③

Knowledge Representation :→

→ Knowledge-Based Agent in Artifical intelligence.

→ The architecture of Knowledge-based Agent:

→ Knowledge Base:

→ Why use a Knowledge base ?

→ Inference System.

  → Forward Chaining
  → Backward Chaing.

→ Operations Performed by KBA.

  1) Tell :
  2) Ask :
  3) Perform :

→ A generic Knowledge-Based agent:

→ Various Levels of Knowledge-Based agent:

  → Knowledge Level.
  → Logical Level.
  → Implementation Level.

→ Approaches to designing a Knowledge-based agent :

  1) Declarative approach.
  2) Procedural approach.

→ What is Knowledge Respresentation?

→ **What to Represent:**
  - → object.
  - → Events.
  - → Performance.
  - → Meta - Knowledge.
  - → Facts.
  - → Knowledge - Base.

→ Knowledge.

→ **Types of Knowledge.**
  - → Declarative Knowledge.
  - → Procedurel Knowledge.
  - → Meta - Knowledge.
  - → Heuristic Knowledge.
  - → Structural Knowledge.

→ The Relation between Knowledge and intelligence.

→ **AI Knowledge cycle:**
  - → Perception   → Learning.
  - → Knowledge Representation and Reasoning.
  - → Planning   → Execution.

→ **Approaches to Knowledge Representation.**
  - → Simple relational Knowledge.
  - → Inheritable Knowledge.
  - → Inferential Knowledge.
  - → Procedural Knowledge.

→ Requirements for Knowledge Representation System.

→ Representational Accuracy.
→ Inferential Adequancy.
→ Inferential Efficiency.
→ Acquisitional Efficiency.

→ Techniques of Knowledge Representation.

→ Logical Representation. (Advantage/Disadvantage)
→ Semantic Network Representation. (Prons/con's)
→ Frame Representation. (Prons/con's)
→ Production Rules. (Prons/cons).

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→ Rules and Expert Systems :→
→ Rules for Knowledge Representation.
→ Rule -Based Systems.

→ Forward Chaining.
→ Conflict Resolution.
→ Meta Rules.
→ Backward Chaining.

→ Machine Learning :→

→ How does Machine Learning Work.

→ Feature of Machine Learning.

→ Need for Machine Learning.

   → Following are Some Key Points Which Show the importance of Machine Learning.

→ Classification of Machine Learning.

  1) Supervized Learning.→ [Classification Regression

  2) Unsupervized Learning. → [Clustering Association

  3) Reinforcement Learning.

→ Applications of Machine Learning.

→ Machine Learning life Cycle.

   → Gathering Data

   → Data Preparation.

   → Data Wrangling.

   → Analyse Data.

   → Train the Model.

   → Test the Model.

   → Deployment.

→ Gathering Data.

→ Data Preparation.

→ Data Wrangling → Missing values → Duplicate date
                 → Invalid data → Noise.

→ Data Analysis.

   → Selection of analytical Techniques.

   → Building Models → Review the Result.

→ Train Model.

→ Test Model.

→ Deployment.

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→ Natural Language Processing :→
- Speech.
- Written Text.

→ Natural Language understanding (NLU).

→ Natural Language Generation (NLG).
- Text Planning.
- Sentence Planning.
- Text Realization.

→ Difficulties in NLU →
- Lexical ambiguity.
- Syntax level ambiguity.
- Referential ambiguity.

→ NLP Terminology.
- Phonology.
- Morphology.
- Morpheme.
- Syntax.
- Semantics.
- Pragmatics.
- Discourse.
- World Knowledge.

→ <mark>Steps in NLP</mark> →

- Lexical Analysis.
- Syntactic Analysis (Parsing).
- Semantic Analysis.
- Discourse Integration.
- Pragmatic Analysis.

→ <mark>Implementation Aspects of Syntatic Analysis.</mark>

- Context-free Grammer.
- Top-Down Parser. → [Merit
                     Demerits