AI Decision Trees

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Name: _____

Warm Up
Objective: Students will understand how AI classifies information and develop systematic thinking skills by creating and testing decision trees.

1. What are you doing today?

2. Why is this important?

3. How will you know if you have done well?

Background Knowledge: What Are Decision Trees?

Decision trees are like a detective's flowchart for solving mysteries! Imagine you're trying to identify something by asking a series of yes-or-no questions that help you narrow down possibilities step by step.
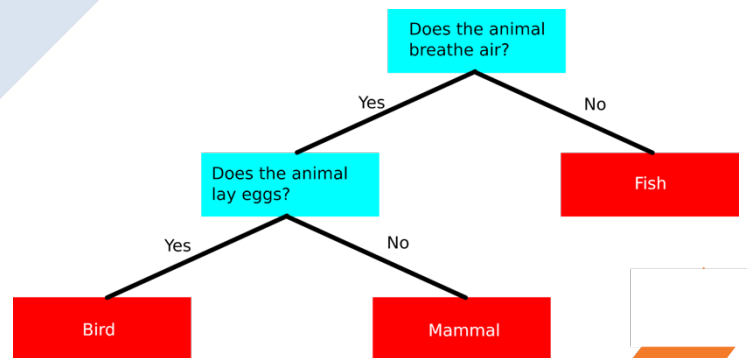
How Decision Trees Work
- Start with a big question
- Break that question into smaller, more specific questions
- Follow the path of answers to reach a final conclusion

Real-World AI Examples
Decision trees help artificial intelligence:
- Identify animals in photos
- Sort emails into spam or important
- Recommend movies or music
- Diagnose medical conditions

PART 1: CREATING A DECISION TREE

1. With your group, create a decision tree for your group's card set. You may use your notes or other provided resources to assist you in creating your decision tree.
    a. Make sure your questions are:
        i. Clear
        ii. Specific
        iii. Have a definite YES or NO answer
2. Write your questions and yes/no pathway on sticky notes.

Tips for Great Decision Tree Questions

Good Questions	*Avoid Weak Questions*
✓ "Is it made of metal?" ✓ "Does it grow?" ✓ "Can it move on its own?"	✗ "Is it interesting?" ✗ "Does it look nice?" ✗ "Is it complicated?"
Good questions reduce confusion.	Weak questions create errors in classification.

PART 2: TESTING THE LOGIC

3. Trade decision trees with another group.
4. Try to place the card at the correct leaf node based on the provided questions.

PART 3: REFLECTION

1. How many questions did your group need to identify all your cards?

2. Were there any cards that were hard to classify? Why?

3. How could decision trees be used in real-life AI applications? Give an example.

4. How do AI systems handle more complex classification tasks than humans?

5. Why is it important for AI systems to start with clear, simple questions?