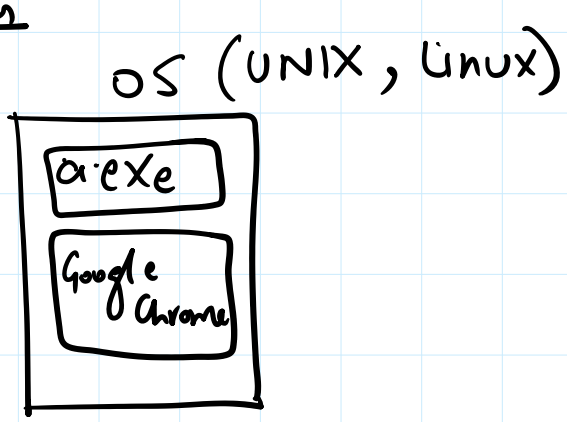
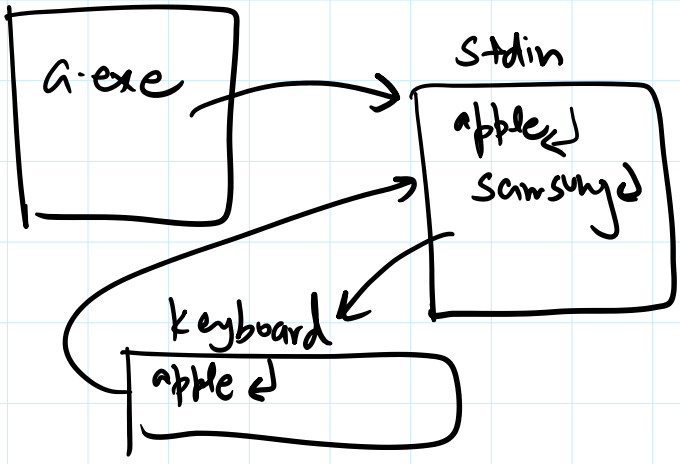
Deepak_Aggarwal(daggarwal77@gmail.com)
Tuesday, December 26, 2017 10:38 AM

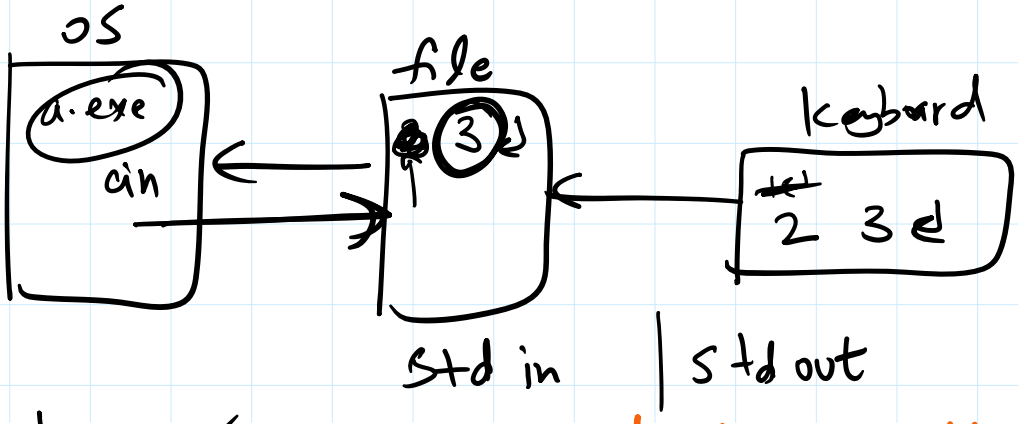
→ 1) File handling
2) Boolean Algebra
3) ~~Seq~~ SQL (Databases)
4) Networking

FILE HANDLING



linux : everything is a file





Std in | Std out

cin can read only non-white space char.

