GMoDS-based Runtime Agent Role Interpreter

Presentation III

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Agenda

- Action Items
- Component Design
- Assessment Evaluation
- Project Evaluation
- Future Work
- Demonstration
- Questions and Comments

Action Items

- Added custom Java annotation for parameter names
  - Name information for capability method parameters available at runtime
  - No more type guessing
  - Requires all capability method parameters to be annotated

Action Items

- Goal-Capability Mappings Defined in XML File
    - Users provide XML file as program argument
    - XML defines mappings between GMoDS goal names and Java capability methods
    - Establishes bindings between capability classes and capability object instances
    - Uses Java Reflection API
    - XML file schema defined and provided

Action Items

- Identified limitation of current GMoDS implementation
  - Only a single instance goal within a "triggers loop" may be active at a time
  - Disallows multithreaded iterative execution
  - Limitation of current GMoDS implementation
- GMoDS patch to allow triggers loop passed all existing GMoDS test cases

Action Items

- Made inter-agent communication make use of an "AdvancedCommunication" capability

- Added interfaces for RoleInterpreter, GoalCapabilityMap, and RoleLevelGoalModel
  - Helps to decouple from GMoDS
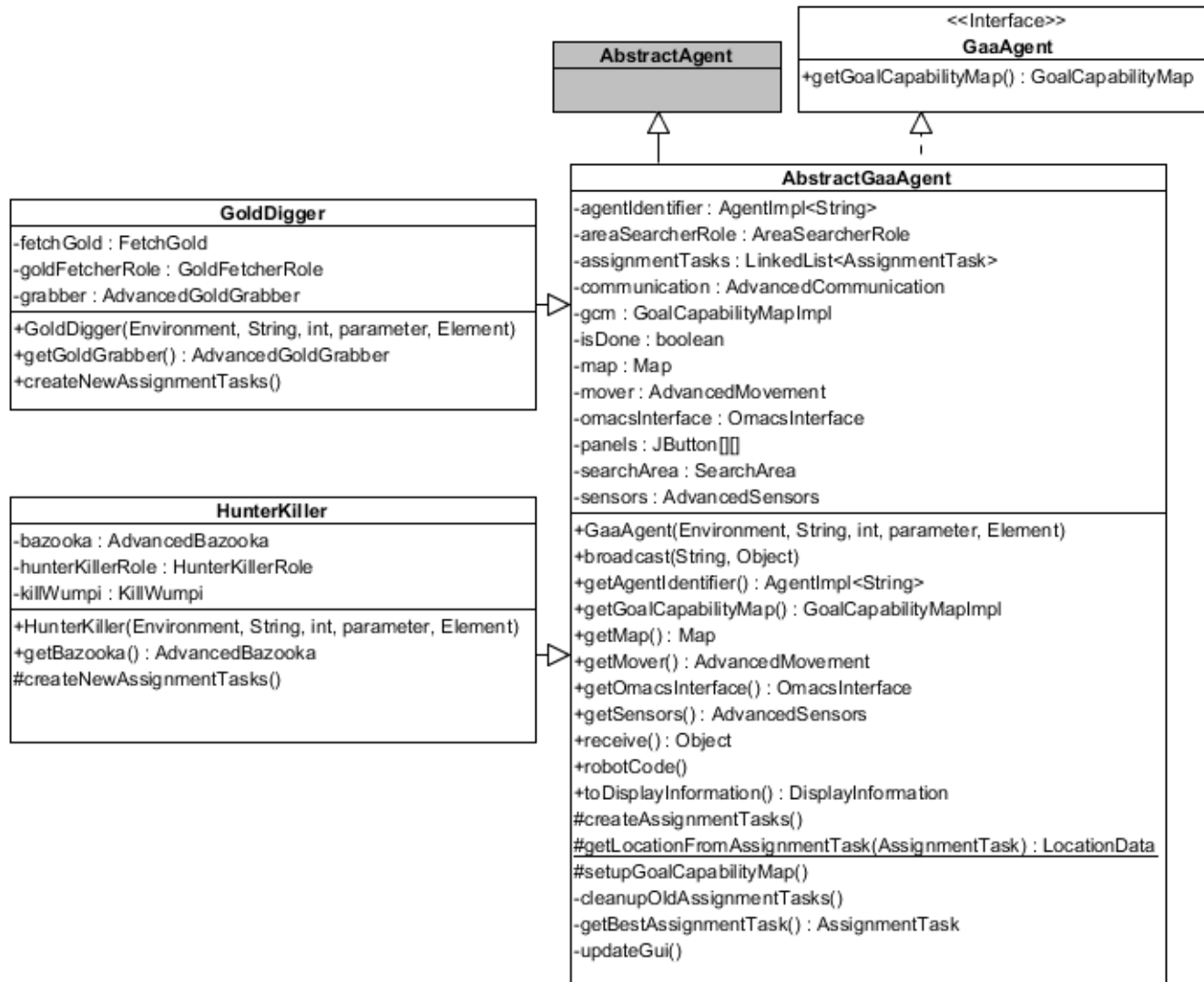
Component Design

