In [4]:
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Problem Setup:
You have 3 switches outside a room.
Inside the room, there is 1 light bulb (ordinary incandescent).
Only one switch controls the bulb.
You can flip switches however you like, but you can enter the bulb room only once.
How do you figure out which switch controls the bulb?

Step-by-Step Strategy:
1.Turn on Switch 1 and leave it on for 5 minutes.
2.After 5 minutes, turn off Switch 1 and turn on Switch 2.
3.Now, go into the room.

In the bulb room, check the bulb:
1.If the bulb is on, then ✅ Switch 2 controls it.
2.If the bulb is off but warm, then ✅ Switch 1 controls it (it was on long enough to heat up).
3.If the bulb is off and cold, then ✅ Switch 3 controls it (it was never turned on).

Why it works:
You're using light to check Switch 2,
You're using heat to check Switch 1,
If neither applies, it must be Switch 3.

Final answer:
| Observation              | Switch that controls the bulb |
| ------------------------ | ----------------------------- |
| Bulb is     on           | Switch 2                      |
| Bulb is   off but warm   | Switch 1                      |
| Bulb is   off and cold   | Switch 3                      |
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In [1]: