

Name \_\_\_\_\_

## ***If-Then Design Task - Creating Rule-Based Reactive Agents***

Some AI agents don't plan or think about the future. Instead, they follow simple **rules**: *"If this happens, then do that."* These are called **rule-based reactive agents**. They don't remember the past or make predictions—they just respond to the situation right in front of them.

A thermostat is a classic example. It doesn't plan your whole day, but it can follow rules like:

- IF the room is colder than 68°F, THEN turn on the heater.
- IF the room is warmer than 72°F, THEN turn off the heater.

By stacking rules like this, the agent reacts quickly to its environment and helps solve problems.

**Directions** - For each scenario below, design at least **five IF-THEN rules** that would help the agent react correctly. Be creative and think about the environment, the sensors, and what actions make sense.

### **Scenario 1 - Smart Thermostat**

You are designing a thermostat that keeps a classroom comfortable. The thermostat can read the temperature and control heating and cooling.

✎ Write **5 IF-THEN rules** your thermostat would follow.

### **Scenario 2 - School Hallway Cleaning Robot**

You are designing a small robot that cleans the hallway floors after school. It has bump sensors, a dirt detector, and wheels to move around.

✎ Write **5 IF-THEN rules** your robot would follow.

### **Scenario 3 - Digital Study Buddy**

You are designing a simple study helper that reminds students to stay on track while doing homework. It can check time, see if the student has been inactive, and suggest breaks.

✎ Write **5 IF-THEN rules** your study buddy would follow.