- Overview
  - Agent Architecture
  - Capabilities
  - Role Adapters
  - Role Interpreter
    - RoleInterpreter
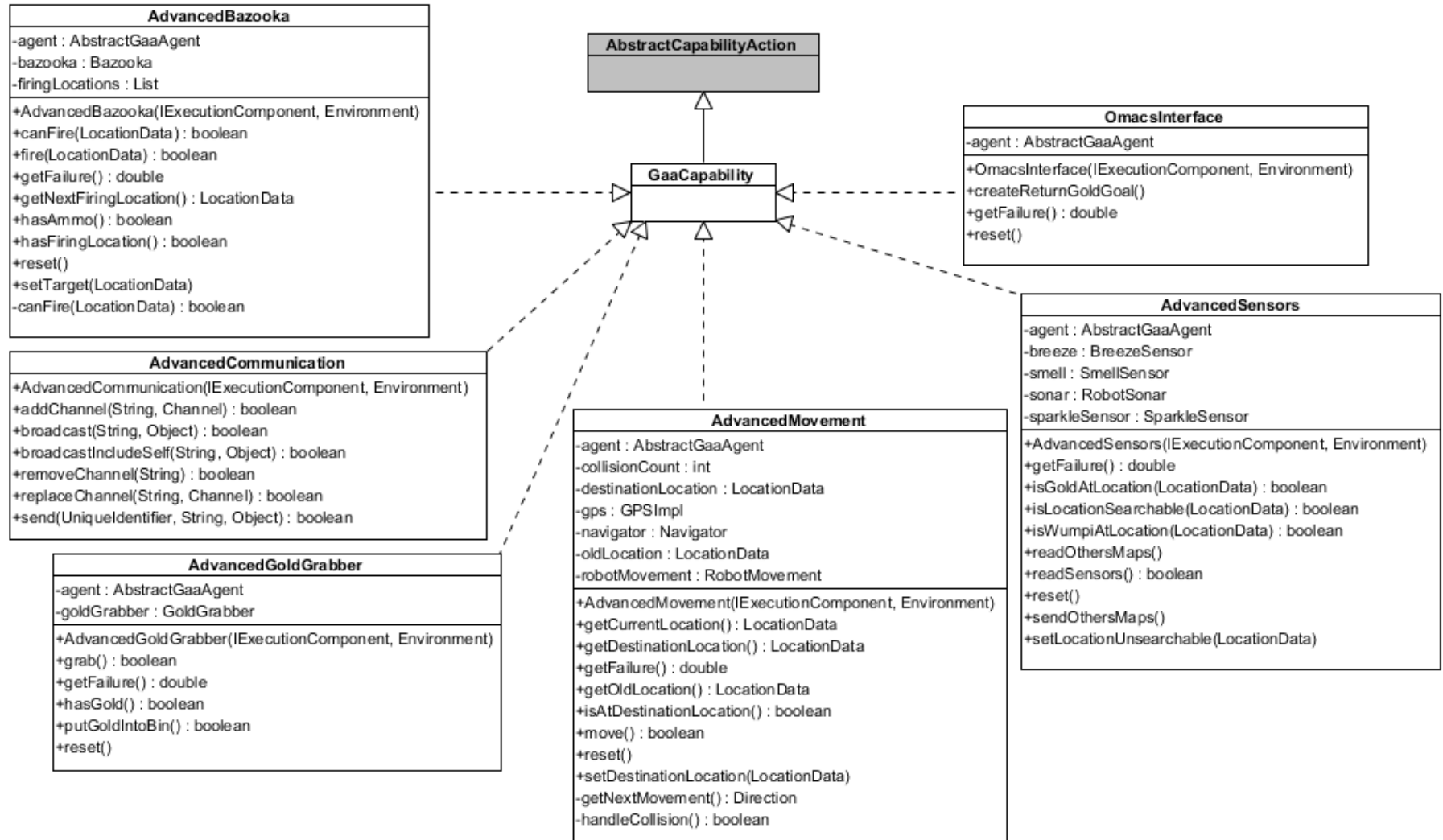   - RoleLevelGoalModel
