



Development of Web Scope

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eScience project course 6703



Outline

- Introduction
- Requirement Specification
- Previous System Structure
- State Machine of Core Classes
- Major Functions
- Demonstration
- Major Issues
- Conclusion and Future Work
- Feedback & Questions



Introduction

- An extension of previous projects
- Using Java's Dynamic Ability in Reality
- Satisfying Clients' flexible requirements of contributing metadata back to the MDSPlus



Java Hibernate Package

- Hibernate Dual-Layer Cache Architecture for former project
- Transparent Persistence
- Plenty of Query Options
- Working together with Java Servlets within Apache TomCat



MDSPlus

- Is a set of software tools and a methodology.
- Allows data to be stored into a single, self descriptive, hierarchical structure.
- Uses client/server model
- Developed jointly by the Massachusetts Institute of Technology, the Center for Nuclear Research (Padua, Italy), and the Los Alamos National Lab, MDSplus is the most widely used system for data management in the magnetic fusion energy program.



WebScope

- Is a new system
- Was implemented by former student
- Runs on a web server
- Maintains HSQLDB



Java Servlets & JSP

- Java Servlets are Java classes
- Being used to collect input , present records and create Web pages
- JSP are a complement of Java Servlets



Apache TomCat

- Is Java Servlets / JSP container
- Implements Servlet and JSP specifications from Java Community Process
- Is a useful platform for developing and deploying web applications and web services



Requirement Specification-- Functional

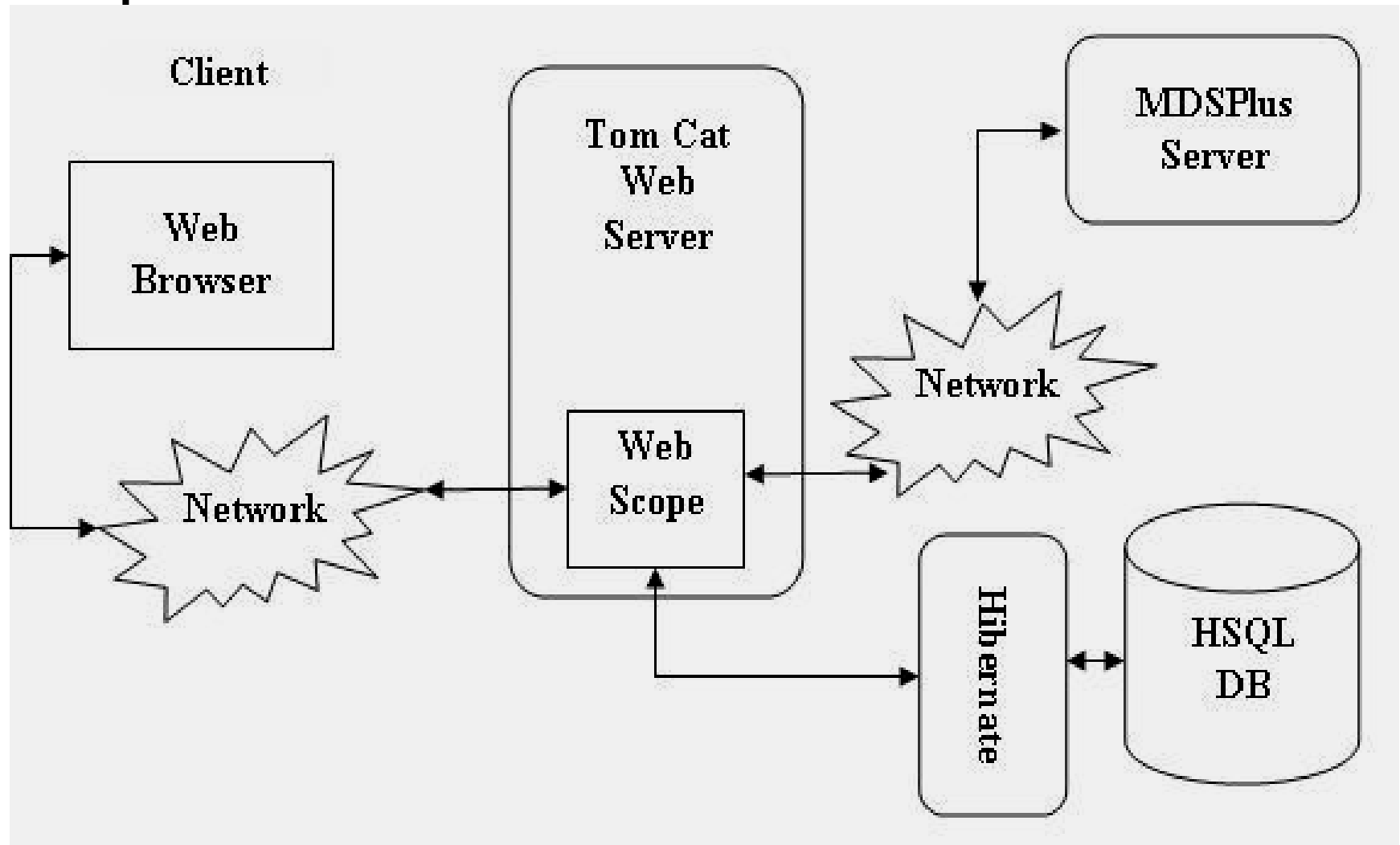
- Using hibernate
- Using Web browser
- Dynamically creating and saving metadata
- Platform independence



