Assignment 3
Trading agent competition

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1. The assignment

In this assignment, you should implement an agent that is capable of participating in the Supply Chain Management game for the Trading Agent Competition (TAC SCM). Each group of students, consisting of 2-3 students each, will implement an agent that the group will use to compete against the agents created by other groups in the assignment. Before you start working, you need to carefully read this specification, the TAC SCM 2007 game documentation and specification (see below).

After this, you should develop a strategy for your agent so that it will perform as good as possible in the TAC SCM competition and implement it using the Java AgentWare package; everything is ready in the code in order to make things work. All you have to do is to concentrate on developing an agent with a winning strategy.

2. Technical information

In this assignment, you will use the same Ubuntu system that you used previously in the course, i.e., the Win7Virtualbox image in the laboratory and the DA614A (Ubuntu) system inside Virtualbox. Do not forget to update the (virtual) mac address in Virtualbox before you boot Ubuntu. See instructions in the "Laboratory environment" document.

You find all the necessary files in the ~/tac folder (i.e. /home/axis/tac) in your Ubuntu system. The tac folder has four sub-folders: docs, server, client, and logtool.

Docs

The docs folder contains some documentation that you need in order to work with this assignment. In particular:

- Javadocs for the TAC SCM Java AgentWare (i.e., the client java source code),
- The TAC SCM 2007 game documentation and specification.

Documentation on how to run the provided tools is provided in the other sub-folders of ~/tac .

Server

In the server folder (~/tac/server), you find the server that we use in the course in order to run TAC SCM games. We use a slightly modified version of the MinneTAC TAC SCM Server.

In the server folder you also find a number of README files, which you should carefully read. You start the server using the (terminal) command (in ~tac/server):

> java –jar scmserver.jar &

When the server is up and running, you can open the web-page of the server by entering http://<server-ip>:8080 in the address field of your browser. If the server runs on your own Ubuntu system, you replace <server-ip> with 127.0.0.1. To be able to let an agent join games, you need to register its agent name and password (using the web-page of the server). After registering an agent, it will be available in the server administration interface, so that it can be included in the games.

When you have created a new game, you can add registered agents. Add each agent that will participate only once; the server will fill the remaining slots with dummy agents.

The 'admin' user, which you need to use, e.g., in order to create games, has password 'secret_password'.

You can view a game by visiting http://<server_ip>:8080 where you click on "Coming games…" in the menu and followed by clicking "Launch Game Viewer" in the page that appears.

Client

In the client folder you find the java package needed to build TAC SCM agents (i.e., TAC SCM Java AgentWare 0.9.6 Beta), and a java source filed named ExampleAgent, which you are recommended to use when you build your agent[1]. The folder also contains a README file, which you are recommended to read carefully. You can show the content of the README file, e.g., by using the terminal command:

> less README.txt

To compile the source code in the client folder, hence building the ExampleAgent, you use the terminal command:

> ./compile.sh

The folder also contains a configuration file (aw.conf), where you need to provide the ip-address of the server that hosts the game you want to connect to in the "serverHost" field (127.0.0.1 if it runs on your own computer), a unique name for your agent, and a password.

Finally, you start your agent by typing the following command (in the client folder).

> java –jar scmaw.jar

Then click join simulation in the client GUI.

Logtool

In the logtool folder, you find a logging tool that you can use to analyze games that have been played. Instructions on how to compile and use the logtool is given in the README.txt file that you find in the ~/tac/logtool folder.

You compile the logtool using the following command (in the logtool folder):

> ./compile.sh

[1] The ExampleAgent is the default agent class that will be used unless you specify some other file in the client configuration file (the AgentImpl field).

You start the logtool using the following command, where <log-file> should be replaced by the search path to a log file with the .slg extension (you find the files in the ~/tac/server/logs/sims folder):

> java –jar scmlogtool.jar –file <log_file.slg>

3. Examination

3.1. Competition

On December 5 (8.15-10.00) there will be a competition[2] where all groups will compete against each other using their TAC SCM agents. This means that you have to have a working agent by this date[3].

3.2. Report

Each of the groups should write a short report where you describe your solution (including strategy). In the report, you should, at least:

- Describe your strategy,
- Discuss your experience from the competition,
- Discuss any experiences that you acquire, including
    - What part(s) of your work you are satisfied with,
    - What you could have done differently to perform better,
    - ...

In addition, we would appreciate if you provide feedback on the assignment, for example, if there is anything you think should be added, removed or updated.

Your report should:

- Include a reference list if it refers to external sources.
- Be written in your own words (i.e. slightly modified or simply translated texts written by someone else is not allowed).
- Be well-structured with relevant headings and correct paragraph groupings.
- Be well-written (with correct spelling and sentence construction).[4]

The final report shall be a word (.docx or .doc) or a pdf document. The report and the source code shall be submitted as one zip-file[5] using the course page on Canvas. The submission deadline is specified on the submission page for this assignment. If you miss the specified deadline (or if your report is not approved after one resubmission), the second and third opportunities to submit will be around the second and third opportunities to write the final exam respectively (these submission deadlines are also specified on Canvas). One submission

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[2] In the competition, the tac06scm settings will be used, however, the time for each day will be changed from 15 to 10 seconds, and the number of days will be reduced from 220 to 200, which means that a simulation will take approximately 33 minutes. The structure of competition, the number of real agents, as well as the number of dummy agents in each game simulation will be announced on the day of the competition.

[3] Make sure you create your agent in a way that it can reconnect to the server in case something goes wrong.

[4] Hence, you need to proof-read your report several times before you submit it.

[5] Please note that all other archiving file formats than zip are forbidden.

per group is sufficient (i.e. one report and one applications). In order to pass this assignment, you need to pass both the competition part and the report part of the examination.