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Advanced Programming Final Project

Goal

Develop a platform-independent server-client model using a REST-like approach, that allows clients to submit graph configurations and messages, with the server generating the corresponding visual graph and sending it back to the clients.

Project Design

MVVM model

Model: calculation graph running on server

View: Web Application

Server side

- Main Starts Http Server: "MyHttpServer"
- Http Server listens on specified "ip:port"
- On incoming Http request(GET, POST): Http Server Parsing request
- Choosing Servlet to handle request

Request Handling

- Handler chosed based on command "GET" or "POST" and uri
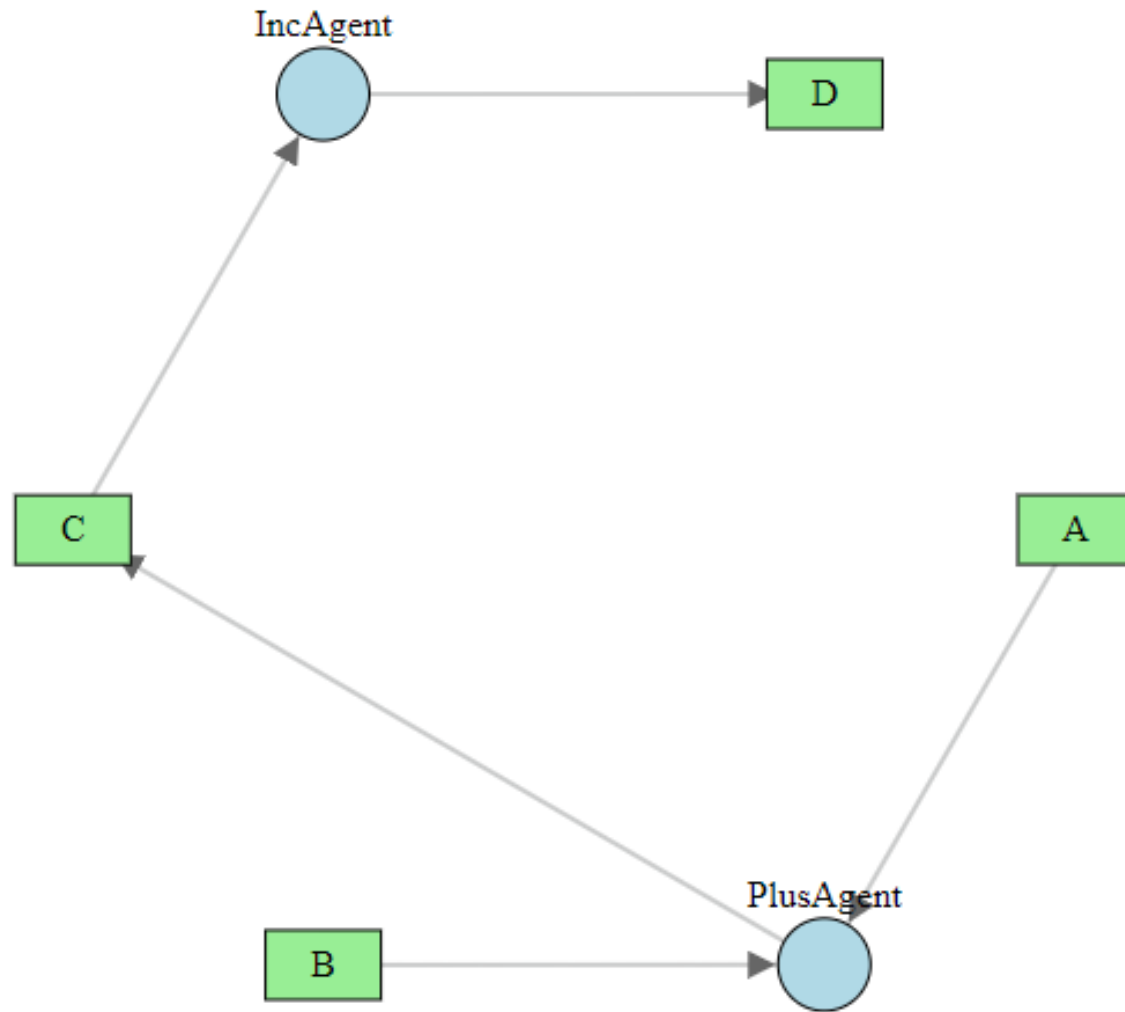
- GET:

