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NIM : 20181037031141

Kelas : Pelaran Komputer – 6D

Certainty Factor

1. CF (hurting) = 1.0
2. CF (swollen) = 0.6
3. CF (red) = 0.1
4. CF (fever) = 0.4
5. CF (overload) = 1.0
6. CF (moves) = 1.0
7. IF hurt AND fever THEN infected = 0.6
8. IF hurt AND swollen THEN trauma = 0.8
9. IF overload THEN infected = 0.5
10. IF trauma AND red THEN broken = 0.8
11. IF trauma AND moves THEN sprained = 1.0

* Rule dengan satu evidence :

CF(H|e) = CF(E|e)\*CF(H|E)

* Rule dengan beberapa evidence :

CF(A **AND** B) = **Min**[CF(A), CF(B)]

CF(A **OR** B) = **Max**[CF(A), CF(B)]

* Rule dengan hipotesa yang sama :

CF1(Q) + CF2(Q) – CF1(Q) × CF2(Q) 🡪 apabila kedua premis bernilai positif

CF1(Q) + CF2(Q) + CF1(Q) × CF2(Q) 🡪 apabila kedua premis bernilai negatif

**Jawaban :**

1. Rule 1 (IF hurt **AND** fever THEN infected)

* CF (hurt) = 1.0
* CF (fever) = 0.4
* CF (IF hurt AND fever THEN infected) = 0.6

CF(infected) = Min[CF(hurt); CF(fever)] × CF (IF hurt AND fever THEN infected)

1. Rule 2 (IF hurt **AND** swollen THEN trauma)

* CF (hurt) = 1.0
* CF (swollen) = 0.6
* CF (IF hurt **AND** swollen THEN trauma) = 0.8

CF(trauma) = Min[CF(hurt); CF(swollen)] × CF (IF hurt **AND** swollen THEN trauma)

1. Rule 3 (IF overload THEN infected)

* CF (overload) = 1.0
* CF (IF overload THEN infected) = 0.5

CF(infected) = CF (overload) × CF (IF overload THEN infected)

1. Rule 4 (IF trauma **AND** red THEN broken)

* CF (trauma) = 0.48 🡪 didapat dari rule 2
* CF (red) = 0.1
* CF (IF trauma **AND** red THEN broken) = 0.8

CF(trauma) = Min[CF(trauma); CF(red)] × CF (IF trauma **AND** red THEN broken)

1. Rule 5 (IF trauma **AND** moves THEN sprained)

* CF (trauma) = 0.48 🡪 didapat dari rule 2
* CF (moves) = 1.0
* CF (IF trauma **AND** moves THEN sprained) = 0.8

CF(trauma) = Min[CF(trauma); CF(moves)]×CF (IF trauma **AND** moves THEN sprained)

1. Perhitungan kembali statement CF(infected) karena terdapat 2 rule yang berhipotesa sama (rule 1 dan rule 3)

* CF (IF hurt AND fever THEN infected) = 0.6
* CF (IF hurt AND swollen THEN trauma) = 0.8
* CF1 (infected) = 0.24 🡪 didapat hasil CF dari rule 1
* CF2 (infected) = 0.5 🡪 didapat hasil CF dari rule 3
* CF (infected) = CF1(Q) + CF2(Q) – CF1(Q) × CF2(Q)

**Kesimpulan**

Dari hasil perhitungan *Certainty Factor* 3 hipotesa pada pernyataan (infected, broken, dan sprained)

* John’s foot is infected = 0,62
* John’s foot is broken = 0.08
* John’s foot is sprained = 0.48

Dapat disimpulkan bahwa menurut *Certainty Factor* tertinggi yang didapatkan dari rule John’s foot is infected dengan hasil perhitungan sebesar 0.62. Oleh karena itu, dapat dikatakan bahwa kaki John sedang mengalami infeksi (John’s foot is infected).