    - GoalCapabilityMap
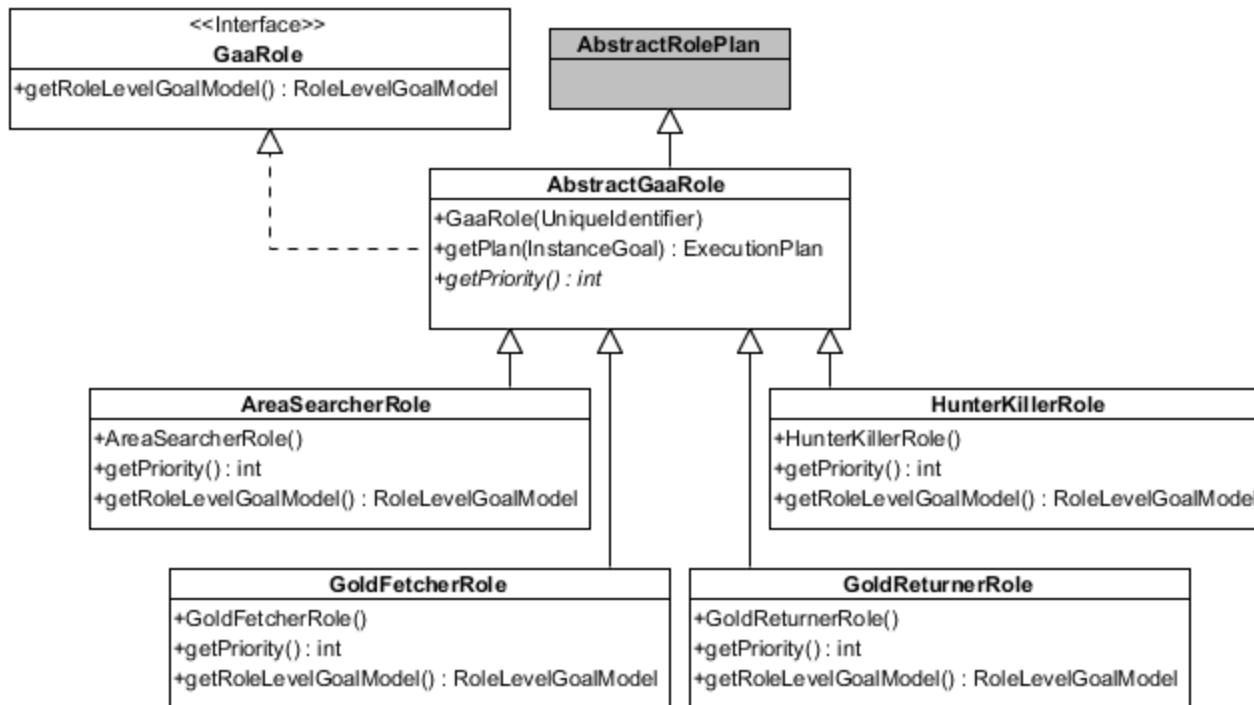
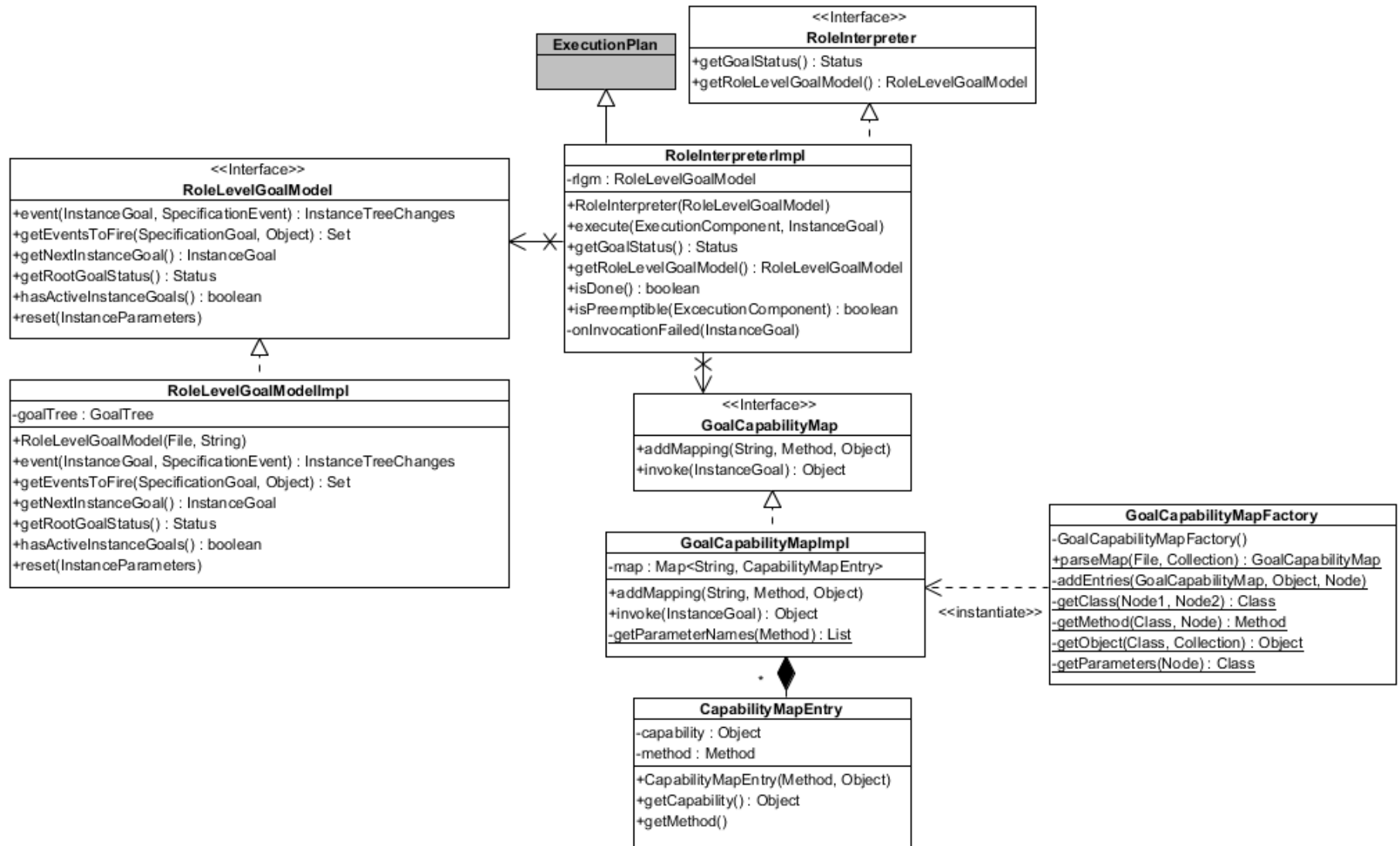