

4565: Computing Foundations for a Digital Age

Unit 5

Algorithm Sorting Challenge Worksheet

Name: _____ Date: _____

Challenge Objective: Can you figure out which tasks follow clear, step-by-step rules... and which ones use machine learning to *learn* from patterns?

Step 1: Sort the Scenarios

Below are 12 tech-based tasks. For each one, decide whether it uses a **Traditional Algorithm** or **AI/Machine Learning Algorithm**. Then explain your reasoning.

Scenario	Traditional or AI/ML?	Why do you think so?
1. A calculator solving $345 \div 5$		
2. Spotify recommending your next playlist		
3. An app sorting student names alphabetically		
4. Google Translate improving over time based on user input		
5. A traffic light following a set cycle (red → green → yellow)		
6. Snapchat suggesting filters based on your face		
7. A robot vacuum that maps your house and avoids obstacles		
8. A vending machine giving correct change		
9. YouTube auto-captioning a video based on audio		
10. Typing “2 + 2” into a website calculator		
11. Gmail sorting your inbox into “Primary” and “Promotions” folders		
12. A digital thermometer displaying the temperature		

Step 2: Ethics in Action

Pick **one** AI/ML scenario from above.

What is **one possible ethical concern** with using AI for this task?

- Scenario #: _____
 - Concern: _____
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