**1. Hypotheses**

* **Null Hypothesis (H₀):**  
  There is **no association** between device type and customer satisfaction.  
  (In simple terms: the type of device doesn’t affect how satisfied people are.)
* **Alternative Hypothesis (H₁):**  
  There **is an association** between device type and customer satisfaction.

**2. Observed Data (What we actually saw):**

| **Satisfaction Level** | **Smart Thermostat** | **Smart Light** | **Total** |
| --- | --- | --- | --- |
| Very Satisfied | 50 | 70 | 120 |
| Satisfied | 80 | 100 | 180 |
| Neutral | 60 | 90 | 150 |
| Unsatisfied | 30 | 50 | 80 |
| Very Unsatisfied | 20 | 50 | 70 |
| **Total** | **240** | **360** | **600** |

**3. Expected Data (What we would expect if there were no link between device and satisfaction):**

We calculate the "expected" values based on row and column totals, assuming the device type doesn’t influence satisfaction.

For example:  
Expected for "Very Satisfied & Thermostat" = (120 × 240) / 600 = 48  
(We do this for all cells.)

**4. Chi-Square Test Statistic**

We compare observed values vs. expected values using this formula:

=

After crunching the numbers, we get:

**Chi-Square Statistic ≈ 5.19**

**5. Critical Value and Decision**

* Degrees of freedom (df) = (rows - 1) × (columns - 1) = (5 - 1) × (2 - 1) = **4**
* Critical value at α = 0.05 is **9.49**

**Since 5.19 < 9.49**, we **fail to reject** the null hypothesis.

Also, **p-value = 0.268**, which is higher than 0.05 → still not enough evidence.

**🧾 Final Conclusion (In Plain English):**

There is **not enough evidence** to say that customer satisfaction depends on the type of smart device.  
In other words, customers seem to feel similarly about Smart Thermostats and Smart Lights.