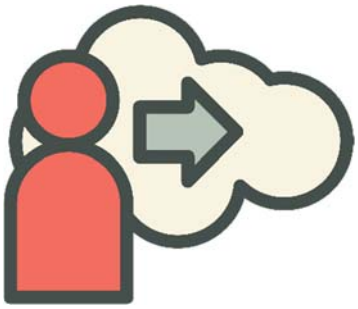
Name _____



Error Diagnosis - Finding and Fixing Agent Mistakes

Even smart AI agents can make mistakes. Sometimes they don't sense their environment correctly, sometimes they follow the wrong rules, and sometimes they fail to learn from experience. Engineers need to **diagnose errors** by asking: *What part of the agent's design is failing, and how can it be fixed?*

1. Delivery Robot in Trouble - A sidewalk delivery robot is supposed to bring snacks to customers. One day, it stops at every trash can, thinking each is a delivery location. It wastes time and never reaches the customer.

a) The robot's **actuators** are weak; fix them with stronger wheels.

b) The robot's **sensors** are confusing trash cans for buildings; fix them with better image recognition.

c) The robot's **reasoning** is fine, it just needs more snacks.

d) The robot's **learning system** is broken; fix it by charging the battery.

2. Chatbot Misunderstanding - A customer types: "I want to cancel my order." The chatbot replies: "Great! Adding another item to your order now." The customer gets frustrated.

a) The chatbot's **perception** (language understanding) is poor; fix it by training with more examples of cancellation requests.

b) The chatbot's **actuators** failed; fix them by improving motor speed.

c) The chatbot's **goal system** is too ambitious; fix it by making the chatbot less friendly.

d) The chatbot's **environment** is too noisy; fix it by lowering the volume.

3. Vacuum Robot Gets Lost - A vacuum robot cleans half the living room, then circles in the same corner for 20 minutes. The floor stays dirty elsewhere.

a) The robot's **sensors** are not detecting when it has already cleaned an area; fix them with mapping ability.

b) The robot's **actuators** are weak; fix them by installing a stronger brush.

c) The robot's **reasoning rules** are too simple; fix them by adding planning to cover the whole room.

d) Both a and c are correct.

4. Health App Overreacts - A smartwatch app records a short spike in heart rate after a student climbs stairs. It immediately sends a scary alert: "Possible heart attack detected!"

a) The app's **reasoning rules** are too sensitive; fix them by adjusting thresholds for alerts.

b) The app's **sensors** are broken; fix them by replacing the microphone.

c) The app's **actuators** failed; fix them by adding louder alerts.

d) The app's **learning system** is too slow; fix it by speeding up the processor.