


Feb 2nd, 9:30 AM - 3:30 PM

## Research poster: Software frameworks for improved productivity in climate change research

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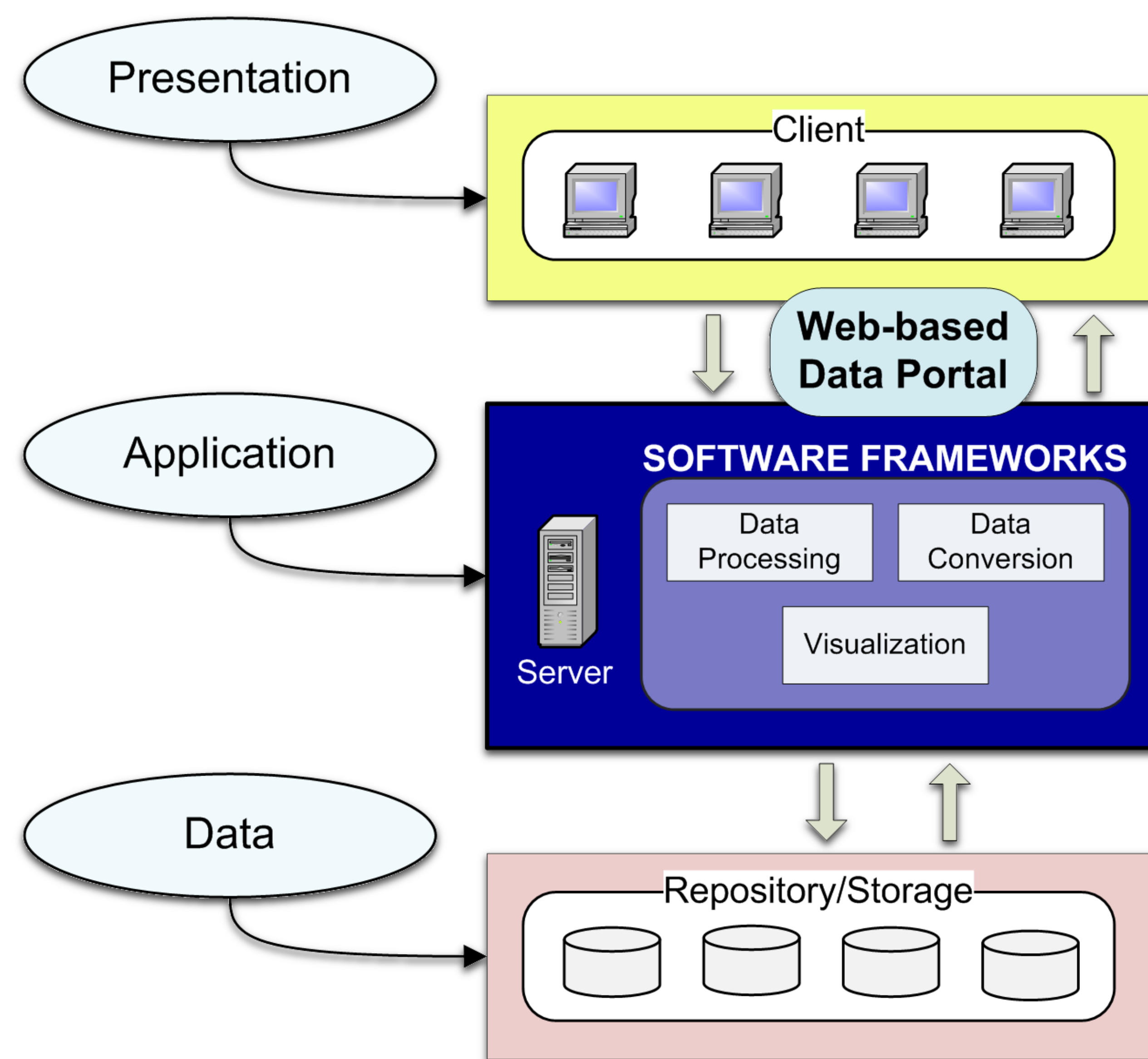
