(venv) ankanchakraborti@EPINHYDW00A7 Day 2 % Python LogicPuzzle.py

✅ Client object created successfully.

Logic Puzzle:

> "Four friends, Alex, Ben, Chris, and David, are standing in a line. Chris is not at either end. Ben is directly in front of Alex. David is somewhere behind Chris. Determine the order of the friends from front to back."

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🧑‍🤝‍🧑 The final order from front to back is:

\*\*Let's solve this step by step.

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### Step 1: \*\*Identify the entities and the setup.\*\*

We have four friends: Alex, Ben, Chris, and David. They are standing in a line, and we need to determine their order from front to back.

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### Step 2: \*\*Analyze each clue:\*\*

1. \*\*Clue 1:\*\* "Chris is not at either end."

- This means Chris must be in position 2 or 3.

2. \*\*Clue 2:\*\* "Ben is directly in front of Alex."

- This means Ben and Alex must be adjacent, with Ben in front of Alex. So, their order is (Ben, Alex).

3. \*\*Clue 3:\*\* "David is somewhere behind Chris."

- This means David must be in a position that comes after Chris in the line.

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### Step 3: \*\*Formulate and test hypotheses based on the strongest clue (Chris's position).\*\*

#### \*\*Hypothesis A: Chris is in position 2.\*\*

- If Chris is in position 2, then Ben and Alex must occupy positions 1 and 3 (since they must be adjacent, with Ben in front of Alex).

- This gives us the partial order: (Ben, Chris, Alex, ...).

- David must be behind Chris, so David must be in position 4.

- This gives us the complete order: \*\*(Ben, Chris, Alex, David).\*\*

- \*\*Check if this satisfies all the clues:\*\*

1. Chris is not at either end. ✅

2. Ben is directly in front of Alex. ✅

3. David is somewhere behind Chris. ✅

This hypothesis works! The order is \*\*(Ben, Chris, Alex, David).\*\*

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#### \*\*Hypothesis B: Chris is in position 3.\*\*

- If Chris is in position 3, then Ben and Alex must occupy positions 1 and 2 (since they must be adjacent, with Ben in front of Alex).

- This gives us the partial order: (Ben, Alex, Chris, ...).

- David must be behind Chris, so David must be in position 4.

- This gives us the complete order: \*\*(Ben, Alex, Chris, David).\*\*

- \*\*Check if this satisfies all the clues:\*\*

1. Chris is not at either end. ✅

2. Ben is directly in front of Alex. ✅

3. David is somewhere behind Chris. ✅

This hypothesis also works! The order is \*\*(Ben, Alex, Chris, David).\*\*

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### Step 4: \*\*Compare the two valid hypotheses.\*\*

Both hypotheses satisfy all the clues:

1. \*\*(Ben, Chris, Alex, David)\*\*

2. \*\*(Ben, Alex, Chris, David)\*\*

However, since the problem does not specify any additional constraints, \*\*both orders are valid solutions.\*\*

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### Final Answer:

The possible orders are:

1. \*\*(Ben, Chris, Alex, David)\*\*

2. \*\*(Ben, Alex, Chris, David)\*\* \*\*