

→ Association Rule Learning

→ Q Answer:- People who bought also bought...

if we have 4 movies m_1, m_2, m_3, m_4

Data

ID	movies
1	m_1, m_2, m_3, m_4
2	m_1, m_2
3	m_1, m_2, m_4
4	m_1, m_2
5	m_2, m_4
6	m_1, m_3

We can see that people liking m_1 also like m_2 and people liking m_2 also like m_4

apriori has 3 parts

- (i) Support
- (ii) confidence
- (iii) lift

$$\text{Support (M)} = \frac{\text{no of users watching movie M}}{\text{total users}}$$

eg if 10 people out of 100 watched M1 then

$$\text{Support (M}_1\text{)} = \frac{10}{100} = 10\%$$

confidence (M₁ → M₂)

= users watching M₁ and M₂

users watching M₁
watching

if 40 people have seen m_2
and out of 40 17 have
seen m_1 then

$$\text{Confidence} = \frac{7}{40} = 17.5\%$$

$$\text{Lgr} \& (m_1 \rightarrow m_2) = \frac{\text{confidence}(m_1 \rightarrow m_2)}{\text{Support}(m_2)}$$

↓
tells us if we select a random
person and recommend m_2
what is the likelihood he
will like it

[inc in likelihood]

$$\text{Here if } \text{Lgr} = \frac{17.5\%}{10\%} = 1.75$$

if we ask people who
have watch m_1 will they
watch m_2

Steps :-

1] Set up support and confidence



2] Take all subsets in transaction having higher support than min support



3] Take all rules ~~having~~ ^{from} these subsets having higher than min confidence



4] Sort the rules by decreasing lift

to choose min-consider 0
sort with 0.1 then 1 by
2

then try 0.4 0.5 until
good results show

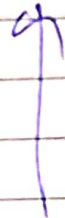
Choose min - life = 3 (BUT depends)

→ ECIAT

In ECIAT we only have buffer

we have

$$\text{Buffer (M)} = \frac{\text{users waiting M}}{\text{total users}}$$



How many a bit of money
Not a single money

(How frequent does this combination appear)

Steps

1] Get min Support

2] Take all Subsets
Having higher than min
Support

3] Sort Subsets By dec
Support