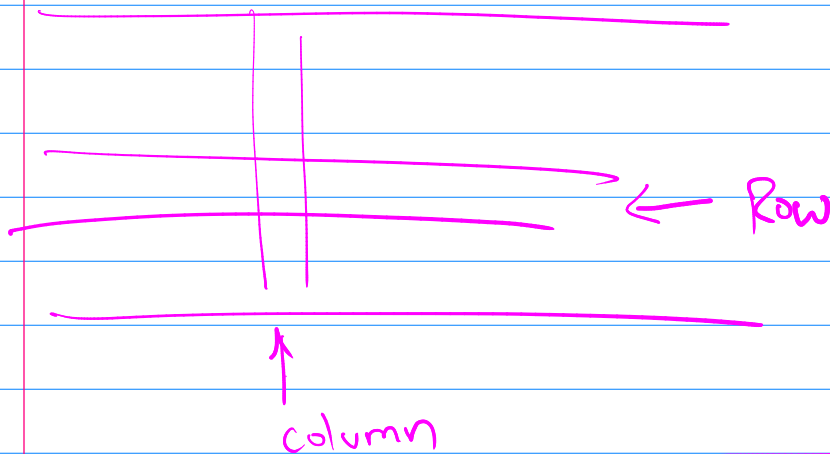


Unit 3

Relational Programming

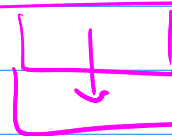
↓
"Table"

Spreadsheets → Relational algebra
(databases)
(SQL) → Recursion.



$$\frac{B4 \times B1}{B5} \quad \frac{B1}{B2}$$

$$34 \times \frac{B1}{B2}$$



Row + 1
Col + 0

Relative addressing

Absolute

$B6 \times \$B\3

$B7 \times \$B\$3 \leftarrow$ What happened

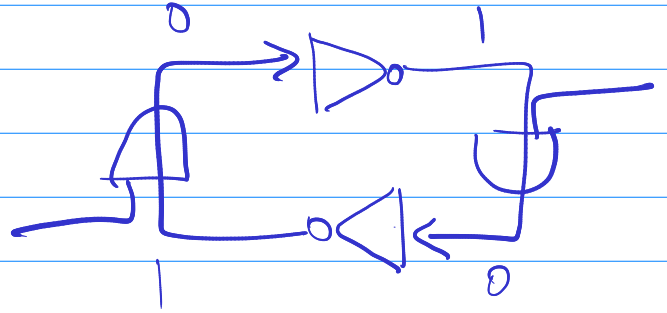
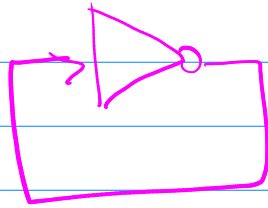
$B6 \times D3 \leftarrow$ What we want

$R+1, C+0$
 $\$B6 \times C\3
 $\$B7 \times C\3

$R+0, C+1$
 $\$B6 \times D\3

Computation graph must be a DAG.

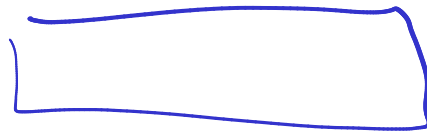
Not



Opt 1 : Oscillation

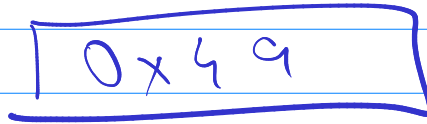
Opt 2 : short / fire / fuse blown

→ Opt 3 : Abstraction broken / intermediate val.
2.5 V ?



0x49

x



0x87

Print x

print 0x87

print A2

A2

Direct
addressing

& x : ADDRESS OF

* x : INDIRECT addressing

\$A1: \$B2
A\$1: B\$2

B5x VLOOKUP(C5 A1: B2 2)
→ B6x VLOOKUP(C6 A1: B2 2)