# Architecture Overview
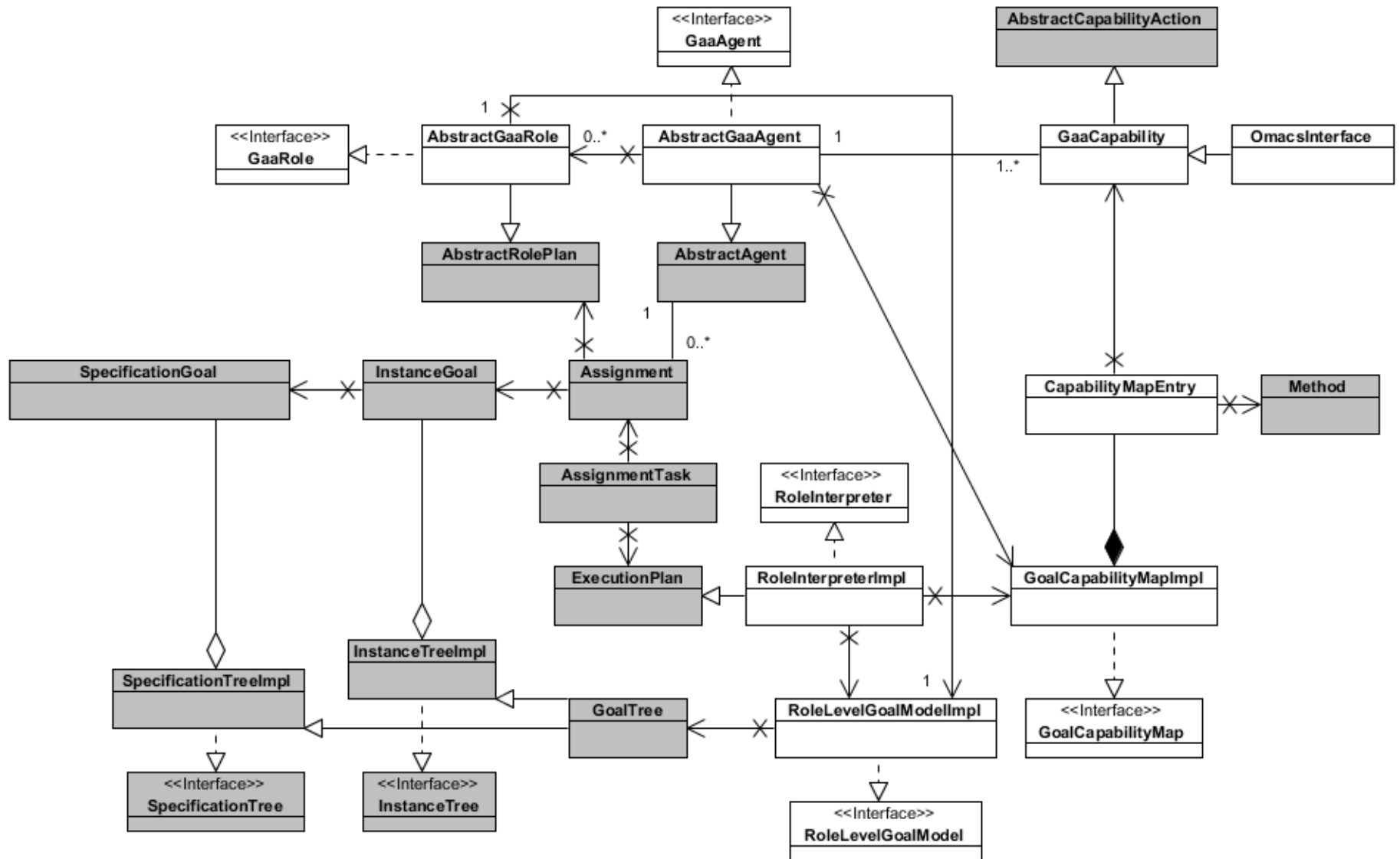
Agent Architecture

