



**ID2209**

# **Distributed Artificial Intelligence and Intelligent Agents**

**Homeworks and Project**

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# Administrative Issues

- We appreciate 2 members per group in all activities:
  - Home works
  - Project
- Less is fine (but no benefits to it)
  - No bonus points
  - But **more than 2 members per group is not appreciated!**

# Mailing lists

- Students mailing list:
  - Subscription to this mailing list is made on the web :  
[https://mailman.ict.kth.se/mailman/listinfo/id2209\\_students](https://mailman.ict.kth.se/mailman/listinfo/id2209_students)
  - If you want to post something to the list send an email to : [id2209\\_students@mailman.ict.kth.se](mailto:id2209_students@mailman.ict.kth.se)
- If you want to ask something from course staff write an email to :  
[id2209\\_teachers@mailman.ict.kth.se](mailto:id2209_teachers@mailman.ict.kth.se)
  - Don't subscribe to teachers mailing list please!

# Home works and projects

- 4 Home works
  - Almost 1 week time for each homework
  - 10 min presentation of the homework
  - In-time submission and approval of all Homeworks, gives you 5 Bonus points
  - You can get: (maximum) 5 Bonus Points
- 1 Project
  - Almost 3 weeks for Project
  - 20 min demo for project.
  - In-time submission and approval of Project, gives you 5 Bonus points
  - You can get: (maximum) 5 Bonus Points

# Total Bonus Points

- In Total you can get:
- 10 Bonus Points from Project + Homeworks
  - 5 homework bonus points
  - 5 project bonus points

# Schedule

05-11-2009 11-11-2009	HW1 Session HW 1 Due	12/11/2009, 8-12 pm & 2-5 pm
12-11-2009 18-11-2009	HW2 Session HW2 Due	19/11/2009, 8-12 pm & 2-5 pm
19-11-2009 25-11-2009	HW3 Session HW3 Due	26/11/2009 8-12 pm & 2-5 pm
26-11-2009 2-12-2009	HW4 Session HW4 Due	3/12/2009 8-12 pm & 2-6 pm
26-11-2009	Project Introduction Project Due	<b>Hard Deadline</b> <b>20/12/2009</b>
21-12-2009	08 AM - 12 PM 02 PM - 06 PM	<b>Project Demo</b>
18-12-2009	Final Examination	

# Homework 1

- Submission Deadline :
  - Thu, November 5 – **Wed, November 11, 12 PM**
- A small demo (10 min) of running agents.

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## Time Slots for Demo

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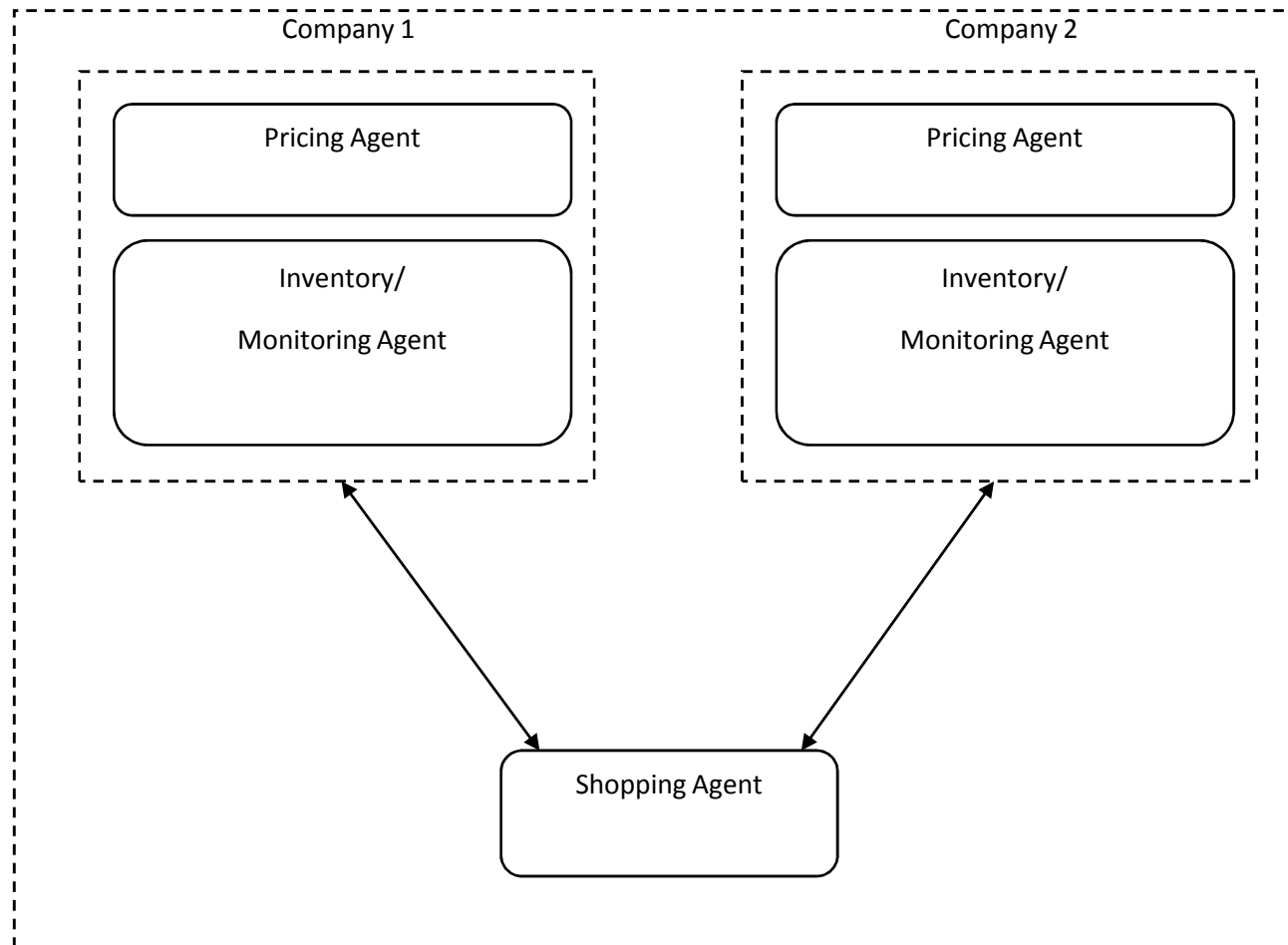
- Thursday 11th November:
  - 8-12 & 2 – 6 pm (1-2 pm is next homework presentation).
  - Time slot sheet will be online (to be announced on mailing list).
  - If you have problem with Thursday then let us know in advance

