Socrates Sim: A User Simulator to Support Task Completion Dialog Research

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Abstract

The main objective of this project is to ...

Acknowledgements

I would like to thank ...

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Chapter 1: Introduction

...

1.1. Prior Work

...

1.2. Project Goals

...

Chapter 2: Requirements

This chapter specifies the requirements of the system.

...

2.1. High-level Requirements

...

Figure 2.1 depicts the high-level view of data flow through the system.

...

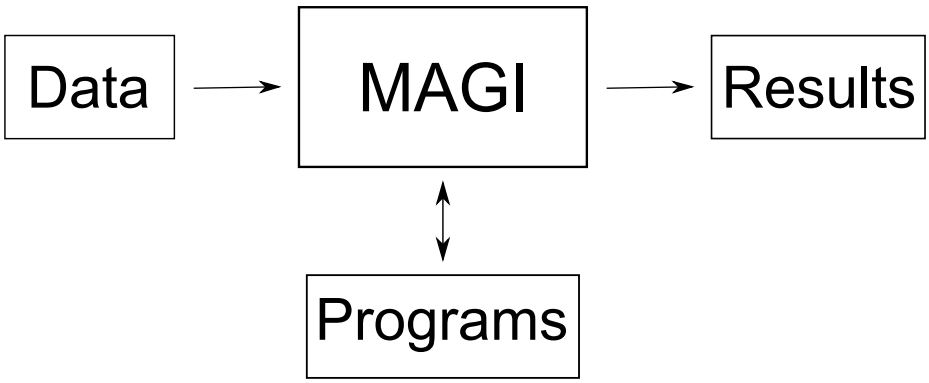

Figure 2.1: High-level view of system functionality

2.2. System Functionality

This section describes in detail the main features and capabilities of the system. The Glossary appendix (Appendix **??**) describes the important domain concepts.

Chapter 3: Design

3.1. Introduction

...

We defer discussing the implementation details until the Implementation chapter (Chapter 4).

...

Table 3.1 lists the main server technologies we chose for this system.

Type	Technology
Software platform	Java™ Platform, Enterprise Edition
Server implementation	JBoss
Database	Oracle
Object/relational mapping	EclipseLink
Web framework	JBoss Seam

Table 3.1: Server techonologies

Chapter 4: Implementation

We presented the design of the system in the Design chapter (Chapter 3). This chapter describes how we implemented it using Java™ Platform, Enterprise Edition (Java EE). After briefly introducing the key aspects of Java EE in the Java EE Platform section (§4.1), this chapter presents the key implentation details for each tier of the application.

4.1. Java EE Platform

This section introduces the readers to the elements of the Java EE platform to develop and run this system.

4.1.1 Java EE Architecture

...

4.2. Implementation Overview

Figure 4.1 shows the bird's eye view of the objects in this system. There are three distinct tiers: presentation, business, and entity.

...

