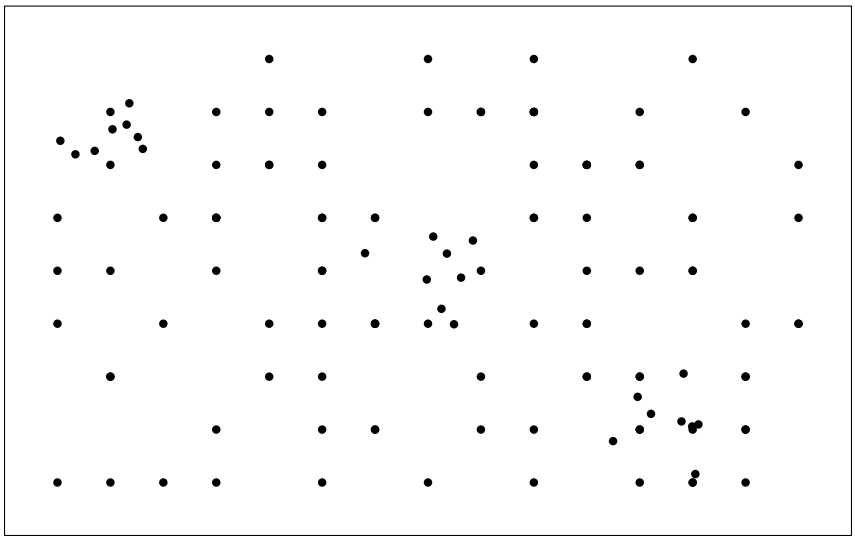
Pattern Discovery Worksheet

Pre-Session Activity

Machine Learning for Innovation - Week 1

Exercise 1: The Sorting Challenge

Task: Look at the dots below. Group them into categories by drawing circles around dots that belong together.



Questions:

1. How many groups did you find? _____

2. How long did this take you? _____

3. What if there were 10,000 dots instead of 100? How long would it take? _____

4. What rule did you use to decide which dots belong together?

   _____

   _____

Exercise 2: The Innovation Challenge

Task: Below are 30 innovation concepts. Organize them into meaningful categories. Write the category names and list which innovations belong in each.

Electric transportation	Photo sharing
Music streaming	Instant messaging
Video communication	Online marketplaces
Food delivery automation	Video streaming
Digital payments	Virtual reality
Remote healthcare	3D printing
Social networking	Drone delivery
Cloud storage	Artificial intelligence
Voice assistants	Gene editing
Renewable energy	Autonomous vehicles
Online education	Blockchain
Fitness tracking	Augmented reality
Smart home devices	Quantum computing
Cryptocurrency	Internet of things
Ride sharing	Sustainable packaging

Your Categories:

1. Category 1: _____
   Items: _____

2. Category 2: _____
   Items: _____

3. Category 3: _____
   Items: _____

4. Category 4: _____
   Items: _____

Questions:

1. Were some innovations hard to categorize? Which ones? _____
2. Could the same innovation fit multiple categories? _____
3. What if you had 5000 innovations to sort? _____

Reflection: Why This Matters

Think about the exercises you just completed. Answer the following questions:

1. What was challenging about grouping the dots?

2. What was challenging about categorizing the innovations?

3. How might a computer help with these tasks?

4. What patterns might you miss when sorting manually?

5. If each innovation had 50 different features to consider (cost, technology type, market size, user age, geographic region, etc.), how would that change your categorization?

In our first session, we'll explore how machine learning can find patterns that humans might miss, especially when dealing with hundreds of features and thousands of data points.