Requirement Specification-- Software

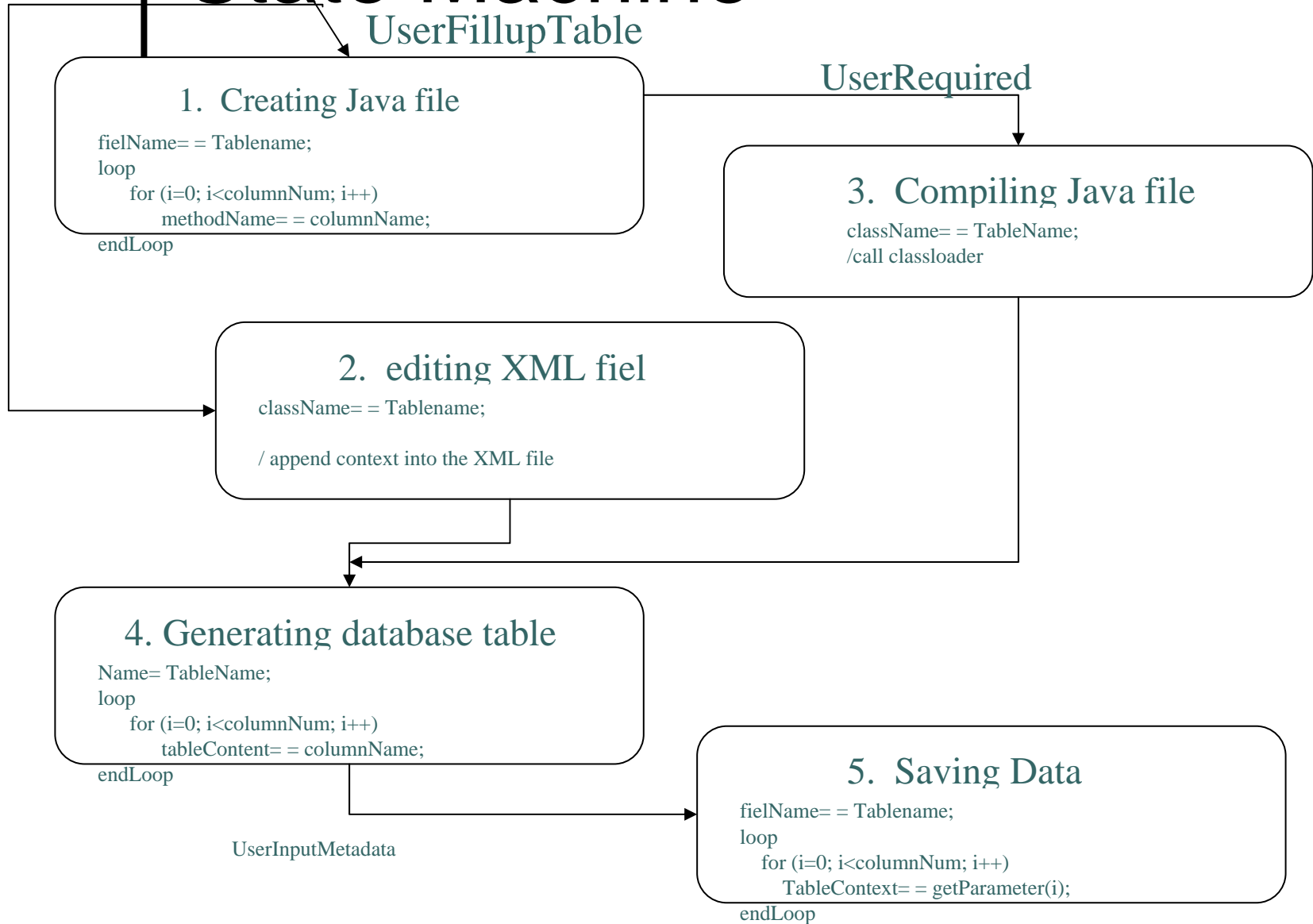
- Jakarta Tom Cat 5.05
- Hibernate3.1
- JDK1.5
- HSQLDB
- FireFox (or any Java Applet enabled Web Browser)
- Emacs Editor

