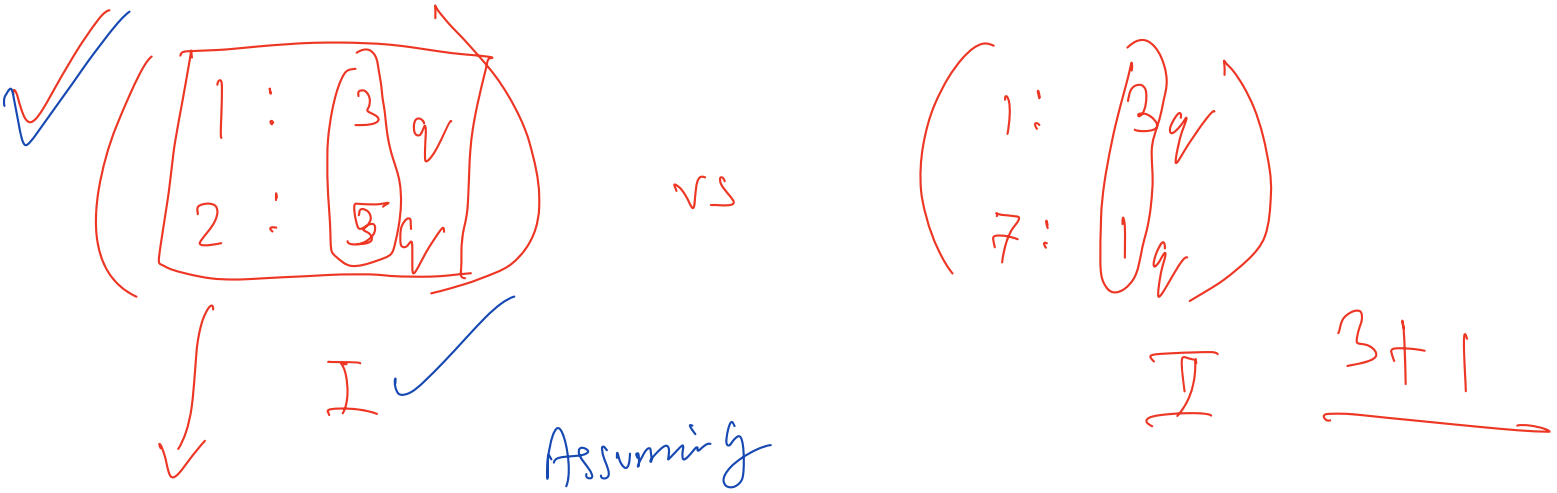
Reco Sys 1

1) Problem Statement
2) Apriori Algorithm
3) Association Rule
   - Support
   - confidence
   - lift
   - leverage
   - conviction
4) Conclusions
5) Busines Strategy



Assuming price of item 1 = item 2 = item 7

T1: {1, 2}

T2: {1, 7}

T1: {1, 3, 5, 7}

T2: {1, 2, 3, 4}

T3: {1, 3, 7, 8}

set

Dict = {{1, 3} : 3}

{1, 3}

{1, 7} {3, 4}

{1, 3, 7}

[1, 2, 3]

P/A P/A P/A

{1}
{3}
{7}

item sets

item set

{3}

2 x 2 x 2 = 2^3

1 2 3

$2^3 - 1$

item 1 : A

2 : A ✗

3 : A

N item : $2^n - 1$

2 ✗

$\{1, \emptyset, \emptyset\} = \{1\}$

1 ✗

$\{\emptyset, 2, \emptyset\} = \{2\}$

$\{\emptyset, \emptyset, 3\} = \{3\}$

$\{1, 2, \emptyset\} = \{1, 2\}$

$\{1, \emptyset, 3\} = \{1, 3\}$

$\{\emptyset, 2, 3\} = \{2, 3\}$

$\{1, 2, 3\} = \{1, 2, 3\}$

$2^n - (n) - (1)$ → full empty

↓

1 item

$\{1, 2, 3\}$ → cnt

all runs (invoices)

$$O\left(\left(2^n - n - 1\right) \times \left(N_{invoices}\right)\right)$$

n = number of unique items

$N_{invoices}$ = number of unique invoices

$n = 100$, $2^{100} \rightarrow 2^{10 \cdot 10} = (2^{10})^{10}$

$2^{10} \approx 1024$

$(102f)^{16}$

$\{2, 3\}$ x

$\{1, 2, 3\}$ x

$\{2, 3\}$ x

$\{4\}$ x

ignore

$\{1\}$

$\{2\}$

$\{3\}$

$\{1, 2\}$

$\{1, 3\}$