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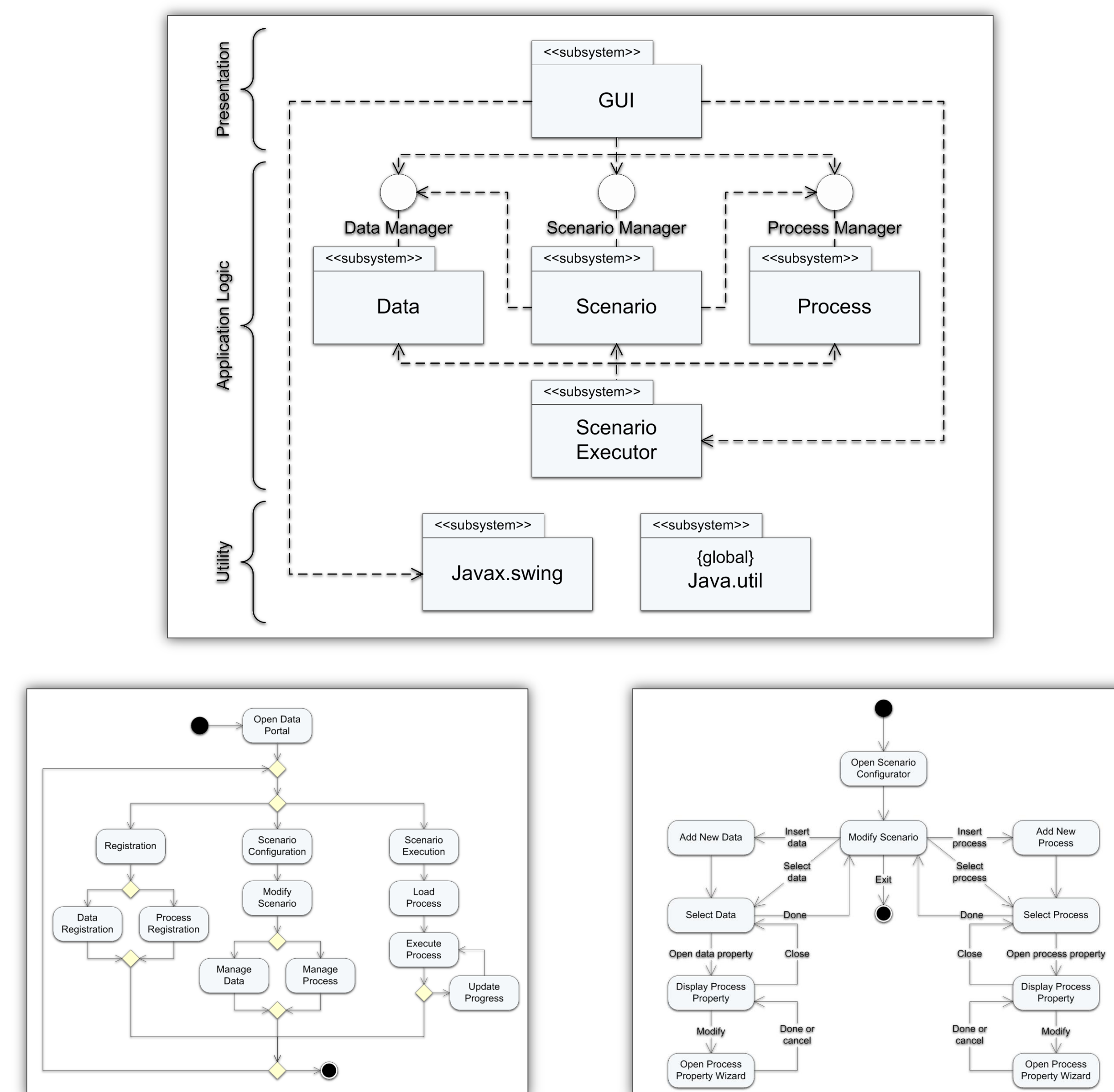
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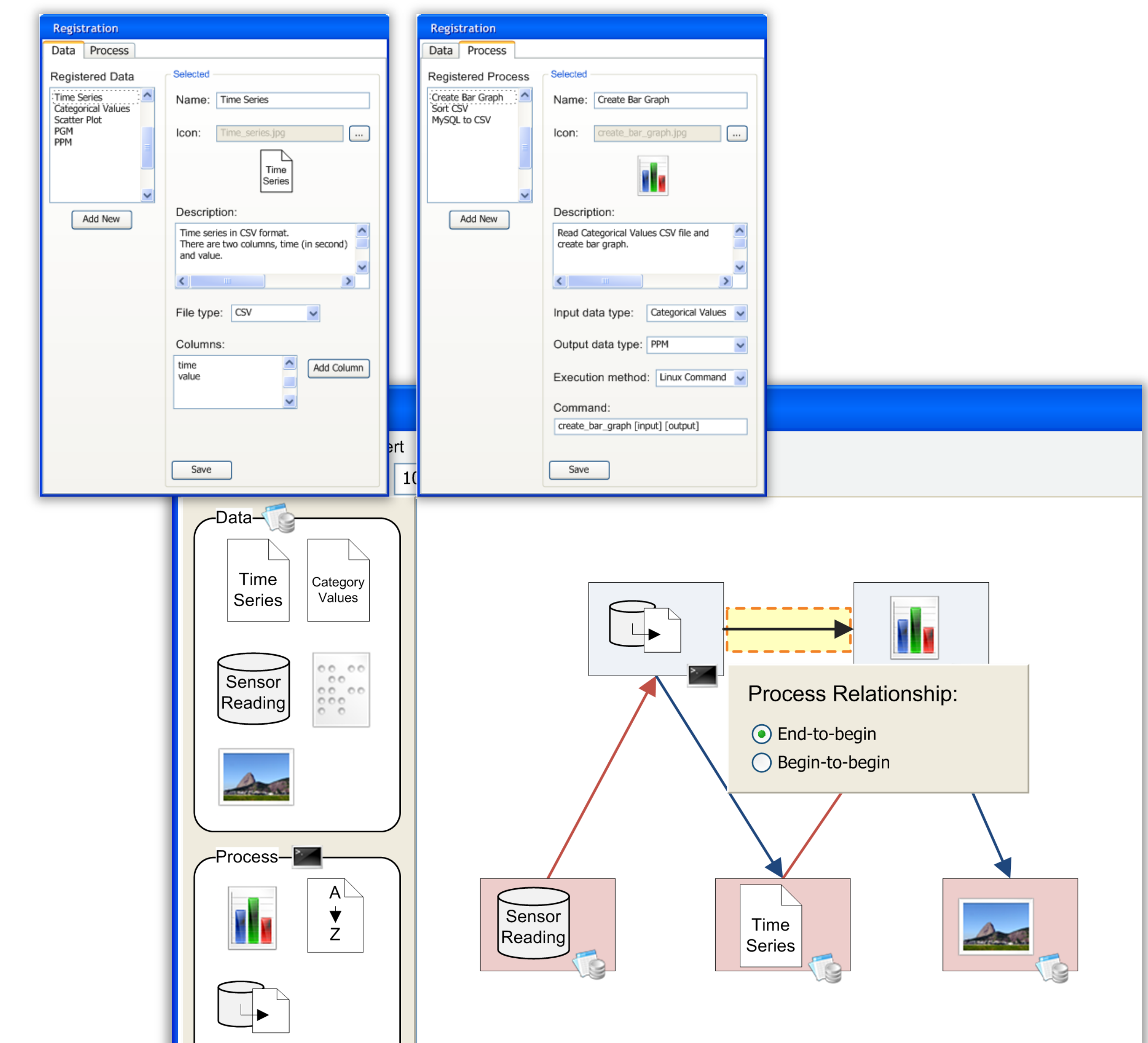
### Overall Software Architecture



