Architecture
of Expert System

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Materials

- Component of ES
- Architecture of ES

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Basic Components

- ES has been structured in many ways
  - ➢ The various ES architecture include different components

- Basic components:
  1. User interface
  2. Knowledge base
  3. Inference engine

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Basic Components (2)

1. ## User interface:
    - A software that provides for the communication exchange between user and the system
    - User: input facts, ask the system
    - System: ask new facts, give answer or advice

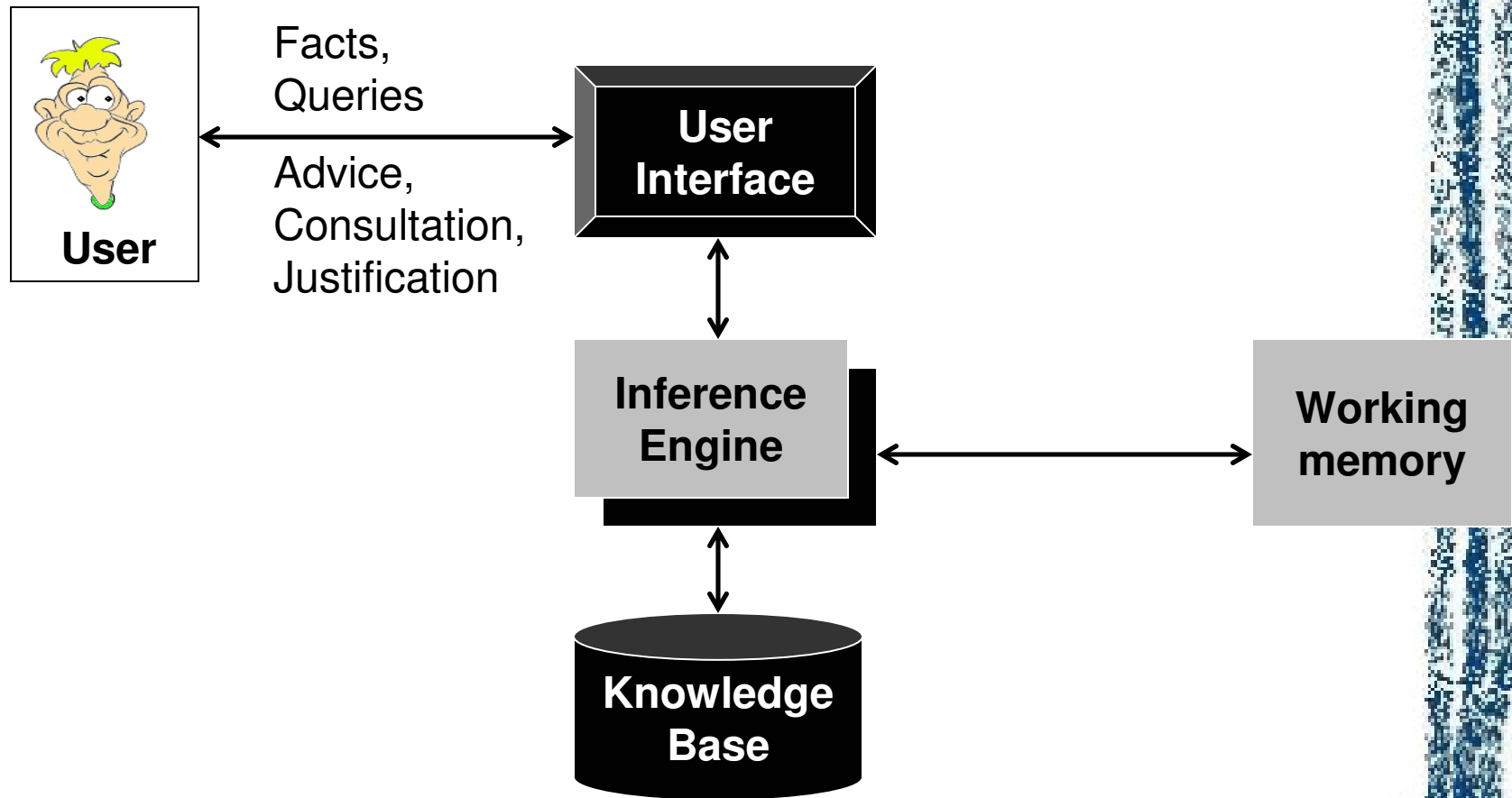2. ## Knowledge base:
    - Contains expert-level knowledge on a particular subject
    - Stored in a knowledge representational form

3. ## Inference engine:
    - A software that performs the inference reasoning tasks
    - It uses the knowledge in the knowledge base and information provided by the user to infer new knowledge

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Architecture of Expert System
A simple architecture

