Input

Temperature: Cold (24 – 36.4) Normal (35 - 38) Hot (36.6 - 44)

Headache: Mild (0 - 5) Moderate (2 – 8) Severe (5 -10)

Age: Young (0 - 45) Mid (40 - 65) Old (60 - 130)

Output:

Urgency: Low (0 - 22) Medium (11 - 44) High (33 - 66) Critical (55 - 88) Emergency (77 – 100)

Rule Base

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Temperature | Headache | Age | Urgency |
| Rule 1 | Normal | Mild | Child | Low |
| Rule 2 | Normal | Mild | Adult | Low |
| Rule 3 | Normal | Mild | Elderly | Low |
| Rule 4 | Normal | Moderate | Child | High |
| Rule 5 | Normal | Mild | Mid-Age | Medium |
| Rule 6 | Normal | Mild | Old | High |
| Rule 7 | Normal | Severe | Young | High |
| Rule 8 | Normal | Severe | Mid-Age | High |
| Rule 9 | Normal | Severe | Old | Emergency |
| Rule 10 | Hot | Slightly | Young | Medium |
| Rule 11 | Hot | Slightly | Mid-Age | Medium |
| Rule 12 | Hot | Slightly | Old | High |
| Rule 13 | Hot | Mild | Young | High |
| Rule 14 | Hot | Mild | Mid-Age | High |
| Rule 15 | Hot | Mild | Old | Critical |
| Rule 16 | Hot | Severe | Young | Critical |
| Rule 17 | Hot | Severe | Mid-Age | Emergency |
| Rule 18 | Hot | Severe | Old | Emergency |
| Rule 19 | Cold | Slightly | Young | High |
| Rule 20 | Cold | Slightly | Mid-Age | High |
| Rule 21 | Cold | Slightly | Old | Critical |
| Rule 22 | Cold | Mild | Young | Critical |
| Rule 23 | Cold | Mild | Mid-Age | Critical |
| Rule 24 | Cold | Mild | Old | Emergency |
| Rule 25 | Cold | Severe | Young | Emergency |
| Rule 26 | Cold | Severe | Mid-Age | Emergency |
| Rule 27 | Cold | Severe | Old | Emergency |

Peak Data Sample Case 1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Temperature | Headache | Age | Urgency | Predict |
| Rule 1 | 36.5 | 1 | 20 | 8.584/8.594 | 11 - 5.5 |
| Rule 2 | 36.5 | 1 | 50 | 8.584/8.527 | 11 - 5.5 |
| Rule 3 | 36.5 | 1 | 80 | 8.584/8.467 | 11 - 5.5 |
| Rule 4 | 36.5 | 5 | 20 | 27.778/27.778 | 27.5 ± 5.5 |
| Rule 5 | 36.5 | 5 | 50 | 27.778/27.778 | 27.5 ± 5.5 |
| Rule 6 | 36.5 | 5 | 80 | 50.000/50.000 | 49.5 ± 5.5 |
| Rule 7 | 36.5 | 9 | 20 | 50.000/49.997 | 49.5 ± 5.5 |
| Rule 8 | 36.5 | 9 | 50 | 50.000/49.997 | 49.5 ± 5.5 |
| Rule 9 | 36.5 | 9 | 80 | 91.416/91.533 | 88 + 5.5 |
| Rule 10 | 39 | 1 | 20 | 27.778/27.781 | 27.5 ± 5.5 |
| Rule 11 | 39 | 1 | 50 | 27.778/27.781 | 27.5 ± 5.5 |
| Rule 12 | 39 | 1 | 80 | 50.001/50.002 | 49.5 ± 5.5 |
| Rule 13 | 39 | 5 | 20 | 50.000/50.000 | 49.5 ± 5.5 |
| Rule 14 | 39 | 5 | 50 | 50.000/50.000 | 49.5 ± 5.5 |
| Rule 15 | 39 | 5 | 80 | 72.222/72.222 | 71.5 ± 5.5 |
| Rule 16 | 39 | 9 | 20 | 72.222/72.219 | 71.5 ± 5.5 |
| Rule 17 | 39 | 9 | 50 | 91.416/91.533 | 88 + 5.5 |
| Rule 18 | 39 | 9 | 80 | 91.416/91.473 | 88 + 5.5 |
| Rule 19 | 34 | 1 | 20 | 50.001/50.003 | 49.5 ± 5.5 |
| Rule 20 | 34 | 1 | 50 | 50.001/50.003 | 49.5 ± 5.5 |
| Rule 21 | 34 | 1 | 80 | 72.223/72.224 | 71.5 ± 5.5 |
| Rule 22 | 34 | 5 | 20 | 72.222/72.222 | 71.5 ± 5.5 |
| Rule 23 | 34 | 5 | 50 | 72.222/72.222 | 71.5 ± 5.5 |
| Rule 24 | 34 | 5 | 80 | 91.417/91.417 | 88 + 5.5 |
| Rule 25 | 34 | 9 | 20 | 91.416/91.406 | 88 + 5.5 |
| Rule 26 | 34 | 9 | 50 | 91.416/91.472 | 88 + 5.5 |
| Rule 27 | 34 | 9 | 80 | 91.417/91.417 | 88 + 5.5 |