# Homework1

- Topics covered in this session:
  - Hands on experience with agent platforms
    - Programming and implementing software agents using JADE agent platform
    - Programming agents in the context of a practical scenario
- Complementary material
  - Hamid Reza Mizani's JADE presentation  
[http://www.ict.kth.se/courses/ID2209/2008/homeworks/Jade\\_Hamid.pdf](http://www.ict.kth.se/courses/ID2209/2008/homeworks/Jade_Hamid.pdf)
  - Professor Matskin's JADE presentation  
[http://www.ict.kth.se/courses/ID2209/2008/homeworks/Jade\\_Misha.pdf](http://www.ict.kth.se/courses/ID2209/2008/homeworks/Jade_Misha.pdf)



# Shopping agents



# Agent details

- **Shopping agents** travel around a network and retrieve information about goods (their pricing, availability etc).
- **Pricing agents** quote the price of a certain item (depending upon some heuristic based on number of items remaining in the inventory, buying pattern etc). To make scenario simple, we limit the role of pricing agents to quote the price of item based on number of items remaining in the inventory. Such information is pulled from **Inventory/Monitoring agent**.
- **Shopping agents** can also interact with **Inventory/Monitoring agents** to pull inventory status (i.e. number of items remaining in the inventory/warehouse) and shipment details (i.e. number of days it takes to get the item shipped).

# Task 1

## Implementation of Agent Behaviors

- Implement agent behaviors in Jade Framework with respect to scenario proposed.
- Behaviors should correspond to each category below:

### **Simple Behavior**

CyclicBehaviour, MsgReceiver, OneShotBehaviour, SimpleAchieveREInitiator, SimpleAchieveREResponder, TickerBehaviour, WakerBehaviour

### **Composite Behaviors**

ParallelBehaviour, FSMBehaviour, SequentialBehaviour

# Task 2

## Using DF (Directory Facilitator) agent

- In the context of the scenario proposed define the role of the DF agent and implement the following activities for agents (shopping, inventory, price) with respect to scenario proposed:
  1. Implement an agent that provides some service and registers it at DF.
  2. Implement an agent that can discover all registered services at DF, asks user for its choice and then displays the parameters expected to use that service.
  3. Implement an agent that subscribes to DF and gets notified each time the desired service is published at DF.

# Task 3

## **JADE and Other Agent Platforms**

There are number of implementations of agent platforms which conform to the FIPA Specifications. Perform a comparison of at least 1 other Agent Platforms with JADE.

Your comparison should comprise of:

- I. Architecture of Platform
- II. Services provided by Platform
- III. Comparison of implementation of a simple and a complex scenario same as task2 (i.e. Service Implementation, Service Registration, and Service Discovery)
- IV. List some notable projects which used that platform.
- V. Your personal opinion/judgment about the platform as compared to JADE.

# Deliverables

1. Documented source code (with instructions for execution)
2. Report of Task 3

emailed by deadline to

- [nimad@kth.se](mailto:nimad@kth.se) and [ahaseeb@kth.se](mailto:ahaseeb@kth.se)
- with Subject “DAIIA09 HW1”.
- **Don't forget** to write full names of group members in the email.
- A small demo (10 min) of running agents.
- Email us the documented source code and Report by Deadline specified.

# Additional resources on JADE platform

## **JADE Documentation:**

<http://sharon.csel.it/projects/jade/doc/>

## **JADE Primer** by J. Vaucher and A. Ncho - Université de Montréal:

<http://www.iro.umontreal.ca/~vaucher/Agents/Jade/JadePrimer.html>

## **Adminstrating the JADE platform.** Tutorial for beginners by David Grimshaw - Ryerson University:

<http://sharon.csel.it/projects/jade/doc/tutorials/JADEAdmin/index.html>

# Additional reading on agents for ecommerce

- **Agent-mediated electric commerce: a survey** Guttman, R. H. Moukas, A. G. Maes, P. KNOWLEDGE ENGINEERING REVIEW, 1998, VOL 13; NUMBER 2, pages 147-160  
<http://alumni.media.mit.edu/~guttman/research/pubs/ker98.pdf>