

2}

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AI_Lab > Nikhil_Wakode > fuzzy_logic_2.cpp > hotMembership(float, float, float, float)
1  #include <iostream>
2  #include <iomanip>
3  using namespace std;
4  float hotMembership(float temp, float start, float half, float full) {
5      if (temp <= start) return 0;
6      if (temp < half) return (temp - start) / (half - start) * 0.5f;
7      if (temp < full) return 0.5f + (temp - half) / (full - half) * 0.5f;
8      return 1;
9  }
10
11 void printMembership(float temp, float membership) {
12     cout << setw(8) << fixed << setprecision(1) << temp << "C: "
13     | << setw(10) << setprecision(4) << membership << endl;
14 }
15
16 int main() {
17     const float start = 22, half = 27, full = 32;
18
19     cout << "Temperature Membership Value\n"
20     | << "-----\n";
21
22     for (float temp = 22; temp <= 32; temp += 5) {
23         printMembership(temp, hotMembership(temp, start, half, full));
24     }
25
26     cout << "\nKey Points:\n"
27     | << "-----\n";
28
29     for (float temp : {start, half, full, 37.0f}) {
30         printMembership(temp, hotMembership(temp, start, half, full));
31     }
32
33     return 0;
34 }
```