Project Evaluation

For agentTool III (Static)

Version 1.0

Submitted in partial fulfillment of the requirements of the degree of MSE

Deepti Gupta
CIS 895 – MSE Project
Kansas State University
# TABLE OF CONTENTS

1. Introduction ........................................................................................................... 3
2. Problems encountered .............................................................................................. 3  
   2.1. Solution domain research and learning ........................................................... 3  
   2.2. GEF research and learning ............................................................................ 3  
3. Source Lines of code .............................................................................................. 3  
4. Project duration ................................................................................................... 3  
5. Lessons learned ................................................................................................... 6  
6. Future Work ........................................................................................................ 6
1. Introduction
This document will presents a summary of my experiences during the entire life cycle of my MSE project.

2. Problems encountered
This section describes the problems and difficulties encountered during the project.

2.1. Solution domain research and learning
One of the first and basic problems was identifying the technologies to be used for developing the project. The requirement that the project should be associated with the Eclipse platform ruled out the possibility of using Java Swing for user interface development. This was because Java Swing is extremely slow with Eclipse. Hence the only other option was to use SWT (Standard Widget Toolkit) which delivers native widget functionality for the Eclipse platform in an operating system independent manner. After finding that I needed to use SWT, the problem was learning it. There are very few examples and support for SWT as compared to Java Swings. I had to search a lot on the web for plugins that assisted GUI development using SWT. Finally I found the Jigloo plugin.

2.2. GEF research and learning
Having decided on SWT, I built the first prototype using SWT and Jigloo. Soon I realized that Jigloo was meant only for static widgets and could not provide my application with editing functionality. After a lot of searching on the web I found that the Graphical Editing framework from Eclipse was the ideal solution for developing graphical editors. GEF has a strong learning curve associated with it. But I found some good examples to get me started. The IBM redbook on building GEF applications was a must read before diving into full-scale design and development.

3. Source Lines of code
The initial estimate was 3.5KLOC. The second phase estimate based on the progress at that time revealed that the project would result in 5KLOC. The estimate had increased due to use of GEF. The actual size at the end of the third phase is 5.3KLOC which I think is a reasonable actual value to the 5KLOC estimate.

4. Project duration

<table>
<thead>
<tr>
<th>Phase</th>
<th>Expected finish time</th>
<th>Actual finish time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>October 2004</td>
<td>October 2004</td>
</tr>
<tr>
<td>Phase 2</td>
<td>February 2005</td>
<td>March 2005</td>
</tr>
<tr>
<td>Phase 3</td>
<td>April 2005</td>
<td>April 2005</td>
</tr>
</tbody>
</table>
Both Phase 1 and Phase 3 were on schedule. Phase 2 was a little delayed. This was due to the research time that went into finding out about GEF and the learning curve associated with it.
The initial time estimate was 7-8 months from the project start time. This has been maintained. The project has been completed within 8 months.

The following is a summary of how much time was spent during each phase.
Phase 1: 50 hours
Phase 2: 86 hours
Phase 3: 211 hours
Total = 347 hours

The initial estimate was 7-8 months. The project has completed at the end of the eighth working month. Considering about 2.5 hours per day and 20 working days a month, the total no of hours would evaluate to 400 hours which seems a fair estimate for the actual 347 hours.

The following chart breaks down time spent during Phase 1
The following chart breaks down time spent during Phase 2

The following chart breaks down time spent during Phase 3
5. Lessons learned
This project has been an extremely value-adding experience for me. Going through the complete project life cycle starting from requirements, design, coding and testing has given me an insight into how a real-world project would work. The set of documents that I produced as part of the MSE portfolio have given me an insight into the necessity and usefulness of rigorous documentation. I always found myself tracing back the design and implementation to the Vision Document. The Test Plan was also created based on the Vision document.

The three phases of the project helped me to focus on the right things at the right time. At the same time, building a working prototype during the first and the second phase helped in understanding and addressing the implementation issues upfront before diving into full-scale development.

6. Future Work
Some functional aspects were described as future requirements in the Vision document. Those will be implemented in the future by other students as MS projects.

6.1. Model Validation across diagrams
The most important future work would be to have a separate Eclipse plugin for validating the model across diagrams. E.g. for a given organization, only the goals present in the Goal Diagram should be allowed in the Role Diagram.

6.2. Precedence relation between goals in Goal Diagram
The user should be able to model relationships between goals by using the <<precedes>> relationship connector. Currently two goals can be related only using the parent goal – sub goal relationship.
6.3. Goal Parameters
The user should be able to specify goal parameters as a list of strings. A special text box should be provided to the user for the same.

6.4. Hierarchical relation between model elements
The user should be able to connect model elements like roles, capabilities, agents and organizations via a specialization/generalization relationship.

6.5. Trigger Relation between goals
The user should be able to model the concept of ‘triggers’ for goals. New goals should be added to the system on occurrence of certain events i.e special events trigger the creation of new instances of goals.