

Date

Assignment 5

SP20-BC8-086

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Bow

S1 = sunshine: 2, state: 1, enjoy: 1

S2 = brown: 2, fox: 2, jump: 1, high: 1, run: 1

S3 = sunshine: 1, state: 1, fox: 1, run: 1, fast: 1

TF

S1 = 0.5, 0.25, 0.25

S2 = 0.29, 0.29, 0.14, 0.14, 0.14

S3 = 0.2, 0.2, 0.2, 0.2, 0.2

IDF

Sunshine
 $\log(3/2)$

state
 $\log(3/2)$

enjoy
 $\log(3/1)$

brown
 $\log(3/2)$

fox
 $\log(3/2)$

jump
 $\log(3/1)$

high
 $\log(3/1)$

run
 $\log(3/2)$

fast
 $\log(3/1)$

TF * IDF

S1 = $0.5 \times \log 3/2 = 0.09$, $0.25 \times \log 3/2 = 0.045$, $0.25 \times \log 3/1 = 0.12$

S2 = $0.29 \times \log 3/2 = 0.139$, 0.052, 0.067, 0.067, 0.025

S3 = 0.036, 0.036, 0.036, 0.036, 0.096

Date

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	Sunshine	state	enjoy	brown	fox	jump	high	run	fast
S1	2	1	1	0	0	0	0	0	0
S2	1	1	0	0	1	0	0	1	1

$$S1 = [2, 1, 1, 0, 0, 0, 0, 0, 0]$$

$$S2 = [1, 1, 0, 0, 1, 0, 0, 1, 1]$$

Cosine similarity

$$= \frac{(2 \times 1) + (1 \times 1) + 0 \dots}{\sqrt{2^2 + 1^2 + 1^2} \times \sqrt{1^2 + 1^2 + 1^2 + 1^2 + 1^2}} = 0.5478$$