Capabilities

Role Adapters

Role Interpreter

Assessment Evaluation

- Assessment Summary

#	Scenario	Scenario Description	Score	Results
1	HunterKiller.xml	Single HunterKiller	19551	Pass
2	HunterKillerTeam.xml	Pair of HunterKillers	23650	Pass
3	GoldDigger.xml	Single GoldDigger	-1876	Pass
4	GoldDiggerHunterKillerTeam.xml	HunterKiller and GoldDigger	22400	Pass
5	WumpiWorld.xml	3 HunterKillers, 2 GoldDiggers	32198	Pass

- No Major Problems Encountered
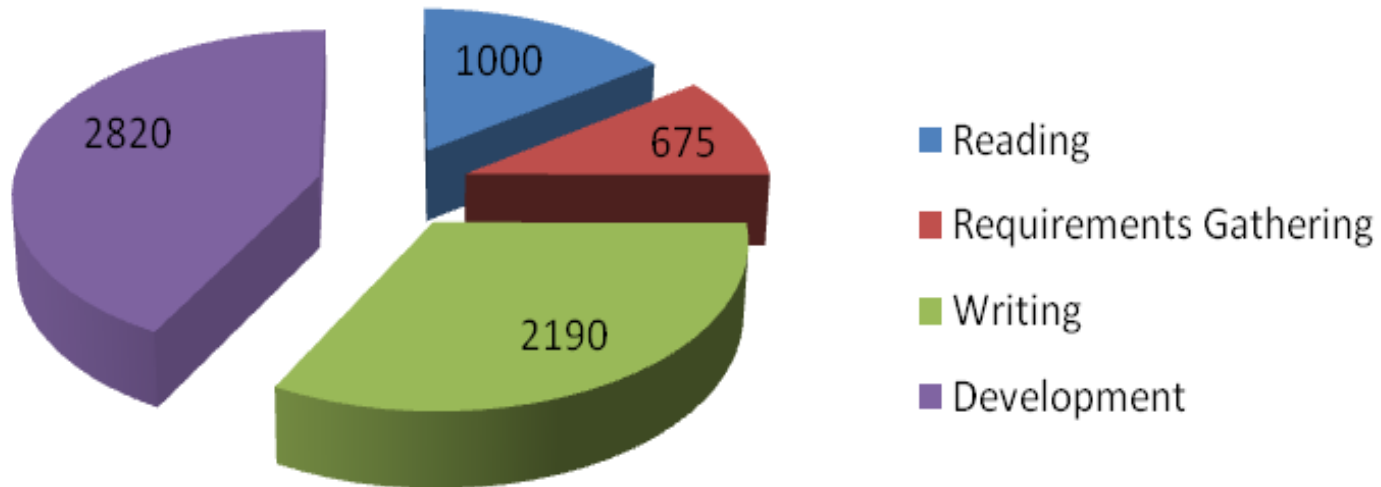 - Extensive testing of each component during development

Project Evaluation

- Source Lines of Code

Phase	SLOC Estimate
Phase 1	5000
Phase 2	4750
Phase 3	5135 (Actual)

- Project Duration

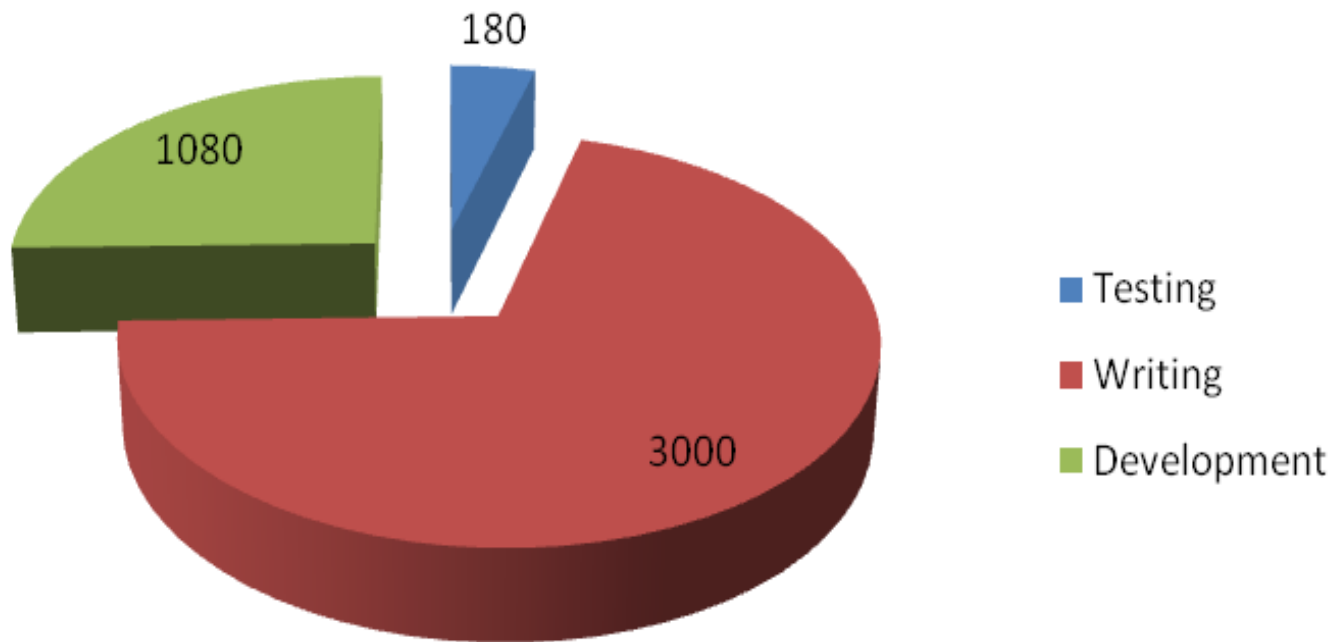| Phase	Estimated End Date	Actual End Date
Phase 1	December 8, 2010	December 8, 2010
Phase 2	March 14, 2010	June 23, 2011
Phase 3	May 13, 2010	July 26, 2011