Peak Data Sample Case 2

Peak data:

Temperature: cold[24,35], normal[36.4,36.9], hot[38,44]

Headache: mild[0,2], moderate[5,5], severe[8,10]

Age: child[0,10], adult[19,60], elderly[70,130]

Temperature:(24, 35), Headache:(0, 2), Age:(0, 10), result: 50.00010223872591

Temperature:(24, 35), Headache:(0, 2), Age:(19, 60), result: 27.777880016503634

Temperature:(24, 35), Headache:(0, 2), Age:(70, 130), result: 50.000102238726114

Temperature:(24, 35), Headache:(4, 6), Age:(0, 10), result: 69.73049428683646

Temperature:(24, 35), Headache:(4, 6), Age:(19, 60), result: 66.1304949599408

Temperature:(24, 35), Headache:(4, 6), Age:(70, 130), result: 83.61734059564318

Temperature:(24, 35), Headache:(8, 10), Age:(0, 10), result: 91.41650924992591

Temperature:(24, 35), Headache:(8, 10), Age:(19, 60), result: 91.41650924992585

Temperature:(24, 35), Headache:(8, 10), Age:(70, 130), result: 91.41650924992635

Temperature:(36.4, 36.9), Headache:(0, 2), Age:(0, 10), result: 9.735425288589946

Temperature:(36.4, 36.9), Headache:(0, 2), Age:(19, 60), result: 9.735425288589914

Temperature:(36.4, 36.9), Headache:(0, 2), Age:(70, 130), result: 11.275162882233545

Temperature:(36.4, 36.9), Headache:(4, 6), Age:(0, 10), result: 46.87654370083828

Temperature:(36.4, 36.9), Headache:(4, 6), Age:(19, 60), result: 30.07013940189469

Temperature:(36.4, 36.9), Headache:(4, 6), Age:(70, 130), result: 48.28475243779416

Temperature:(36.4, 36.9), Headache:(8, 10), Age:(0, 10), result: 72.69957665217676

Temperature:(36.4, 36.9), Headache:(8, 10), Age:(19, 60), result: 72.22232446094786

Temperature:(36.4, 36.9), Headache:(8, 10), Age:(70, 130), result: 91.41650924992594

Temperature:(38, 44), Headache:(0, 2), Age:(0, 10), result: 27.777880016503723

Temperature:(38, 44), Headache:(0, 2), Age:(19, 60), result: 27.77788001650367

Temperature:(38, 44), Headache:(0, 2), Age:(70, 130), result: 50.00010223872595

Temperature:(38, 44), Headache:(4, 6), Age:(0, 10), result: 48.922941624214914

Temperature:(38, 44), Headache:(4, 6), Age:(19, 60), result: 48.26039054203431

Temperature:(38, 44), Headache:(4, 6), Age:(70, 130), result: 69.73049428683635

Temperature:(38, 44), Headache:(8, 10), Age:(0, 10), result: 91.41650924992585

Temperature:(38, 44), Headache:(8, 10), Age:(19, 60), result: 72.22232446094806

Temperature:(38, 44), Headache:(8, 10), Age:(70, 130), result: 91.41650924992605

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Temperature | Headache | Age | Urgency | Predict |
| Rule 1 | 36.5 | 1 | 20 | 8.584/8.594 | 11 - 5.5 |
| Rule 2 | 36.5 | 1 | 50 | 8.584/8.527 | 11 - 5.5 |
| Rule 3 | 36.5 | 1 | 80 | 8.584/8.467 | 11 - 5.5 |
| Rule 4 | 36.5 | 5 | 20 | 27.778/27.778 | 27.5 ± 5.5 |
| Rule 5 | 36.5 | 5 | 50 | 27.778/27.778 | 27.5 ± 5.5 |
| Rule 6 | 36.5 | 5 | 80 | 50.000/50.000 | 49.5 ± 5.5 |
| Rule 7 | 36.5 | 9 | 20 | 50.000/49.997 | 49.5 ± 5.5 |
| Rule 8 | 36.5 | 9 | 50 | 50.000/49.997 | 49.5 ± 5.5 |
| Rule 9 | 36.5 | 9 | 80 | 91.416/91.533 | 88 + 5.5 |
| Rule 10 | 39 | 1 | 20 | 27.778/27.781 | 27.5 ± 5.5 |
| Rule 11 | 39 | 1 | 50 | 27.778/27.781 | 27.5 ± 5.5 |
| Rule 12 | 39 | 1 | 80 | 50.001/50.002 | 49.5 ± 5.5 |
| Rule 13 | 39 | 5 | 20 | 50.000/50.000 | 49.5 ± 5.5 |
| Rule 14 | 39 | 5 | 50 | 50.000/50.000 | 49.5 ± 5.5 |
| Rule 15 | 39 | 5 | 80 | 72.222/72.222 | 71.5 ± 5.5 |
| Rule 16 | 39 | 9 | 20 | 72.222/72.219 | 71.5 ± 5.5 |
| Rule 17 | 39 | 9 | 50 | 91.416/91.533 | 88 + 5.5 |
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| Rule 20 | 34 | 1 | 50 | 50.001/50.003 | 49.5 ± 5.5 |
| Rule 21 | 34 | 1 | 80 | 72.223/72.224 | 71.5 ± 5.5 |
| Rule 22 | 34 | 5 | 20 | 72.222/72.222 | 71.5 ± 5.5 |
| Rule 23 | 34 | 5 | 50 | 72.222/72.222 | 71.5 ± 5.5 |
| Rule 24 | 34 | 5 | 80 | 91.417/91.417 | 88 + 5.5 |
| Rule 25 | 34 | 9 | 20 | 91.416/91.406 | 88 + 5.5 |
| Rule 26 | 34 | 9 | 50 | 91.416/91.472 | 88 + 5.5 |
| Rule 27 | 34 | 9 | 80 | 91.417/91.417 | 88 + 5.5 |

