# Copilot

Approaches to knowledge representation as described in the document:

* **Simple Relational Knowledge**: Facts about objects are systematically organized in columns, similar to database systems. This method has limited inference capabilities.
* **Inheritable Knowledge**: Data is stored hierarchically in classes, utilizing inheritance. It shows relationships between instances and classes, representing objects and values in boxed nodes.
* **Inferential Knowledge**: Represents knowledge using formal logics to derive new facts, ensuring correctness.
* **Procedural Knowledge**: Uses codes or programs to describe specific procedures or tasks, often employing "If-Then" rules and can represent heuristic knowledge.

These approaches facilitate the representation of knowledge in AI systems, allowing computers to understand and solve complex real-world problems.

Summary of the key techniques:

* **Logical Representation**: Uses concrete rules dealing with propositions and supports sound inference, with precisely defined syntax and semantics.
  + Logical representation can be categorised into mainly two logics: a. Propositional Logics

b. Predicate logics

* [**Semantic Network Representation**: Represents knowledge in graphical networks, categorizing objects and describing relationships between them](https://edgeservices.bing.com/edgesvc/chat?udsframed=1&form=SHORUN&clientscopes=chat,noheader,udsedgeshop,channelstable,ntpquery,devtoolsapi,udsinwin11,udsdlpconsent,udscstart,cspgrd,&shellsig=437bf4ce2b0894954c091fa52c5fadd7b32fa476&setlang=en-US&darkschemeovr=1#sjevt%7CDiscover.Chat.SydneyClickPageCitation%7Cadpclick%7C0%7C505a949b-f23b-4c19-8ae5-439f21af46b2%7C%7B%22sourceAttributions%22%3A%7B%22providerDisplayName%22%3A%22In%20Semanti...%22%2C%22pageType%22%3A%22pdf%22%2C%22pageIndex%22%3A8%2C%22relatedPageUrl%22%3A%22file%253A%252F%252F%252FC%253A%252FUsers%252FParth%252FDownloads%252FAI_unit_1.pdf%22%2C%22lineIndex%22%3A10%2C%22highlightText%22%3A%22In%20Semantic%20%5Cr%5Cnnetworks%2C%20we%20can%20represent%20our%20knowledge%20in%20the%20form%20of%20graphical%20networks.%22%2C%22snippets%22%3A%5B%5D%7D%7D)[1](https://edgeservices.bing.com/edgesvc/chat?udsframed=1&form=SHORUN&clientscopes=chat,noheader,udsedgeshop,channelstable,ntpquery,devtoolsapi,udsinwin11,udsdlpconsent,udscstart,cspgrd,&shellsig=437bf4ce2b0894954c091fa52c5fadd7b32fa476&setlang=en-US&darkschemeovr=1#sjevt%7CDiscover.Chat.SydneyClickPageCitation%7Cadpclick%7C0%7C505a949b-f23b-4c19-8ae5-439f21af46b2%7C%7B%22sourceAttributions%22%3A%7B%22providerDisplayName%22%3A%22In%20Semanti...%22%2C%22pageType%22%3A%22pdf%22%2C%22pageIndex%22%3A8%2C%22relatedPageUrl%22%3A%22file%253A%252F%252F%252FC%253A%252FUsers%252FParth%252FDownloads%252FAI_unit_1.pdf%22%2C%22lineIndex%22%3A10%2C%22highlightText%22%3A%22In%20Semantic%20%5Cr%5Cnnetworks%2C%20we%20can%20represent%20our%20knowledge%20in%20the%20form%20of%20graphical%20networks.%22%2C%22snippets%22%3A%5B%5D%7D%7D).
  + This representation consist of mainly two types of relations:

a. IS-A relation (Inheritance)

b. Kind-of-relation

* + Eg.

Statements:

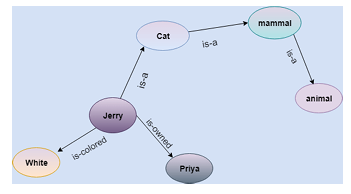
a. Jerry is a cat.

b. Jerry is a mammal

c. Jerry is owned by Priya.

d. Jerry is brown coloured.

e. All Mammals are animal.



