Support for Static Concept Location with sv3D

Xinrong Xie, Denys Poshyvanyk, Andrian Marcus

Department of Computer Science

Wayne State University

Visualization Support for Processes

- Most visualization tools
  - show data (e.g., dependencies)
  - support activities (e.g., browsing)
  - high level processes (e.g., comprehension)

- Few visualization tools
  - support well defined processes (i.e., sequence of activities)

Can We Provide Support for Processes?

- Need to
  - visualize data
  - capture interactions
  - change visualizations in real time
  - interact in real time with IDEs or other user tools
  - **anything else?**

Static Concept Location

- Locating the implementation of a concept or feature in the source code
- Static
  - Dependency based search [Chen'00]
  - String based search (i.e., grep)
  - IR methods [Marcus'04]
- Dynamic
  - Execution traces - Reconnaissance [Wilde'92]
- Combined (using concept analysis) [Eisenbarth'03]
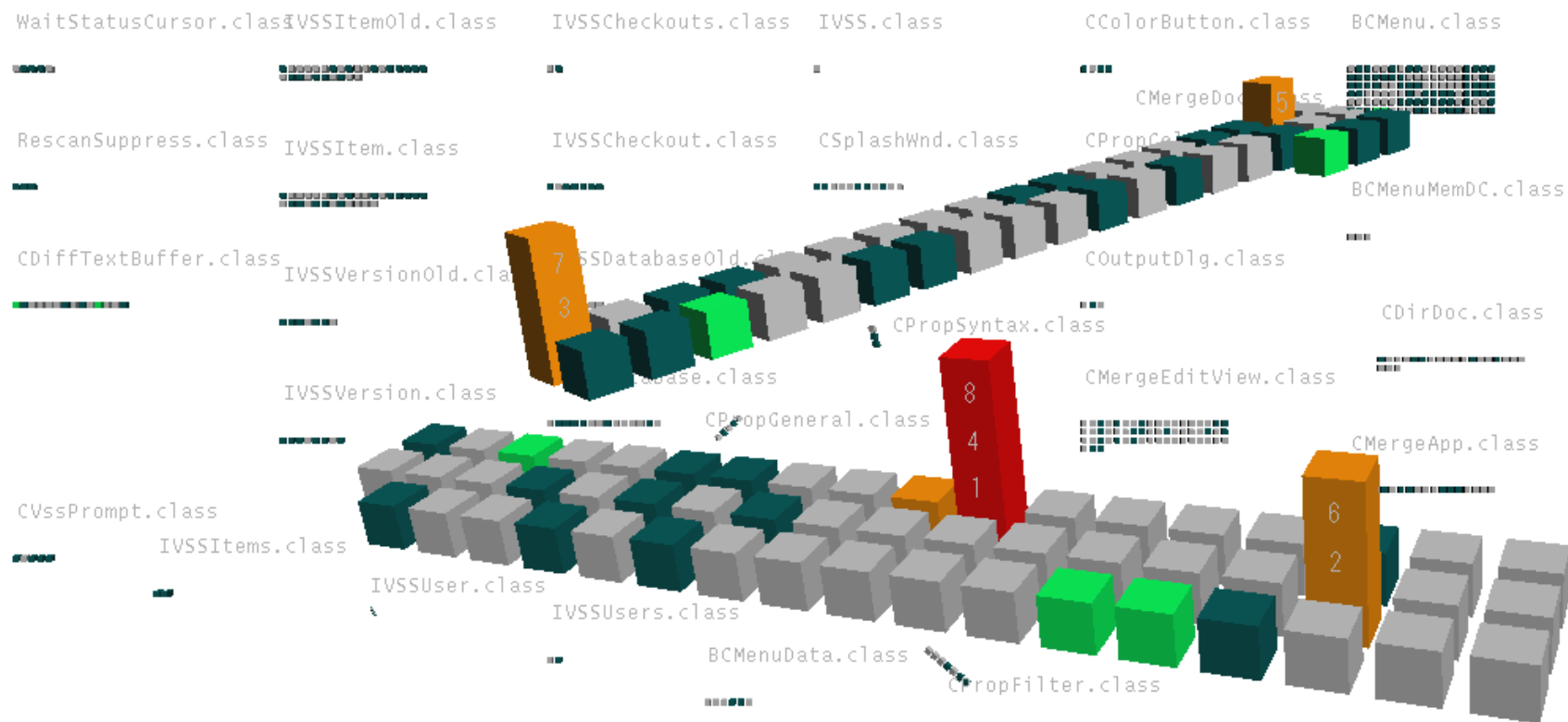- Used in incremental change, comprehension, debugging, etc.

IRiSS

Information Retrieval based Software Searching

- Integrated with MS Visual Studio .NET
- Indexes source code with LSI
- Allows users to search with natural language queries
- Display ranked list of results
- **Mini-process:**
  1. query -> results (visualized)
  2. investigation of results (visualized!)
  3. query refinement
  4. go to 1.

sv3D – source viewer 3D

www.sv3d.org

One More Issue on Vis Tools

- Exchange of visualization tools
  - we failed so far ☹

- Interoperability of tools

- Use Vissoft as a platform to achieve this goal