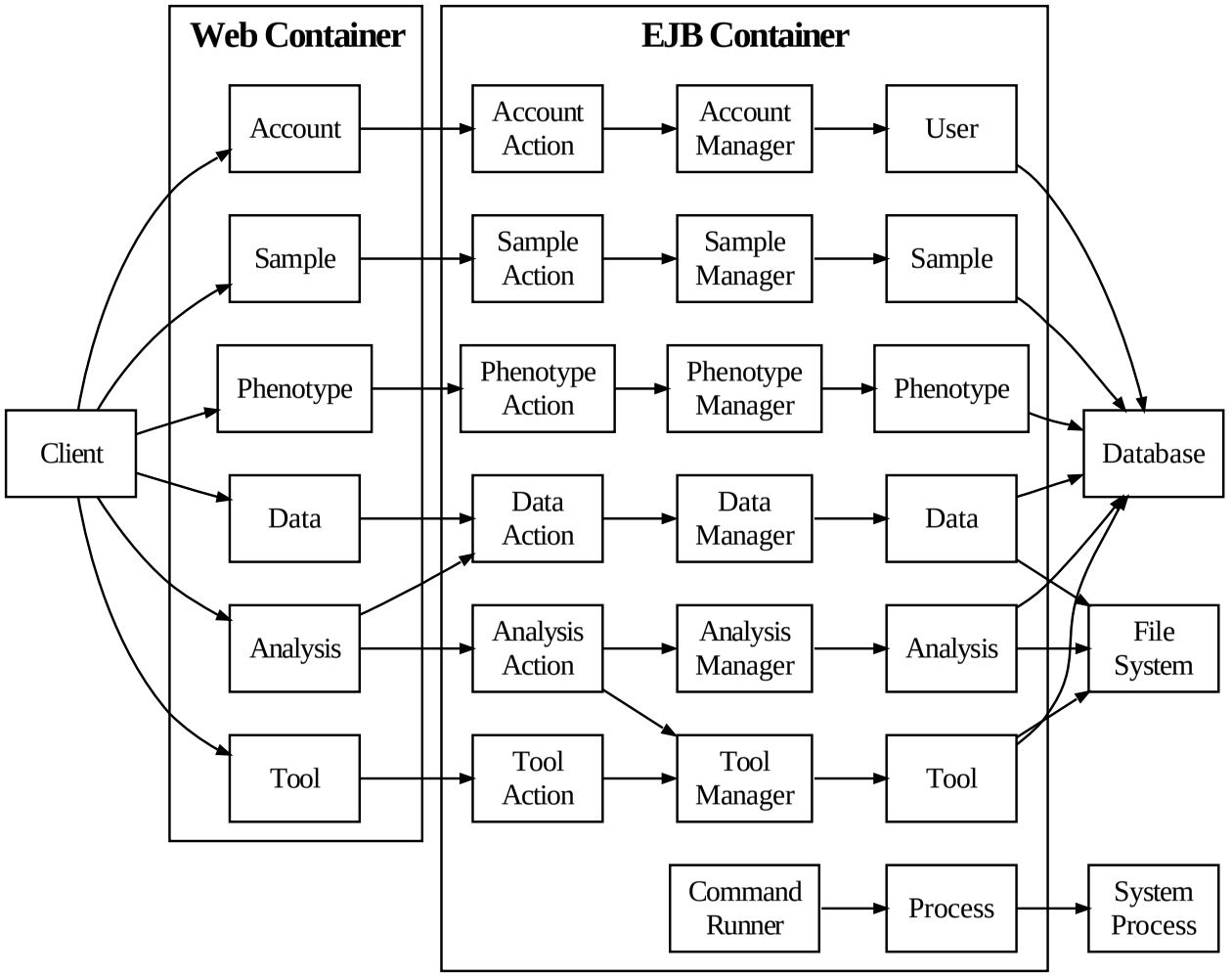

Figure 4.1: High-level object view of the system

4.3. Presentation Tier with Seam and JSF

...

The code for the Seam component is shown in Listing **??**.

...

The code for the facelet user interface component is shown in Listing **??**.

Chapter 5: Development

This chapter discusses the tools and methodologies employed in the code development of this system.

5.1. Development Tools

For this project we used Subversion (**?**) as the version control mechanism.

...

5.2. Development Methodologies

...

and Test Driven Development (TDD) (**?**).

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Chapter 6: Sequence Analysis Tools and Applications

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6.1. Needleman-Wunsch Implementation

...

6.1.1 Global Sequence Alignment

...

6.1.2 Longest Common Subsequence (LCS)

...

Essentially the first step of LCS performs this recursion:

$$S_{0,j} = 0 \tag{6.1}$$

$$S_{i,0} = 0 \tag{6.2}$$

$$S_{i,j} = \max \begin{cases} S_{i,j-1} \\ S_{i-1,j} \\ S_{i-1,j-1} + 1 \quad \text{if } A_i = B_j \end{cases} \tag{6.3}$$

...

The pseudocode of LCS is shown in Algorithm 6.1.

...

Algorithm 6.1 LCS($A_{0..n}, B_{0..m}$)

1 $S_{i,j} \leftarrow 0$ **for** all $i = 0$ or $j = 0$ {set first row and first column to 0}
2 $T_{i,j} \leftarrow$ `UP` **for** all i, j {pointing up by default}
3
4 **for** $i \leftarrow 1$ **to** n **do**
5 **for** $j \leftarrow 1$ **to** m **do**
6 $$S_{i,j} = \max \begin{cases} S_{i,j-1} \\ S_{i-1,j} \\ S_{i-1,j-1} + 1 & \text{if } A_i = B_j \end{cases}$$
7 $$T_{i,j} = \begin{cases} \texttt{LEFT} & \text{if } S_{i,j} = S_{i,j-1} \\ \texttt{UP} & \text{if } S_{i,j} = S_{i-1,j} \\ \texttt{DIAGONAL} & \text{if } S_{i,j} = S_{i-1,j-1} + 1 \end{cases}$$
8 BACKTRACE(A, T, n, m)
9
10 **function** BACKTRACE($A_{0..n}, T_{0..n \times 0..m}, i, j$)
11 **if** $i = 0$ or $j = 0$ **then**
12 **return**
13 **if** $T_{i,j} =$ `DIAGONAL` **then**
14 BACKTRACE($A, T_{n,m}, i-1, j-1$)
15 **print** A_i
16 **else if** $T_{i,j} =$ `UP` **then**
17 BACKTRACE($A, T, i-1, j$)
18 **else**
19 BACKTRACE($A, T, i, j-1$)
20 **end**

Chapter 7: Summary and Conclusions

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In conclusion, I ...

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7.1. Lessons Learned

There are many lessons learned from the project.

...

7.2. Limitations and Known Issues

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References

Appendix A: Application Code