Initial Post

(SysML, N.D.) defines Systems Modelling Language (SysML) as a general-purpose language for modeling system architectures for systems engineering applications.
In 2003, the SysML Partners' SysML Open Source Specification Project developed SysML as a lightweight dialect (profile) of Unified Modeling Language v. 2 (UML 2).

The differences and comparisons between UML and SysML as given by (SysML, N.D.) are:

- SysML is easier to learn and smaller due to it removing many software-centric and gratuitous constructs/diagrams while UML has a wide range of diagram types.
- UML is a general modelling language that is mostly used to design and develop object-oriented software and a wide range of systems, while SysML is designed for systems engineering projects (complex systems) that involve hardware and software components (thus making it to not be as versatile as UML).
- SysML is less popular and most of its users are systems engineers, while UML is more widely used thus having a larger user community.

Since SysML is an extension of UML, new diagrams and elements like: parametric and requirement diagrams, were added into it so as to enable the designing of systems engineering requirements and constraints.
Therefore, SysML is best suited for designing more complex systems engineering projects that invlove hardware and software components while UML is best suitable for software engineering.

(Chabibi, et al., 2018) discusses how SysML models can be converted to executable models using the MARTE extension. This feature is most applicable when developing very complex systems that require a high level of automation.

References

Chabibi, B., Anwar, A. & Nassar, M., 2018. Model Integration Approach from SysML to MATLAB/Simulink. *Journal of Digital Information Management,* 16(6), pp. 289-307.

SysML, N.D.. *SysML Open Source Project: What is SysML? Who created SysML?.* [Online]
Available at: https://sysml.org/
[Accessed 2023 01 29].