User preference vector - U = [1, 1, 1, 1, 1, 1]

One insurance plan only matches some criteria:

- Health score match ✅
- Medical condition ❌
- Diagnosis match ✅
- Premium under budget ✅
- Premium type ❌
- Add-ons ❌

So the plan vector becomes ; P = [1, 0, 1, 1, 0, 0]

$$\text{cosine similarity} = \frac{U \cdot P}{\|U\|\|P\|}$$

1. Dot Product (U · P):

$$(1 \times 1 + 1 \times 0 + 1 \times 1 + 1 \times 1 + 1 \times 0 + 1 \times 0) = 3$$

2. Magnitude of U:

$$\|U\| = \sqrt{1^2 + 1^2 + 1^2 + 1^2 + 1^2 + 1^2} = \sqrt{6} \approx 2.45$$

3. Magnitude of P:

$$\|P\| = \sqrt{1^2 + 0^2 + 1^2 + 1^2 + 0^2 + 0^2} = \sqrt{3} \approx 1.73$$

4. Cosine Similarity:

$$\frac{3}{2.45 \times 1.73} \approx \frac{3}{\downarrow 2385} \approx 0.707$$