Non-Peak Data Sample Case 1

Data must be over 0.5 degree

Temperature: Cold (35.1, 35.4, 35.7) Normal (36.0, 37.0, 37.3) Hot (37.4, 37.7, 37.9)

Headache: Mild (2.5, 3.0, 3.5) Moderate (3.8, 6.0, 6.3) Severe (6.5, 7.0, 7.5)

Age: Young (11, 13.5, 15) Mid-age (16.5, 63.5, 66.5) Old (67, 68, 69)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Temperature | Headache | Age | Urgency | Predict |
| Rule 1 | 36.0 | 2.5 | 13.5 | 19.640/25.939 | 25 ± 10 |
| Rule 2 | 37.0 | 3.0 | 66.5 | 19.704/28.001 | 30 ± 10 |
| Rule 3 | 37.3 | 3.5 | 67 | 34.656/39.654 | 35 ± 10 |
| Rule 4 | 36.0 | 6.0 | 15 | 64.651/53.098 | 60 ± 10 |
| Rule 5 | 37.0 | 6.3 | 16.5 | 59.450/55.262 | 63 ± 10 |
| Rule 6 | 37.3 | 3.8 | 68 | 39.366/44.722 | 38 ± 10 |
| Rule 7 | 36.0 | 7.5 | 11 | 77.857/75.862 | 75 ± 10 |
| Rule 8 | 37.0 | 6.5 | 63.5 | 62.365/56.482 | 65 ± 10 |
| Rule 9 | 37.3 | 7.0 | 69 | 87.710/86.003 | 70 ± 10 |
| Rule 10 | 37.7 | 2.5 | 15 | 20.994/23.437 | 25 ± 12 |
| Rule 11 | 37.9 | 3.0 | 16.5 | 24.822/26.508 | 30 ± 12 |
| Rule 12 | 37.4 | 3.5 | 68 | 36.677/41.337 | 35 ± 12 |
| Rule 13 | 37.7 | 6.0 | 11 | 63.759/63.700 | 60 ± 12 |
| Rule 14 | 37.9 | 6.3 | 63.5 | 64.091/60.750 | 63 ± 12 |
| Rule 15 | 37.4 | 3.8 | 69 | 42.078/46.221 | 38 ± 12 |
| Rule 16 | 37.7 | 7.5 | 13.5 | 80.818/82.907 | 75 ± 12 |
| Rule 17 | 37.9 | 6.5 | 66.5 | 71.227/67.643 | 65 ± 12 |
| Rule 18 | 37.4 | 7.0 | 67 | 83.204/80.627 | 70 ± 12 |
| Rule 19 | 35.7 | 2.5 | 11 | 28.920/33.156 | 25 ± 15 |
| Rule 20 | 35.1 | 3.0 | 63.5 | 28.192/30.217 | 30 ± 15 |
| Rule 21 | 35.4 | 3.5 | 69 | 46.844/51.285 | 35 ± 15 |
| Rule 22 | 35.7 | 6.0 | 13.5 | 68.485/59.109 | 60 ± 15 |
| Rule 23 | 35.1 | 6.3 | 66.5 | 83.245/73.578 | 63 ± 15 |
| Rule 24 | 35.4 | 3.8 | 67 | 47.384/54.058 | 38 ± 15 |
| Rule 25 | 35.7 | 7.5 | 15 | 81.821/79.226 | 75 ± 15 |
| Rule 26 | 35.1 | 6.5 | 16.5 | 79.168/75.175 | 65 ± 15 |
| Rule 27 | 35.4 | 7.0 | 68 | 88.118/83.837 | 70 ± 15 |