

Name _____

If-Then Design Task - Creating Rule-Based Reactive Agents Answer Key

Scenario 1 - Smart Thermostat

Sample rules:

1. IF the room temperature is below 68°F, THEN turn on the heater.
2. IF the room temperature is above 74°F, THEN turn on the air conditioner.
3. IF the room temperature is between 68°F and 74°F, THEN keep both heater and AC off.
4. IF the windows are open, THEN turn off heating/cooling to save energy.
5. IF it is after 5:00 p.m., THEN lower the heat setting to 65°F to save energy.

Scenario 2 - School Hallway Cleaning Robot

Sample rules:

1. IF the bump sensor detects a wall, THEN turn right.
2. IF the dirt detector senses a dirty spot, THEN stop and vacuum for 10 seconds.
3. IF the battery is below 15%, THEN return to the charging station.
4. IF the path ahead is clear, THEN move forward.
5. IF the cleaning cycle has lasted more than 1 hour, THEN shut down and send a "done" signal.

Scenario 3 - Digital Study Buddy

Sample rules:

1. IF the student has been working for 30 minutes, THEN suggest a 5-minute break.
2. IF the student is inactive for 10 minutes, THEN send a gentle reminder to get back to work.
3. IF the time is after 9:00 p.m., THEN remind the student to wrap up homework.
4. IF the student finishes all tasks on their list, THEN send a congratulatory message.
5. IF the student gets distracted (e.g., switches to a game or unrelated site), THEN pop up with a reminder to stay focused.