Previous System Structure



State Machine

UserFillupTable



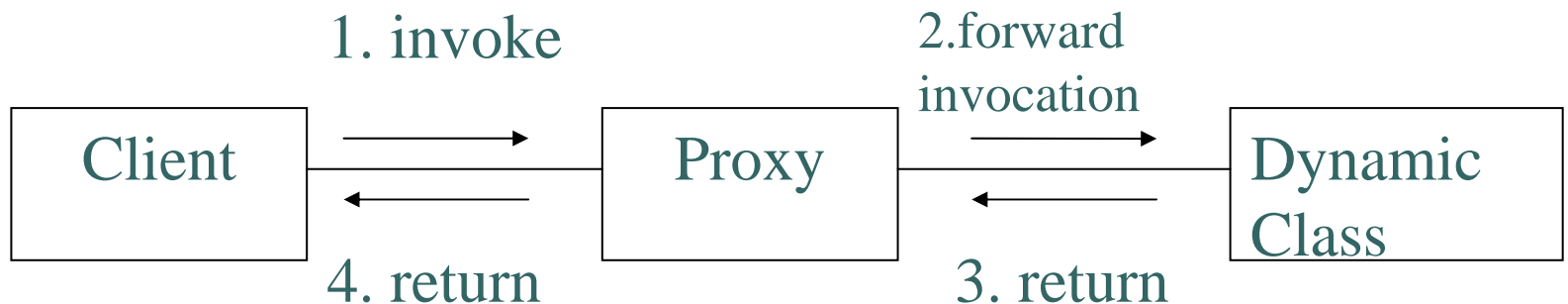


Major Technique Functions

- Runtime code compilation
- Runtime class loading/reloading
- Use proxy design patten to make modifications to a dynamic class transparent to its caller

The processing

- Create or recreate dynamic classes
- Compile Java code at runtime
- Load/Reload Java class at runtime
- Link the up-to-date class to its caller





Key API

- Java Compiler
- Java ClassLoader
- Java Servlets
- Hibernate Schema



Demonstration



Major Issue

- Keep the Java file and class file
- Create a new XML mapping file
- Using Servlets programming code to generate web application



Future Work

- Implement a search engine
- Implement different log on privileges
- Combine this system with ZhongShan Tan's project



Conclusion

- The cooperation between Hibernate and Servlets & JSP within Apache Tomcat
- Dynamic ability of Java
- MDSPlus system



Feedback & Questions