

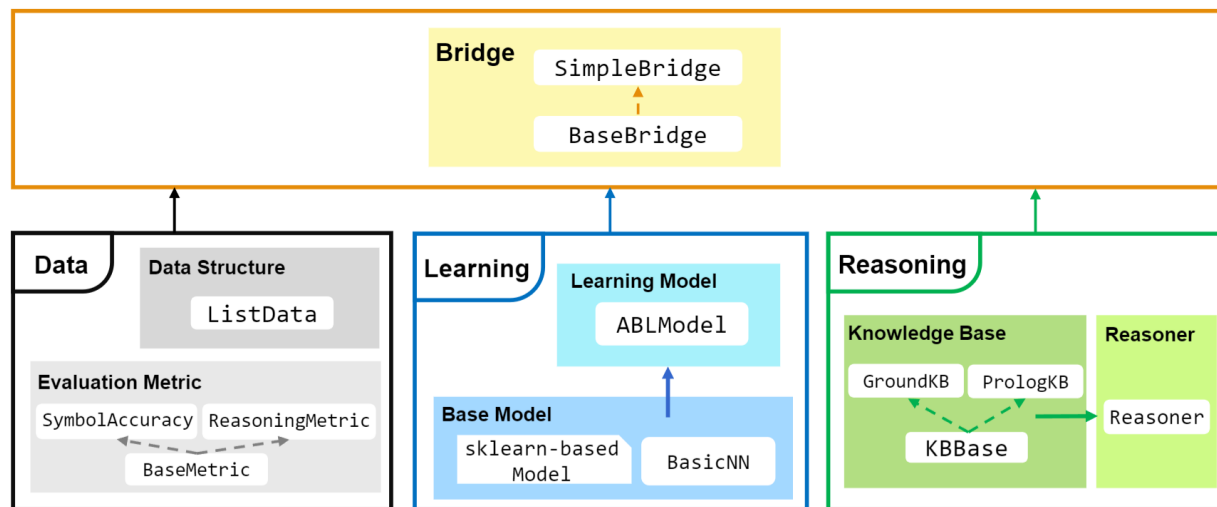
# ABLkit: A Python Toolkit for Abductive Learning

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# Problems & Ideas

- Abductive learning:
  - ABductive Learning (ABL) is a paradigm that integrates machine learning and logical reasoning in a unified framework.
  - Need an open-source Python toolkit for ABL.
- Ideas: ABLkit provides a comprehensive framework that covers the entire ABL workflow, including data loading, learning model development, reasoning module construction, and bridging between learning and reasoning.



An overview of ABLkit, which encompasses four modules: Data, Learning, Reasoning, and Bridge.

# Main Contributions

- Contributions:
  - ABLkit, a Python toolkit for abductive learning (ABL);
  - Offer high flexibility, easy-to-use interface, and optimized performance;
  - Promising to facilitate both academic research and practical applications in this field.

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Method	Addition			HWF		
	Accuracy	Time	Memory	Accuracy	Time	Memory
DeepProbLog	97.1	2045	3521	31.7	timeout	4315
DeepStochLog	97.5	257	3545	97.9	43098	4355
NGS	-	-	-	98.4	338	3705
ABLkit	<b>98.1</b>	<b>47</b>	<b>2482</b>	<b>99.2</b>	<b>77</b>	<b>3074</b>

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Performance comparison of different methods within a 1-day time limit. “-” means no official implementation for the dataset. The units for time and memory are seconds (s) and megabytes (MB), respectively.