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Reporte TAREA 2
RECUPERACION DE LA INFORMACION TEXTUAL

Implementación de las formulas 19-30

Seguimos con la implementación de las siguientes formulas:

where $B_{u,i} = \{n \in U | n \neq u, r_{n,i} \neq \bullet\}$ (19)

$$p_{u,i} = \frac{1}{\#B_{u,i}} \sum_{n \in B_{u,i}} r_{n,i} \iff G_{u,i} = \varnothing \wedge B_{u,i} \neq \varnothing \quad (20)$$

$$p_{u,i} = \mu_{u,i} \sum_{n \in B_{u,i}} sim(u,n) r_{n,i} \iff G_{u,i} = \varnothing \wedge B_{u,i} \neq \varnothing \quad (21)$$

$$p_{u,i} = \bar{r}_u + \mu_{u,i} \sum_{n \in B_{u,i}} sim(u,n)(r_{n,i} - \bar{r}_n) \iff G_{u,i} = \varnothing \wedge B_{u,i} \neq \varnothing \quad (22)$$

$$\mu_{u,i} = 1 / \sum_{n \in B_{u,i}} sim(u,n) \iff G_{u,i} = \varnothing \wedge B_{u,i} \neq \varnothing \quad (23)$$

Finally, in RS cases exist in which it is impossible to make predictions on some items that any other user has voted for:

$$p_{u,i} = \bullet \iff G_{u,i} = \varnothing \wedge B_{u,i} = \varnothing \quad (24)$$

Las anteriores formulas nos ayudan a predecir.

and normalized mean absolute error stand out.

Let $O_u = \{i \in I | p_{u,i} \neq \bullet \wedge r_{u,i} \neq \bullet\}$ (25)

We define the MAE of a user u as:

$$m_u = \frac{1}{\#O_u} \sum_{i \in O_u} |p_{u,i} - r_{u,i}| \iff O_u \neq \varnothing \quad (26)$$

$$m_u = \bullet \iff O_u = \varnothing \quad (27)$$

The MAE of the RS can be obtained as the average of the user's MAE:

Let $O = \{u \in U | m_u \neq \bullet\}$ (28)

We define the system's MAE as:

$$m = \frac{1}{\#O} \sum_{u \in O} m_u \iff O \neq \varnothing \quad (29)$$

$$m = \bullet \iff O = \varnothing \quad (30)$$

The accuracy is defined as the inverse of the error $(1/m)$, but more specifically it can be established as: $accuracy = 1 - \frac{m}{max - min}$, $accuracy \in [0, 1]$.

Las anteriores formulas nos ayudan a encontrar el Error y la accuracy.

Presento los resultados de la implementacion

TABLE 15

4.5	2	0	3.5	0	0	3	3	4.67	4.33	0	0	4.5	0
4.5	0	0	3	0	4	2	3	4.5	4.33	0	2	4.5	0
4.5	0	0	3	0	4	2	3	4.5	4.33	0	2	4.5	0
5	2	0	3.5	0	4	2	3	4.5	4.33	0	2	4.33	0
3.33	2	0	3	4	1	0	3	5	4	0	0	4	1

TABLE 16

2.87	0	0	2.62	4	1	3	3	4.53	4.47	0	0	4.6	1
4.63	2	0	3.31	0	4	1	3	5	4	0	2	4	0
2.88	0	0	2.63	4	1	3	3	4.51	4.49	0	0	4.62	1
3.34	2	0	3.17	4	1	3	3	4.51	4.49	0	0	4.36	1
3.3	0	0	2.66	4	2.45	1	0	5	4	0	2	4	1

TABLE 17

3.32	0	0	2.62	1.22	0.31	2.59	2.59	5.08	5.33	0	0	3.96	0.31
1.99	0.55	0	1.78	0	1.22	0.31	0.83	2.66	2.01	0	0.61	1.45	0
3.3	0	0	2.58	1.1	0.28	2.84	2.84	5.26	5.53	0	0	4.26	0.28
4.13	1.94	0	3.55	2.2	0.55	2.81	3.57	5.23	5.49	0	0	5.23	0.55
3.85	0	0	3.31	3.74	2.28	0.86	0	4.68	4.51	0	1.73	4.51	0.94

TABLE 20

4.5	2	0	3.5	4	1	3	3	4.67	4.33	0	0	4.5	1
4.5	2	0	3	0	4	2	3	4.5	4.33	0	2	4.5	0
4.5	0	0	3	4	4	2	3	4.5	4.33	0	2	4.5	1
5	2	0	3.5	4	4	2	3	4.5	4.33	0	2	4.33	1
3.33	2	0	3	4	1	1	3	5	4	0	2	4	1

TABLE 21

---- - - ---- - ---- - - ---- ---- - - ---- -
2.87 2 0 2.62 4 1 3 3 4.53 4.47 0 0 4.6 1
4.63 2 0 3.31 0 4 1 3 5 4 0 2 4 0
2.88 0 0 2.63 4 1 3 3 4.51 4.49 0 2 4.62 1
3.34 2 0 3.17 4 1 3 3 4.51 4.49 0 2 4.36 1
3.3 2 0 2.66 4 2.45 1 3 5 4 0 2 4 1
---- - - ---- - ---- - - ---- ---- - - ---- -

TABLE 22

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3.32 1.97 0 2.62 1.22 0.31 2.59 2.59 5.08 5.33 0 0 3.96 0.31
1.99 0.55 0 1.78 0 1.22 0.31 0.83 2.66 2.01 0 0.61 1.45 0
3.3 0 0 2.58 1.1 0.28 2.84 2.84 5.26 5.53 0 1.97 4.26 0.28
4.13 1.94 0 3.55 2.2 0.55 2.81 3.57 5.23 5.49 0 1.96 5.23 0.55
3.85 1.9 0 3.31 3.74 2.28 0.86 2.85 4.68 4.51 0 1.73 4.51 0.94
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Errores absolutos medios para para la formula 15
-- ----
U1 0.77
U2 2
U3 0.47
U4 0.58
U5 0.75
-- ----
El MAE usando la formula15 es: 0.914
accuracy= 1.0940919037199124

Errores absolutos medios para para la formula 16
-- ----
U1 1.43
U2 1.98
U3 0.85
U4 0.45
U5 1.25
-- ----
El MAE usando la formula16 es: 1.192
accuracy= 0.8389261744966443

Errores absolutos medios para para la formula 17

-- ----
U1 1.45
U2 0.99
U3 0.89
U4 0.6
U5 0.95
-- ----
El MAE usando la formula17 es: 0.976
accuracy= 1.0245901639344261

Errores absolutos medios para para la formula 20
-- ----
U1 1.14
U2 2
U3 0.47
U4 0.58
U5 1
-- ----
El MAE usando la formula20 es: 1.0379999999999998
accuracy= 0.9633911368015416

Errores absolutos medios para para la formula 21
-- ----
U1 1.43
U2 1.98
U3 0.85
U4 0.45
U5 1
-- ----
El MAE usando la formula21 es: 1.142
accuracy= 0.8756567425569177

Errores absolutos medios para para la formula 22
-- ----
U1 1.45
U2 0.99
U3 0.89
U4 0.6
U5 0.79
-- ----

El MAE usando la formula22 es: 0.9440000000000002
accuracy= 1.059322033898305