~~int a, b;~~

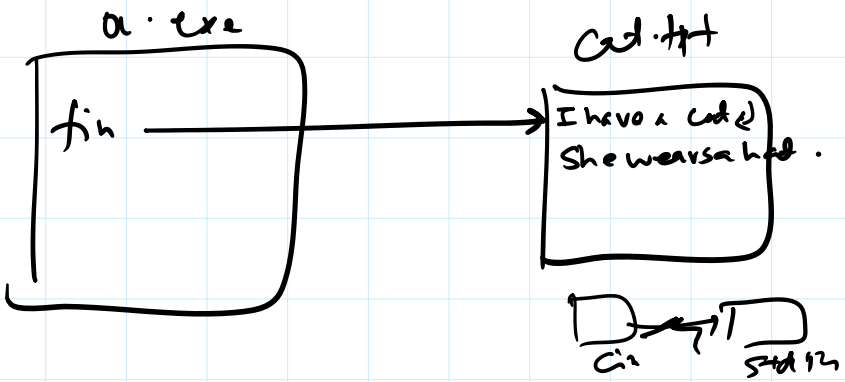
cin >> a, >> b,

cin >> c;

istream class ke objects — cin

ostream " — cout

ifstream fin ("cat.txt"); ← input mode



1 → ✓ -100 → ✓

-1 → ✓ 0 → ✗

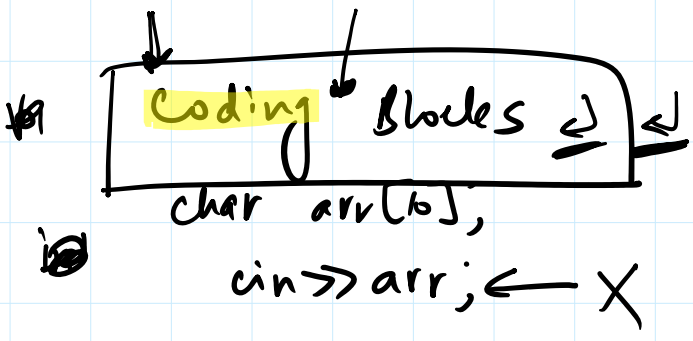
2 → ✓

Integers are convertible to bool

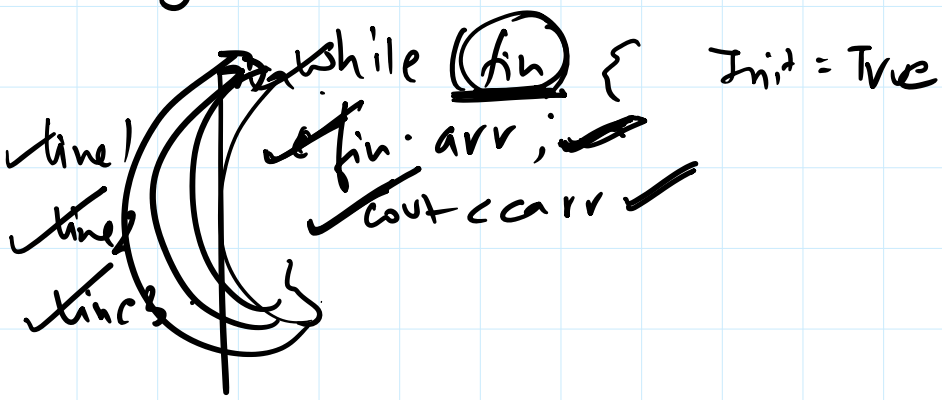
fin, fout, cin → convertible to ~~bool~~ bool

cin ~~false~~ → true

file objects



cin.getline (arr, 100);



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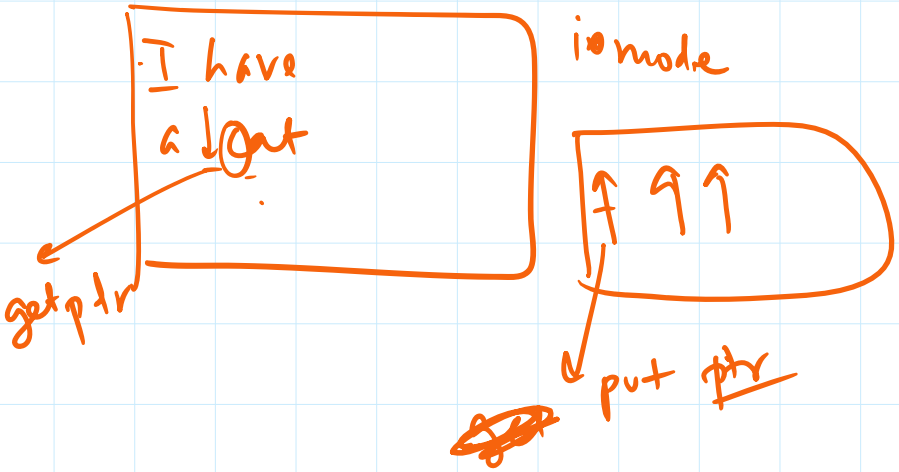
class Student {
int rollno; → 4
int marks; → 4
}