### Software Frameworks Design



### Initial Prototype



#### Scope of Software Frameworks Research

This research involves surveying current state-of-art software support for collaborative interdisciplinary research work (particularly in environmental sciences), finding specific interoperability challenges for connecting climate models, and designing software frameworks to maximize interoperability.

#### Research Questions

What are the specific interoperability challenges for connecting climate models?

How should the software frameworks be designed to maximize interoperability?

What specific modeling scenarios should be run using the software frameworks?

#### Current Status

At this time, exploration of related software environments has been performed and an initial design for the prototype software framework has been completed. This includes definition of framework's architecture, workflows, and user interface prototyping. Procedurally, there are three modes of operations: (i) software model/resource registration; (ii) scenario configuration; and (iii) scenario execution.

#### Main Directions of Future Work

- Finalize implementation of the prototype
- Test the prototype and gather feedback from users
- Convert to a web-based application that includes user input and additional features and functions
- Apply software frameworks on modeling scenarios involving climate change models and sub-models

#### Graduate Research Assistant: Sohei Okamoto

Sohei Okamoto is originally from Japan, but made Reno, Nevada, USA his new home. He came to Nevada in 1999 and since then he has earned two degrees from UNR, a Bachelor of Arts in Psychology (2003) and a Master of Science in Computer Science (2005). Currently, he is working towards a PhD degree in Computer Science at the same university. His most recent assignment as Research Assistant involves him as a member of the Cyberinfrastructure team in the NSF-funded project "Nevada Infrastructure for Climate Change, Education, and Science". Sohei's job is to perform research and software engineering work on creating software frameworks that support interdisciplinary climate change research.