User

Facts, Queries

Advice, Consultation, Justification

User Interface

Inference Engine

Working memory

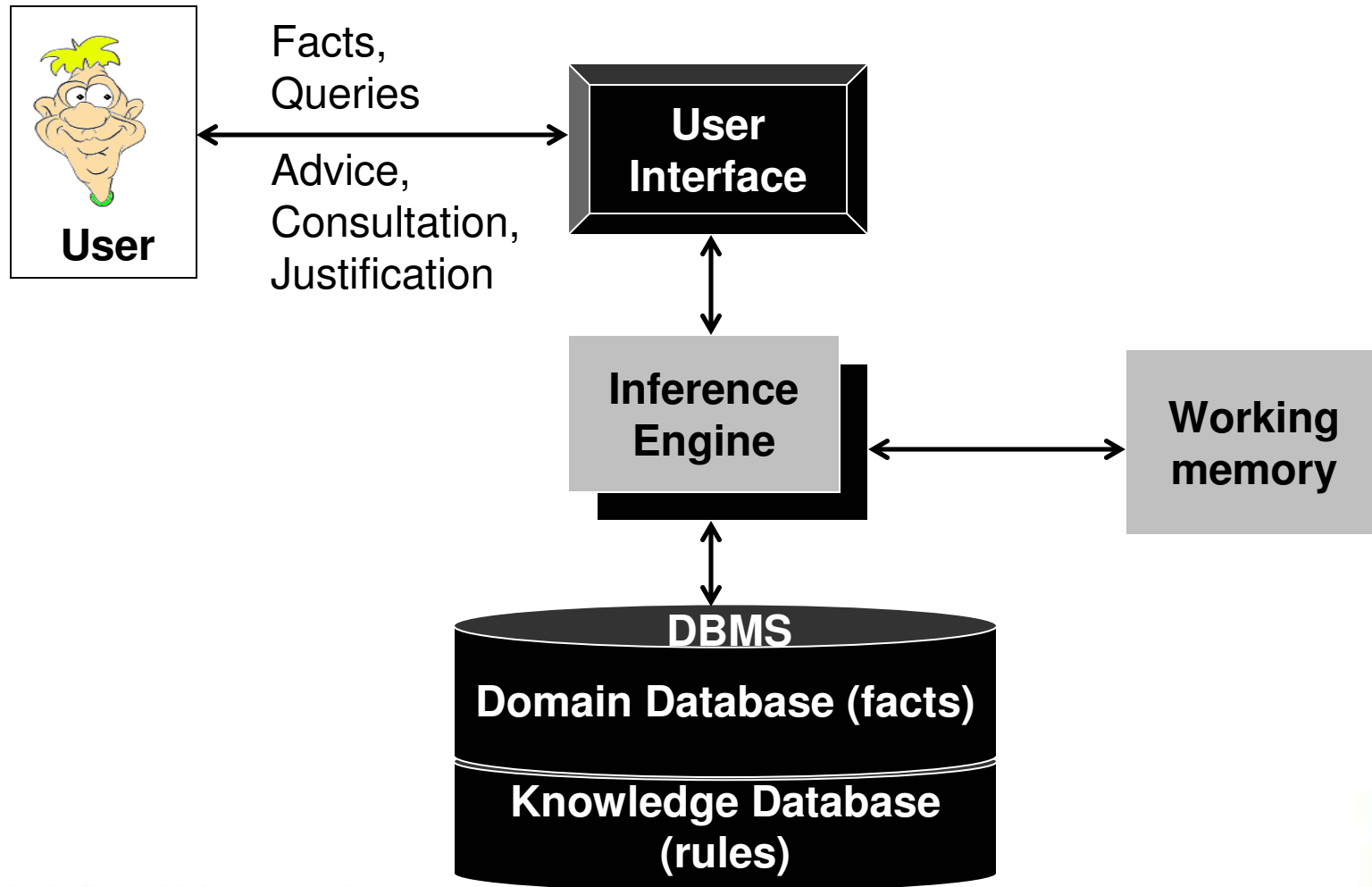Knowledge Base

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The Other Components

1. Working memory:
   - ➢ A global database of facts used by the rules

2. Knowledge database:
   - ➢ Contains <u>rules</u> about the behavior of the elements of a particular subject

3. Domain database:
   - ➢ Contains <u>facts</u> about the ES's subject

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Architecture of Expert System
# An extended architecture

The Other Components (2)

1. Explanation facility:

    ➢ Explain the reasoning of the system to a user

2. Knowledge acquisition facility:

    ➢ An automatic way for the expert to enter knowledge in the system rather than by having the knowledge engineer explicitly code the knowledge