❑ Handler Sends requested page

❑ Handler Publishes Message to Graph

- POST:

Handler receives configuration file, parses it and builds required configuration

Sends to client page with Graph visualization of configuration

Graph

Consists of two types of Nodes

Topic:

Receives Message from Publisher, and immediately Publishes the message to all Subscribers

Agent:

Receives Message from Topic, Performs calculation and publishes the result to the appropriate topic
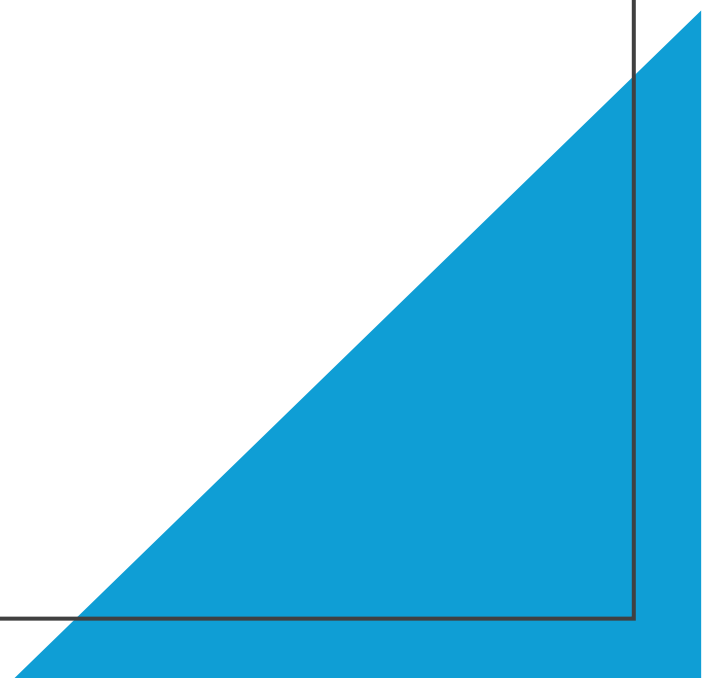
Client Side