* [**Frame Representation**: Involves a collection of attributes and values to describe entities, similar to records or classes in object-oriented languages](https://edgeservices.bing.com/edgesvc/chat?udsframed=1&form=SHORUN&clientscopes=chat,noheader,udsedgeshop,channelstable,ntpquery,devtoolsapi,udsinwin11,udsdlpconsent,udscstart,cspgrd,&shellsig=437bf4ce2b0894954c091fa52c5fadd7b32fa476&setlang=en-US&darkschemeovr=1#sjevt%7CDiscover.Chat.SydneyClickPageCitation%7Cadpclick%7C1%7C505a949b-f23b-4c19-8ae5-439f21af46b2%7C%7B%22sourceAttributions%22%3A%7B%22providerDisplayName%22%3A%22A%20frame%20is...%22%2C%22pageType%22%3A%22pdf%22%2C%22pageIndex%22%3A9%2C%22relatedPageUrl%22%3A%22file%253A%252F%252F%252FC%253A%252FUsers%252FParth%252FDownloads%252FAI_unit_1.pdf%22%2C%22lineIndex%22%3A20%2C%22highlightText%22%3A%22A%20frame%20is%20a%20record%20like%20structure%20which%20consists%20of%20a%20collection%20of%20attributes%20and%20its%20values%20to%20%5Cr%5Cndescribe%20an%20entity%20in%20the%20world.%22%2C%22snippets%22%3A%5B%5D%7D%7D)[2](https://edgeservices.bing.com/edgesvc/chat?udsframed=1&form=SHORUN&clientscopes=chat,noheader,udsedgeshop,channelstable,ntpquery,devtoolsapi,udsinwin11,udsdlpconsent,udscstart,cspgrd,&shellsig=437bf4ce2b0894954c091fa52c5fadd7b32fa476&setlang=en-US&darkschemeovr=1#sjevt%7CDiscover.Chat.SydneyClickPageCitation%7Cadpclick%7C1%7C505a949b-f23b-4c19-8ae5-439f21af46b2%7C%7B%22sourceAttributions%22%3A%7B%22providerDisplayName%22%3A%22A%20frame%20is...%22%2C%22pageType%22%3A%22pdf%22%2C%22pageIndex%22%3A9%2C%22relatedPageUrl%22%3A%22file%253A%252F%252F%252FC%253A%252FUsers%252FParth%252FDownloads%252FAI_unit_1.pdf%22%2C%22lineIndex%22%3A20%2C%22highlightText%22%3A%22A%20frame%20is%20a%20record%20like%20structure%20which%20consists%20of%20a%20collection%20of%20attributes%20and%20its%20values%20to%20%5Cr%5Cndescribe%20an%20entity%20in%20the%20world.%22%2C%22snippets%22%3A%5B%5D%7D%7D).
* **Production Rules**: Consists of condition-action pairs, allowing for the application of rules when conditions are met to perform actions or draw conclusions.

[These techniques provide a foundation for AI systems to represent and reason with knowledge, contributing to intelligent behavior](https://edgeservices.bing.com/edgesvc/chat?udsframed=1&form=SHORUN&clientscopes=chat,noheader,udsedgeshop,channelstable,ntpquery,devtoolsapi,udsinwin11,udsdlpconsent,udscstart,cspgrd,&shellsig=437bf4ce2b0894954c091fa52c5fadd7b32fa476&setlang=en-US&darkschemeovr=1#sjevt%7CDiscover.Chat.SydneyClickPageCitation%7Cadpclick%7C2%7C505a949b-f23b-4c19-8ae5-439f21af46b2%7C%7B%22sourceAttributions%22%3A%7B%22providerDisplayName%22%3A%22Knowledge%20...%22%2C%22pageType%22%3A%22pdf%22%2C%22pageIndex%22%3A3%2C%22relatedPageUrl%22%3A%22file%253A%252F%252F%252FC%253A%252FUsers%252FParth%252FDownloads%252FAI_unit_1.pdf%22%2C%22lineIndex%22%3A12%2C%22highlightText%22%3A%22Knowledge%20plays%20an%20important%20role%20in%20demonstrating%20intelligent%20behavior%20in%20AI%20%5Cr%5Cnagents.%22%2C%22snippets%22%3A%5B%5D%7D%7D)[3](https://edgeservices.bing.com/edgesvc/chat?udsframed=1&form=SHORUN&clientscopes=chat,noheader,udsedgeshop,channelstable,ntpquery,devtoolsapi,udsinwin11,udsdlpconsent,udscstart,cspgrd,&shellsig=437bf4ce2b0894954c091fa52c5fadd7b32fa476&setlang=en-US&darkschemeovr=1#sjevt%7CDiscover.Chat.SydneyClickPageCitation%7Cadpclick%7C2%7C505a949b-f23b-4c19-8ae5-439f21af46b2%7C%7B%22sourceAttributions%22%3A%7B%22providerDisplayName%22%3A%22Knowledge%20...%22%2C%22pageType%22%3A%22pdf%22%2C%22pageIndex%22%3A3%2C%22relatedPageUrl%22%3A%22file%253A%252F%252F%252FC%253A%252FUsers%252FParth%252FDownloads%252FAI_unit_1.pdf%22%2C%22lineIndex%22%3A12%2C%22highlightText%22%3A%22Knowledge%20plays%20an%20important%20role%20in%20demonstrating%20intelligent%20behavior%20in%20AI%20%5Cr%5Cnagents.%22%2C%22snippets%22%3A%5B%5D%7D%7D).