc})^{a_2} \text{ PM}$$

$$= 24 \times (4.5)^{1.05}$$

$$= 12.13 \text{ PM}$$

- Find T_{dev}

$$T_{dev} = b_1 \times (12.13)^{b_2} \text{ M}$$

$$= 2.5 \times (12.13)^{0.39}$$

$$= 6.45 \text{ M}$$

- person in team

$$p = \frac{\text{effort}}{T_{dev}} = \frac{12.13}{6.45} = 1.88$$

≈ 2 person

$$\text{Cost} = 50,000 \times 6.45$$

$$= 322500$$

4) screen edit

$$\begin{aligned}e &= a (kloc)^{1.05} PM \\&= 2.4 (4)^{1.05} \\&= 10.29 PM\end{aligned}$$

$$\begin{aligned}T_{dev} &= 2.5 (10.29)^{0.38} \\&= 6.66 M\end{aligned}$$

- command language

$$\begin{aligned}\text{effort} &= 2.4 (2)^{1.05} PM \\&= 4.97 PM\end{aligned}$$

$$\begin{aligned}T_{dev} &= 2.5 (4.97)^{0.38} M \\&= 4.60 M\end{aligned}$$

- Screen Movement

$$\begin{aligned}e &= 2.4 (3)^{1.05} PM \\&= 7.61 PM\end{aligned}$$

$$\begin{aligned}T_{dev} &= 2.5 (7.61)^{0.38} \\&= 5.41 M\end{aligned}$$

- file input & output

$$\begin{aligned}e &= 2.4 (1)^{1.05} PM \\&= 2.4 PM\end{aligned}$$

$$\begin{aligned}T_{dev} &= 2.5 (2.4)^{0.38} M \\&= 3.49 M\end{aligned}$$