Date _____ 20___

Q no 1

Assignment Zain raza

Q no 1

BOW

	sunshine	state	enjoy	brown	fox	jump	high	run	fast
S1	2	1	1	0	0	0	0	0	0
S2	0	0	0	2	2	1	1	1	0
S3	1	1	0	0	1	0	0	1	1

TF

	sunshine	state	enjoy	brown	fox	jump	high	run	fast
S1	2/4	1/4	1/4	0	0	0	0	0	0
S2	0	0	0	2/7	2/7	1/7	1/7	1/7	0
S3	1/5	1/5	0	0	1/5	0	0	1/5	1/5

IDF

sunshine = $\log(3/2) = 0.176$

state = $\log(3/2) = 0.176$

enjoy = $\log(3/1) = 0.477$

brown = $\log(3/1) = 0.477$

fox = $\log(3/2) = 0.176$

run = $\log(3/2) = 0.176$

fast = $\log(3/1) = 0.477$

jump = $\log(3/1) = 0.477$

high = $\log(3/1) = 0.477$

Date _____ 20__

TF - IDF

	sunshine	state	enjoy	brown	fox	jump	high	run	fun
S1	0.088	0.044	0.114	0	0	0	0	0	0
S2	0	0	0	0.136	0.05	0.068	0.068	0.025	0
S3	0.035	0.035	0	0	0.035	0	0	0.035	0.095

Q.No2 vectors

$S_1 = \{2, 1, 1, 0, 0, 0, 0, 0, 0\}$

$S_2 = \{0, 0, 0, 2, 2, 1, 1, 1, 0\}$

$S_3 = \{1, 1, 0, 0, 1, 0, 0, 1, 1\}$

$S_1 \cdot S_3 \quad \{2+1+0+0+0+0 \dots\} = 3$

$|S_1| = (2^2 + 1^2 + 1^2 + 0 + 0 + 0 + 0 + 0 + 0)^{1/2} = 2.45$

$|S_3| = \{1^2 + 1^2 + 0 + 0 + 1^2 + 0 + 0 + 1^2 + 1^2\}^{1/2}$

$= 2.24$

$$= \frac{3}{(2.24)(2.45)} = \cos$$

$\cos = 0.55$