3. Self-training facility:

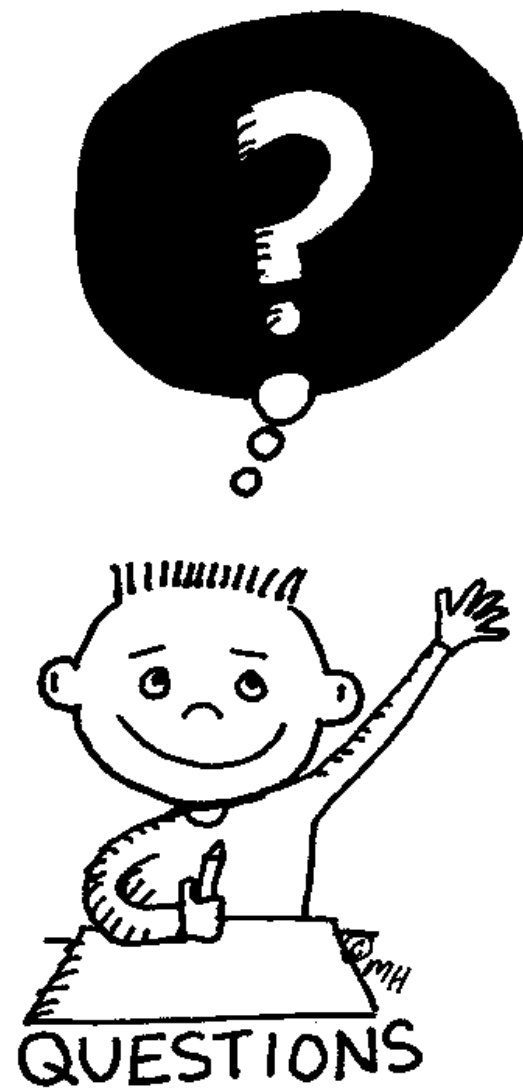   ➢ An automatic way of the system to add new facts and/or rules in the system

Architecture of Expert System
The complex architecture
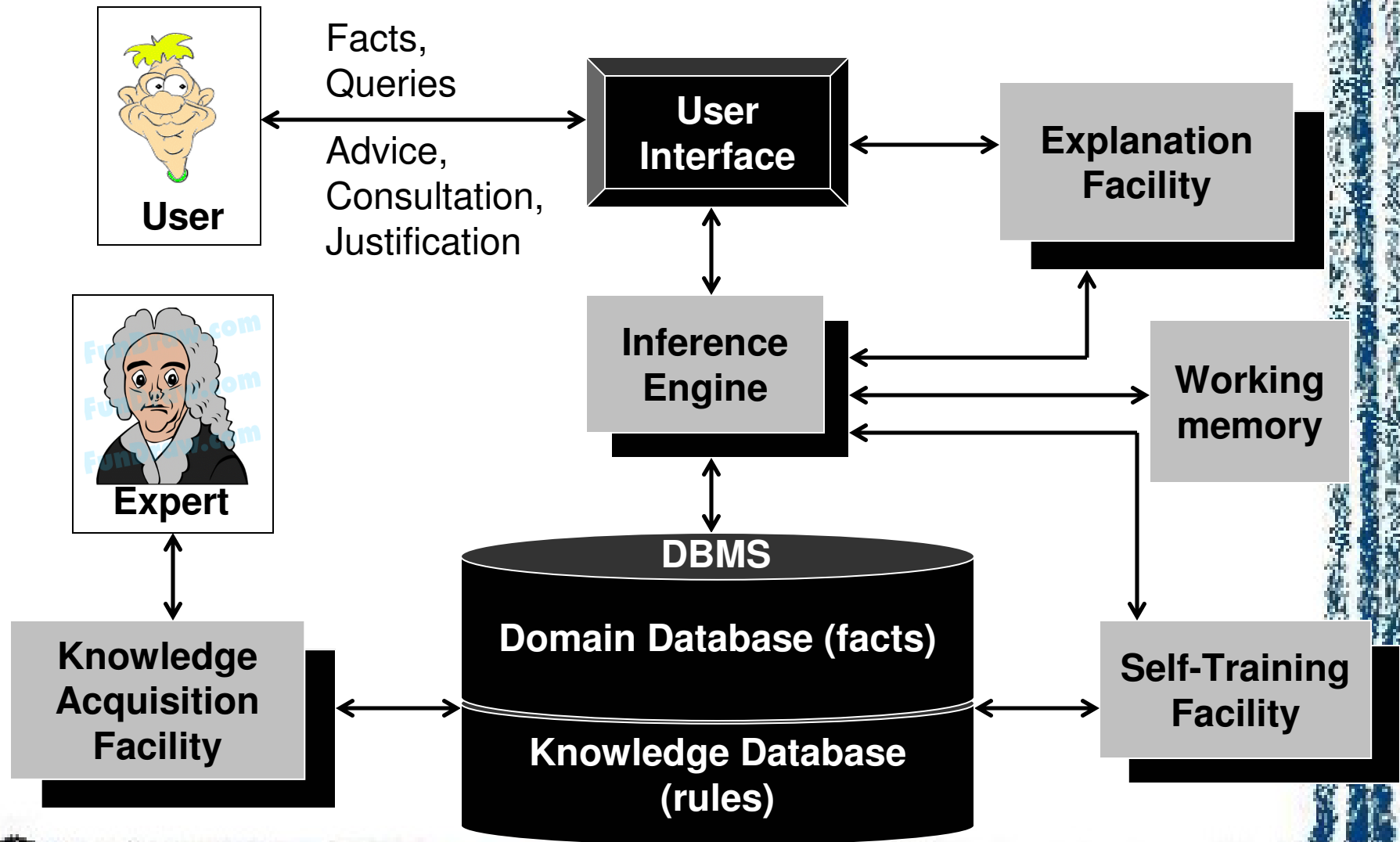
Summary

- ES has been structured in many ways
  - ➢ The various ES architecture include different components

- There are three basic components of the ES

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QUESTIONS

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