Peer Response

by Samuel Adeniyi - Sunday, 25 June 2023, 10:47 PM

Thanks, Ana,

This post provides an overview of communication languages for intelligent agents and discusses their advantages and challenges. It mentions several well-known languages, including KQML, KIF, FIPA-ACL, FIPA-SL, and AgentSpeak, highlighting their specific features and benefits. The advantages of using these languages include standardization, interoperability, communication flexibility, and support for distribution and parallelism in multi-agent systems. However, language complexity, limited tooling support, and integration difficulties are drawbacks to ACLs.

You also provided an excellent comparison between agent communication languages and method invocation in Python and Java, emphasizing the differences in their approaches and capabilities. Agent communication languages enable asynchronous and non-deterministic communication, support higher-level abstractions, and facilitate flexible agent interactions.

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Peer Response

by Samuel Adeniyi - Sunday, 25 June 2023, 10:08 PM

Hi Alberto,

Thank you for sharing these insights on ACLs (Agent communication Languages) and comparing them to object-oriented languages based on your experience with Java, C#, Kotlin, and Python. Your points highlight some vital distinctions between the two approaches.

The decoupling of agents in ACLs is indeed a significant advantage. By not requiring knowledge of other agents' implementation details, agents can focus on establishing a communication protocol for effective data interchange, cooperation, and negotiation. In contrast, method invocation in object-oriented languages is typically restricted to the same language. However, there are exceptions like Java and Kotlin or C#/Python/Java and C with the addition of a native interface. I like that you made this statement "worth mentioning that C is not an object-oriented language". --we argued over this in one of my previous teams :). C only has functions, no methods.

Considering the comparison within the scope of method invocation in the same program, ACLs exhibit several advantages. However, it is essential to note that distributed systems using the object-oriented paradigm can address these aspects by leveraging frameworks and implementing APIs for cross-language communication, using formats like JSON, or employing asynchronous communication through queues.

It is also worth exploring how these approaches complement each other and how developers can leverage the appropriate framework or paradigm based on their specific requirements and constraints.

Reference:

Shafqat, H. (2023). Is the C Programming Language Object-Oriented. Available from: https://linuxhint.com/is-c-programming-language-object-oriented/ [Accessed 25 June 2023].

Finin, T., Weber, J., Wiederhold, G., Genesereth, M., Fritzson, R., McKay, D., McGuire, J., Pelavin, R., Shapiro, S. and Beck, C., 1993. Specification of the KQML agent-communication. Darpa Knowledge Sharing Effort.

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