Activity 2

1.Here I converted to Binary Values and Gender is Excluded

Name	Fever	Cough	Test-1	Test-2	Test-3	Test-4
Jack	1	0	1	0	0	0
Mary	1	0	1	0	1	0
Jim	1	1	0	0	0	0

2. Jaccard Formula

$$Jaccard = \frac{f_{11}}{f_{01} + f_{10} + f_{11}}$$

where:

- f_{11} = number of attributes where both are 1
- f_{01} = number of attributes where first is 0, second is 1
- f_{10} = number of attributes where first is 1, second is 0

3.Jaccaed coefficients:

(Jack, Mary)

Attribute	Jack	Mary	Result
Fever	1	1	$f_{11}+=1$
Cough	0	0	ignore
Test-1	1	1	$f_{11}+=1$
Test-2	0	0	ignore
Test-3	0	1	$f_{01}+=1$
Test-4	0	0	ignore

- $f_{11} = 2$
- $f_{10} = 0$
- $f_{01} = 1$

$$\text{Jaccard Distance} = \frac{1+0}{1+0+2} = \frac{1}{3} \approx 0.33$$

(Jack, Jim)

Attribute	Jack	Jim	Result
Fever	1	1	$f_{11}+=1$
Cough	0	1	$f_{01}+=1$
Test-1	1	0	$f_{10}+=1$
Test-2	0	0	ignore
Test-3	0	0	ignore
Test-4	0	0	ignore

- $f_{11} = 1$
- $f_{10} = 1$
- $f_{01} = 1$

$$\text{Jaccard Distance} = \frac{1+1}{1+1+1} = \frac{2}{3} \approx 0.67$$

(Jim, Mary)

Attribute	Jim	Mary	Result
Fever	1	1	$f_{11} += 1$
Cough	1	0	$f_{10} += 1$
Test-1	0	1	$f_{01} += 1$
Test-2	0	0	ignore
Test-3	0	1	$f_{01} += 1$
Test-4	0	0	ignore

- $f_{11} = 1$
- $f_{10} = 1$
- $f_{01} = 2$

$$\text{Jaccard Distance} = \frac{1+2}{1+2+1} = \frac{3}{4} = 0.75$$

The Final Answers is the same the given hint.