4
4

8

| 10 | 100 |

8 bytes



Boolean Algebra

① + × / −

a + y = 2 (∞)

↳ Roll no

② comp. sci

(2) comp. sci

$x = 1 \mid 0$

$x + y$ → x or y

$x \cdot y$ → x and y

0-F 1-T

x	y	x or y	x and y
0	0	0	0
0	1	1	0
1	0	1	0
1	1	1	T(1)

x	y
2	2

0
1
0
1

- or (+) → 0 when both are 0
  and (·) → 1 " " 1

(1) Idempotent law:

$X + X = X$

$X \cdot X = X$

$1 + 1 = 1$

$1 \cdot 1 = 1$

$0 \cdot 0 = 0$

(2) Commutative

$X \cdot Y = Y \cdot X$

(3) Associative

$X + (Y + Z) = (X + Y) + Z$

(4) Distributive

Prove → $X + (Y \cdot Z) = (X + Y) \cdot (X + Z)$

Prove $\longrightarrow$ $X + (Y \cdot Z) = (X+Y) \cdot (X+Z)$

$X \cdot (Y+Z) = (X \cdot Y) + (X \cdot Z)$

3 variables

X	Y	Z
0	0	0
0	0	1
0	1	0
0	1	1
1	0	0
1	0	1
1	1	0
1	1	1

LHS == RHS

X	Y	Z	(A) $Y \cdot Z$	$X + A$	B $(X+Y)$	C $(X+Z)$	$B \cdot C$
0	0	0	0	0	0	0	0
0	0	1	0	0	0	1	0
0	1	0	0	0	1	0	0
0	1	1	1	1	1	1	1
1	0	0	0	1	1	1	1
1	0	1	0	1	1	1	1
1	1	0	0	1	1	1	1
1	1	1	1	1	1	1	1

if these cols are identical, hence verified.

① De Morgan

$$X + Y = A$$
$$\overline{A} = \overline{(X+Y)}$$

$$\overline{X+Y} = \overline{X} \cdot \overline{Y}$$
$$\overline{X \cdot Y} = \overline{X} + \overline{Y}$$

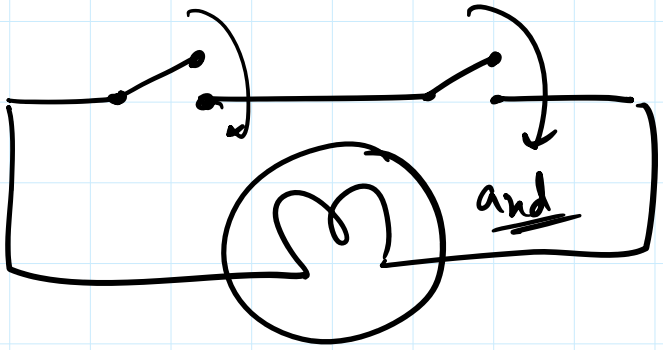
$$\overline{X+Y} = \overline{X} \cdot \overline{Y}$$
$$\overline{X \cdot Y} = \overline{X} + \overline{Y}$$

(break the bar & change the sign)

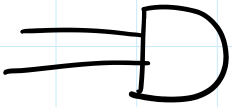
$$\overline{(\overline{X+Y}+Z)} = \overline{\overline{X+Y}} \cdot \overline{Z}$$
$$= \overline{X} \cdot \overline{Y} \cdot \overline{Z}$$
$$= \overline{\overline{X}} + \overline{\overline{Y}} \cdot \overline{Z}$$

$$Exp = X + Y \cdot \overline{Z}$$

Demorgan law completed.