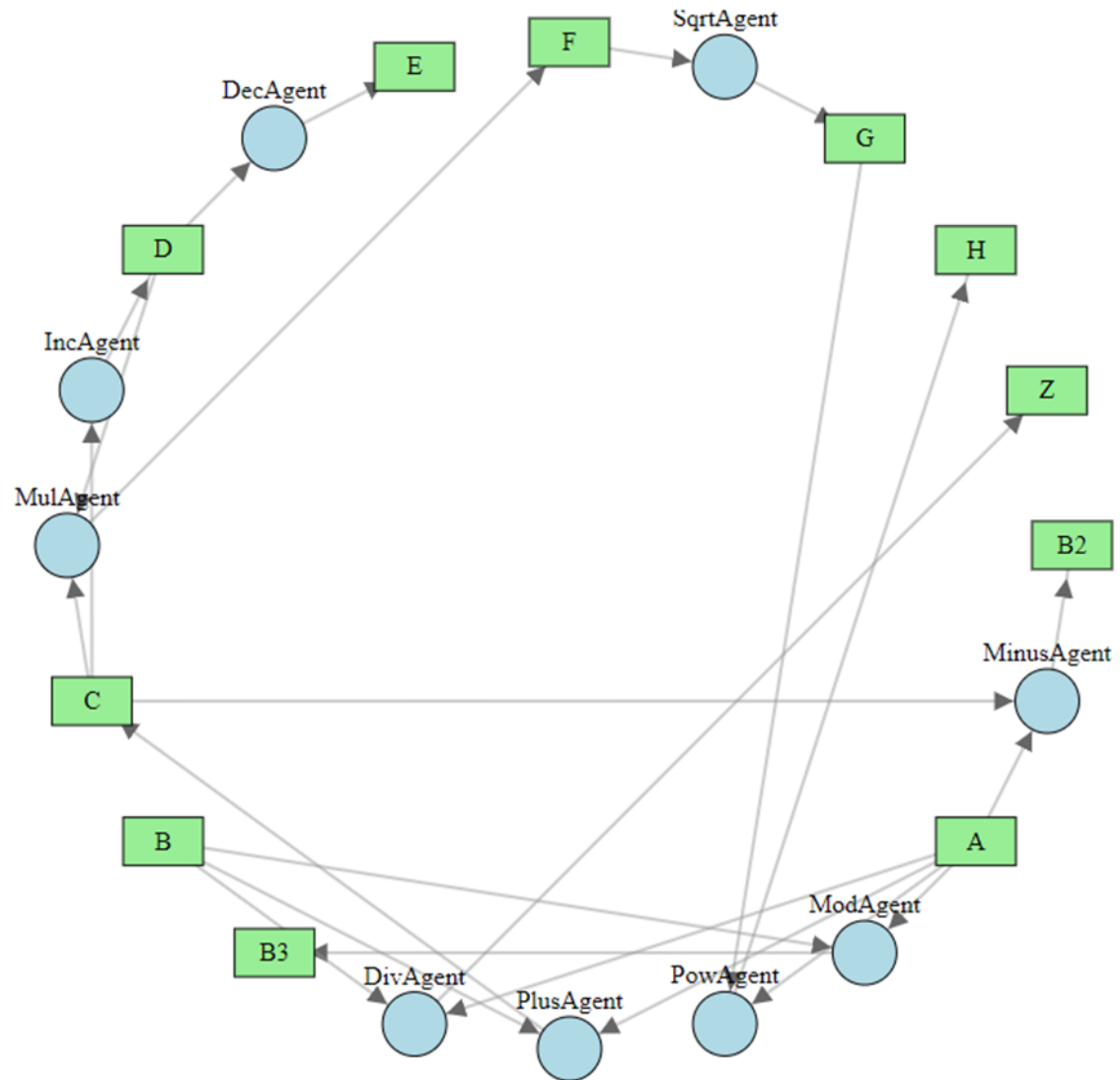Choose File | No file chosen

Deploy

Topic name:

Message:

Send

- Choose the configuration file
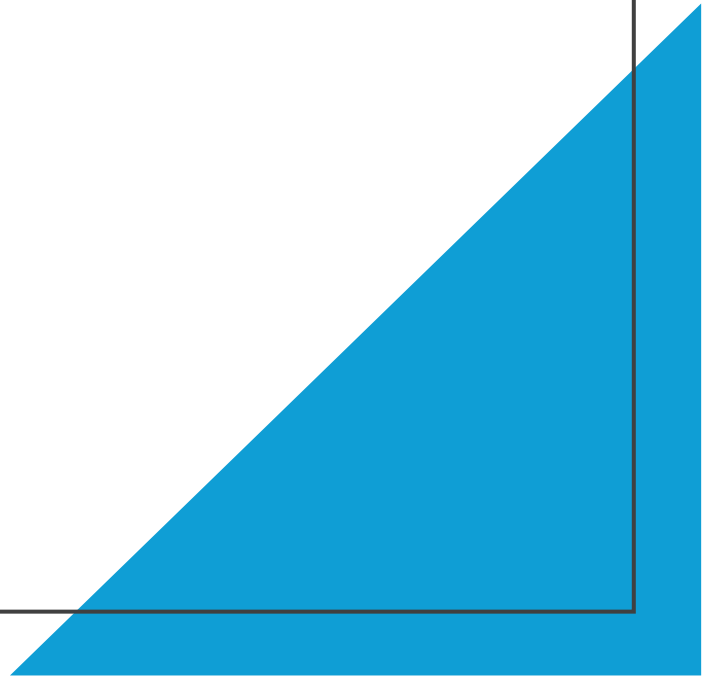- Send Message

Client Side

Graph Visualization

Topic	Value
B2	2.00
A	5.00
B3	1.00
B	2.00
C	7.00
D	8.00
E	7.00
F	56.00
G	7.48
H	23467.68
Z	2.50

Client Side

Values Presentation

Features

FILE, TOPIC OR MESSAGE MUST BE ENTERED

NON NUMBER MESSAGES CAN BE SENT, BUT CALCULATIONS WILL NOT BE PERFORMED

GRAPH NODES CAN BE DRAGGED

TOPIC NODES SHOW THEIR VALUES

Things We learned

- SOLID and GRASP principles

- MVVM Architecture

- Principles of REST: resource identification through URLs, and the use of standard HTTP methods (GET, POST, etc.)

- Client-Server Communication

- Server-Side HTML Generation

- Web applications

- HTML, CSS, JavaScript