Task Breakdown – Phase 1

Task Breakdown – Phase 2
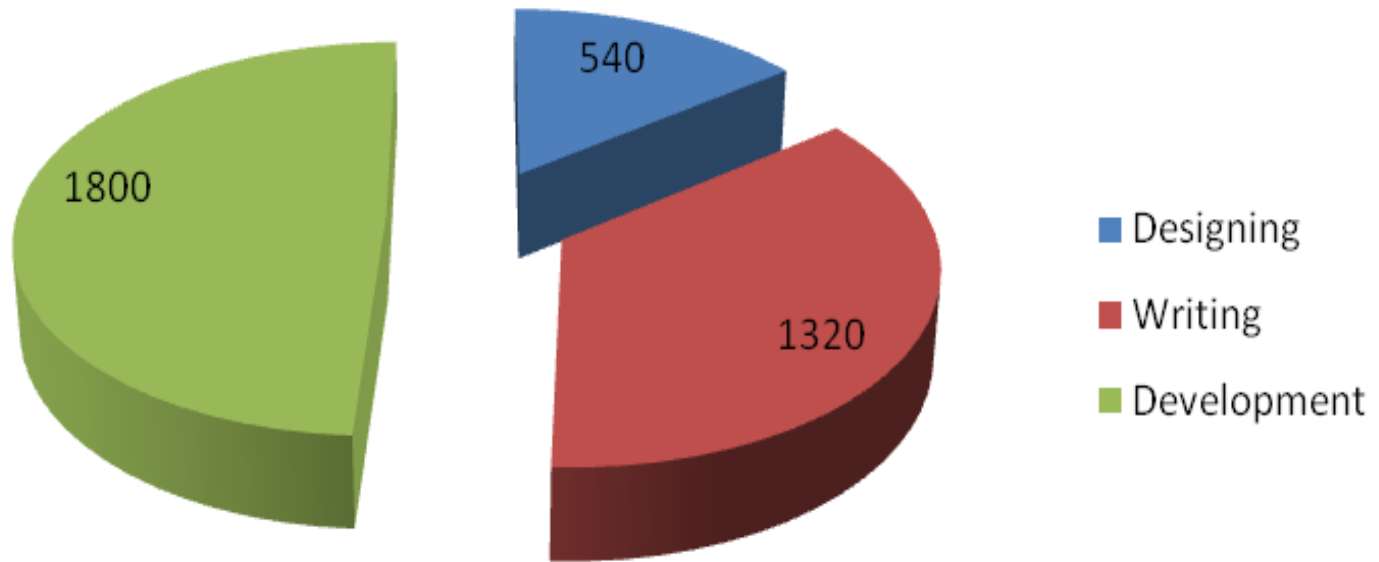
Task Breakdown – Phase 3

Future Work

- Remove GMoDS Limitations
- Make a More Complex Agent Architecture Demo
  - Dynamic Assignment
  - Robust Organization
- Expand OMACS Interface Capability

Demonstration

Questions and Comments