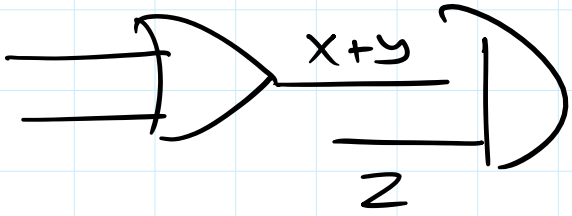
parallel conn = or



and gate

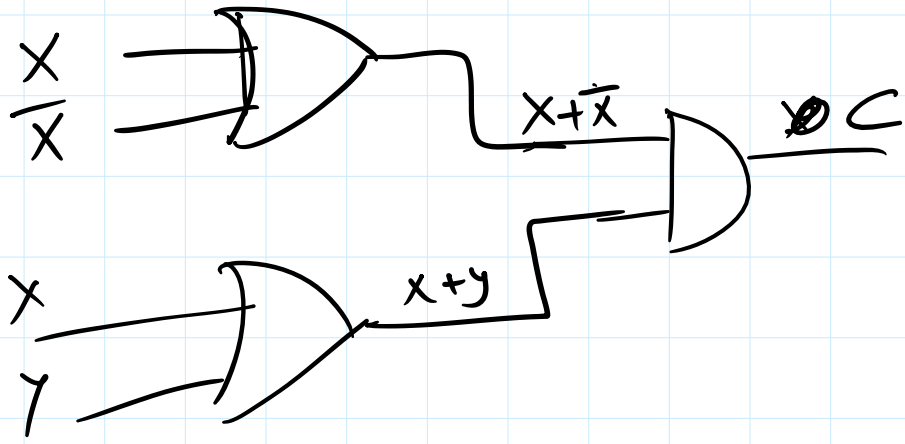
or

$(X+Y) \cdot Z$



$(X+Y) \cdot Z$

Ex 1: $(X+\bar{X})\cdot(X+Y) = C$ (logic (gates))



3 gates

$= 3 \cdot 10^3$ transistors

3 bn o tr

Can I ~~perform~~ get the functionality usp less gates.

Minimise the expr??

$(X+\bar{X})\cdot(X+Y) = ?$

$X + \bar{X} = 1$

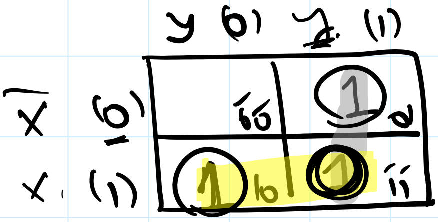
$1 \cdot (X+Y) = (X+Y)$

3 bh → 1 bh

$C = (X+\bar{X})\cdot(Y+X) = \boxed{1}$

$C = \underbrace{(X+\bar{X}) \cdot (y+\bar{x})}$ = 1 1 (x y)

K-map



x y = 0 0

canonical form

$C = \underbrace{X \cdot y}_{T1} + \underbrace{(X \cdot X)}_{T2} + \bar{X} \cdot y + \bar{X} \cdot X$

$2^0 = 1$ — $P_1 = (X)$

$2^1 = 2$ — $P_2 = (y)$ — 1

$2^2 = 4$

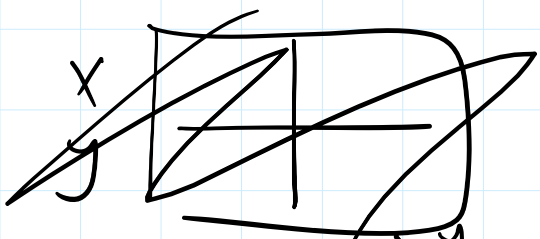
$2^3 = 8$ — $\boxed{X+y}$

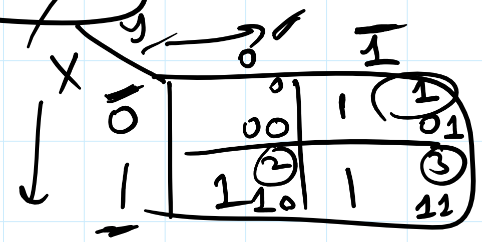
sum of prod (SOP) form

$X(?) = X \cdot (y + \bar{y})$

$= X \cdot y + X \cdot \bar{y}$

$C = X\cdot y + \overline{x \cdot y + x\bar{y} + \bar{x} \cdot y} + \bar{X} \cdot X$ → 0





