Sociometry Simulator

Analysis and Design Document

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Revision History

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# Project Specification

# This project is supposed to be a *tool* used in simulating social behaviour in groups. It has to contain a way to visualize states and evolution of such states, as well as means to control the population simulated.

# Elaboration – Iteration 1.1

# Domain Model

A lot of research is still to be done in order to complete the domain model. This is why I chose this project in the first place anyway.

From a top level view, a few obvious responsibilities will each have a class of their own:

The Cases (for now people, could also represent grouops) contain:

* Relationships to other cases
* Current state
* State transition procedures
* State transition influencers

Moreover, a graphical way of representing collections of cases is also needed, besides the obvious need of a GUI.

Data input is also very important, as it has to not be tedious in order for the tool to be meaningful – we will also have a customizable entity that collects data for every field which will have to option to autocomplete with random / specifically biased data

Data storage may or may not be needed, but keeping meaningful initial cases could be of use at least for concept validation – therefore a data parser class for loading / storing will also be needed. At this scale usage of a database is unlikely to be relevant, keeping cases as csv/json coould be just enough for the purposes of this project.

# Architectural Design

# \* Will complete those once I figure out exactly how it should work \*

## Conceptual Architecture

*[Define the system’s conceptual architecture; use an architectural style and pattern - highlight its use and motivate your choice.]*

## Package Design

*[Create a package diagram]*

## Component and Deployment Diagrams

*[Create the component and deployment diagrams.]*

# Elaboration – Iteration 1.2

# Design Model

## Dynamic Behavior

*[Create the interaction diagrams (1 sequence, 1 communication diagrams) for 2 relevant scenarios]*

## Class Design

*[Create the UML class diagram; apply GoF patterns and motivate your choice]*

# Data Model

*[Create the data model for the system.]*

# Unit Testing

*[Present the used testing methods and the associated test case scenarios.]*

# Elaboration – Iteration 2

# Architectural Design Refinement

*[Refine the architectural design: conceptual architecture, package design (consider package design principles), component and deployment diagrams. Motivate the changes that have been made.]*

# Design Model Refinement

## *[Refine the UML class diagram by applying class design principles and GRASP; motivate your choices. Deliver the updated class diagrams.]*

# Construction and Transition

# System Testing

*There are two levels of testing relevant for this application:*

*Automatic data input validation – which could also be non-trivial (i.e. validating randomly generated cases in specific/biased scenarios.*

*Scenario validation – which is unlikely to be automatic*

*There could also be state stransition testing – but changes on any case dimensions will most likely be simple, and also some form history of transitions will likely*

# Future improvements

*Adding new dimensions to cases is always a way to make the process more complex.*

*Adding new ways to visualise the simulation – maybe 3d.*

*More will be added as time goes on.*

# Bibliography