Report on TAC Agent

AGENT SYSTEMS (DV2541)

Agent name: HSB

Workload division

Member Name	Strategies	Coding	Reporting
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1. Introduction

The trading agent competition (TAC) is the competition where agents are supposed to compete with each other in one of the trading server. The main task of an agent in the competition is to provide flight tickets, entertainment tickets and hotel rooms to eight clients for a five day festival. The complete game is based on dynamic pricing of the above mentioned resources.

Each agent competes with the other agents for gaining these resources which it has to provide to its eight clients. The flight and the hotel tickets can only be sold by the tac server whereas the entertainment tickets bought by one agent can be sold to the other agents as well if not required by the buyer. Tac server or agent(that sells entertainment tickets) sells tickets only through auctions.

The auction pattern of the flight tickets, hotel rooms and entertainment tickets are clearly explained in the tac website[1]. The performance assessment of each agent is done based on the client utility functions, which are considered as a measure of the client's level of satisfaction towards the agent's work.

Our task is to develop a strategy, which maximizes the client's satisfaction and increases the overall score of the agent in the competition.

The next sections of this report explains our Strategy for the competition, the results obtained by the strategies and the conclusion.

2. Strategies

2.1 Flights :

As the flight prices change based on a stochastic function and considering the necessity of the flight ticket for a client the maximum bid price of the flight ticket is set to 1000 (as same in dummy agent). The motivation behind this strategy is that, as the flight ticket auction clear continuously all the clients get their flight tickets before the game time ends.

2.2 Hotels :

Our strategies for hotels are:

- To consider a hotel as a good hotel if its price is greater than 40 the chances of getting the hotel bonus increases.
- The initial price for the bid is increased to 250 for every auction so that the required number of rooms can be bought even though high cost is spent.
- The bid price for each bid is quoted by increasing the ask price by 70, that is (askprice + 70).

2.3 Entertainment Tickets

Our strategies for the entertainment tickets are:

- To buy the entertainment tickets even though they cost more, that is the bids price is increased so that the entertainment bonus is achieved.
- To sell the unwanted tickets at low cost in the worst case to avoid penalty.

Our above mentioned strategies can be clearly understood through our source code.

3. Results & Analysis

We have got good results that is the score of more than 1000 in each games for first two games later on in last we got a negative score.

The reason for a low score in the third game might be that a machine learning based agent might have exploited our strategy of selling entertainment tickets at low price. We could say this because in all the three games, we have observed that our score has gone down in the entertainment tickets section where our agent bought tickets at a high cost and sold the unwanted tickets at a very low cost.

4. Conclusion

Through this tac competition we have understood the following aspects:

- The importance of statistics and machine learning for building reactive agents.
- We would rather try to build a learning agent so that it reacts to the environment. May be cooperative agents might also be of use.
- The importance of agent systems in the dynamic environments and the need for combining agent systems concepts with the machine learning and decision support systems.

References

[1] http://tac.sics.se/page.php?id=3