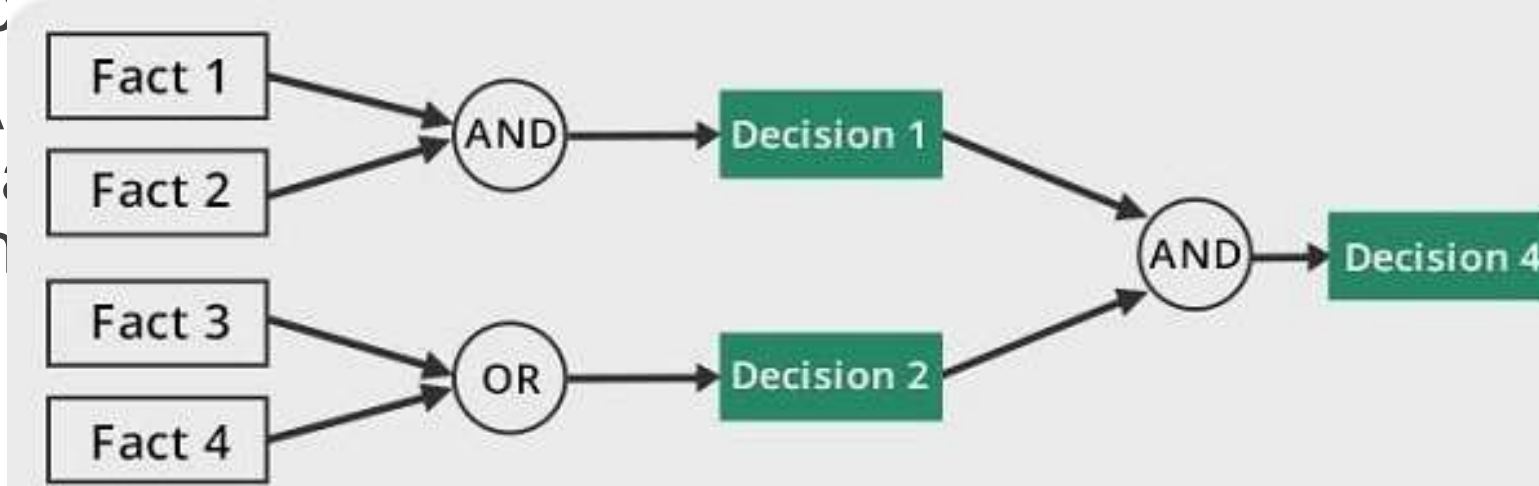# Forward chaining And Backward chaining

- Forward chaining is a method of reasoning in artificial intelligence in which inference rules are applied to existing data to extract additional data until an endpoint (goal) is achieved.

- In this type of chaining, the inference engine starts by evaluating existing facts, derivations, and conditions before deducing new information.

- A

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Cont...

- **Properties of forward chaining**
- The process uses a down-up approach (bottom to top).
- It starts from an initial state and uses facts to make a conclusion.
- This approach is data-driven.
- It's employed in expert systems and production rule system.
- A simple example of forward chaining can be explained in the following sequence.

A

A->B

B

A is the starting point. A->B represents a fact. This fact is used to achieve a decision B.

A practical example will go as follows;

Tom is running (A)

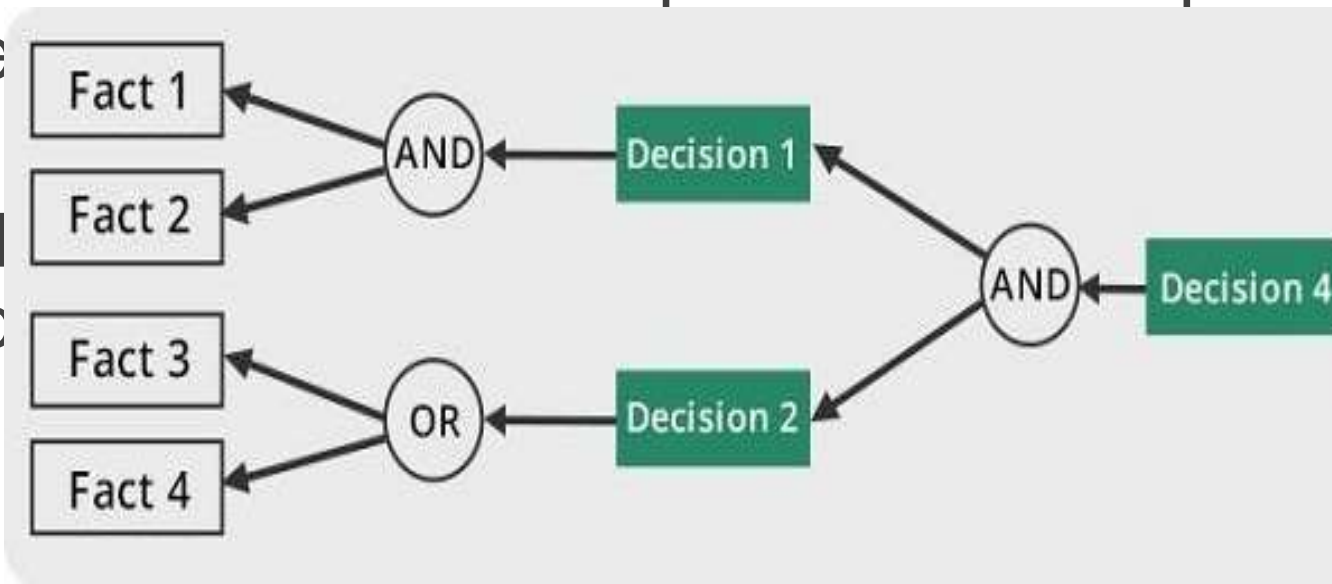**If a person is running, he will sweat (A->B)**

Therefore, Tom is sweating. (B)

BACKWARD CHAINING

- Backward chaining is a concept in artificial intelligence that involves backtracking from the endpoint or goal to steps that led to the endpoint. This type of chaining starts from the goal and moves backward to comprehend the steps that were

- The person establ other impo

Cont...

- **Properties of backward chaining**
- The process uses an up-down approach (top to bottom).
- It's a goal-driven method of reasoning.
- The endpoint (goal) is subdivided into sub-goals to prove the truth of facts.
- A backward chaining algorithm is employed in inference engines, game theories, and complex database systems.

Cont...

- Example of backward chaining

- The information provided in the previous example (forward chaining) can be used to provide a simple explanation of backward chaining. Backward chaining can be explained in the following sequence.

- B

- A->B

- A

- B is the goal or endpoint, that is used as the starting point for backward tracking. A is the initial state. A->B is a fact that must be asserted to arrive at the endpoint B.

- A practical example of backward chaining will go as follows:

- Tom is sweating (B).

- If a person is running, he will sweat (A->B).

- Tom is running (A).