(1) canonical form

(2)

$\bar{X} = 0$

$X = 1$

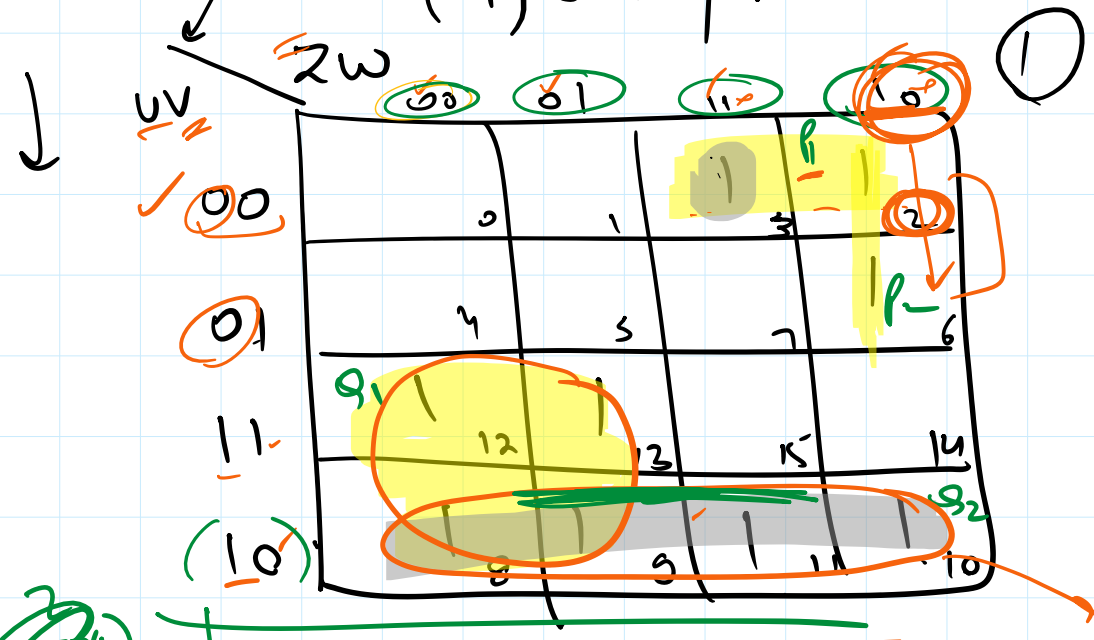
$Mini = \Sigma(1, 2, 3)$

$(\bar{u}\bar{v}z\bar{w}, \ldots)$

$E(U, V, Z, W) = \Sigma(2, 3, 6, 8, 9, 10, 11, 12, 13)$

$E(U,V,Z,W) = \Sigma(2,3,6,8,9,10,11,12,13)$

(+) sum operator



$Q_1 = \bar{Z}W$ $\quad P_1 = Z\bar{U}\bar{V}$

$Q_2 = U\bar{V}$ $\quad P_2 = \bar{U}Z\bar{W}$

(UVZW) SOP maxterm

$Exp = Q_1 + Q_2 + P_1 + P_2$

$$f(U,V,Z,W) = \bar{Z}W + U\bar{V} + Z\bar{U}\bar{V} + \bar{U}Z\bar{W}$$

(U,V,Z,W)

K-map = Kronaugh map.

Boolean Algebra completed.

① Random(N) → [0, N) N-excluded

randomise( );

① random(inv); (99, 98, 97)

2 ✓ (98, 97, 23)

3 ✓

w3schools.com

~~github.com/codingblocks~~

✓ cb.lk/vmcgjit

✓ cb.lk/feedback

✓ deepakaggarwal.me

deepak@codingblocks.com