ID2209
Distributed Artificial Intelligence and Intelligent Agents

Homework 3

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Homework3 Introduction

- Topics covered in this session:
  - Coordination and communication
  - Agent Mobility
- Complementary materials:

  Guide on JADE Agent Mobility

  http://www.iro.umontreal.ca/~vaucher/Agents/Jade/Mobility.htm

Task #1

- The aim: To understand how agents communicate and cooperate to achieve their goal using the n-queens problems as example
- The N-Queens problem (chess):
  - Each queen is modelled as an agent.
  - Each queen moves along a row in a matrix and places itself such that it will not be attacked by another queen.
  - A queen may be attacked by another if they are in the same column or along the same diagonal

Task #1 continue

- Messages are passed between the agents in order to update each other of their positions.
- Each agent can communicate with the agent(s) that precedes or comes after it. It sends the positions of the queens positioned so far.
- If the positions of the previous queens are unacceptable for the current queen it sends a corresponding message to the previous queen to find another position.
- This process continues all queens have positions that are acceptable for all

Task #1 deliverables

- Implement solutions for n=4,5,6,…
- Introduce a possibility to get different solutions. How many solutions you get for different n.
- Deliver a report including description of your solution, code and protocol(s) of communication

Task 2

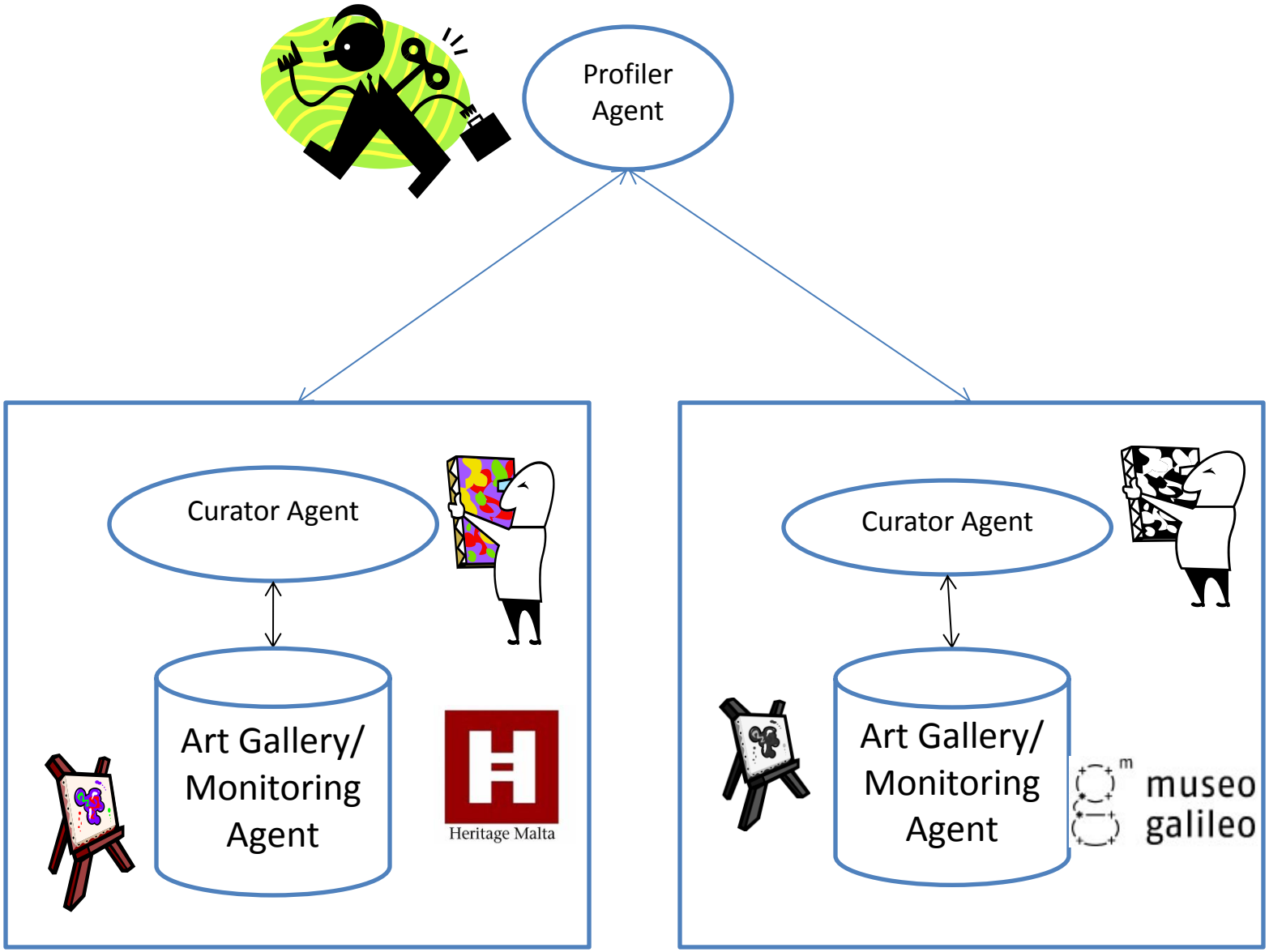
- Goal:
  - Hands on experience with Agent Mobility

- Extending (**Dutch Auction**) for intra-platform **mobility**.

Programming agent mobility in JADE

Programming guide (should be very easy to follow):

http://www.iro.umontreal.ca/~vaucher/Agents/Jade/Mobility.htm


Profiler Agent
Curator Agent
Art Gallery/ Monitoring Agent
Heritage Malta
Curator Agent
Art Gallery/ Monitoring Agent
museo galileo

Scenario described

- Consider a **auctioneer** agent in an auctioneer-Agent-Container

And

- Two separate containers for two separate/different **participant** types
  - (e.g. **participants** from HM and **participants** from Galileo Museum).

Heritage Malta

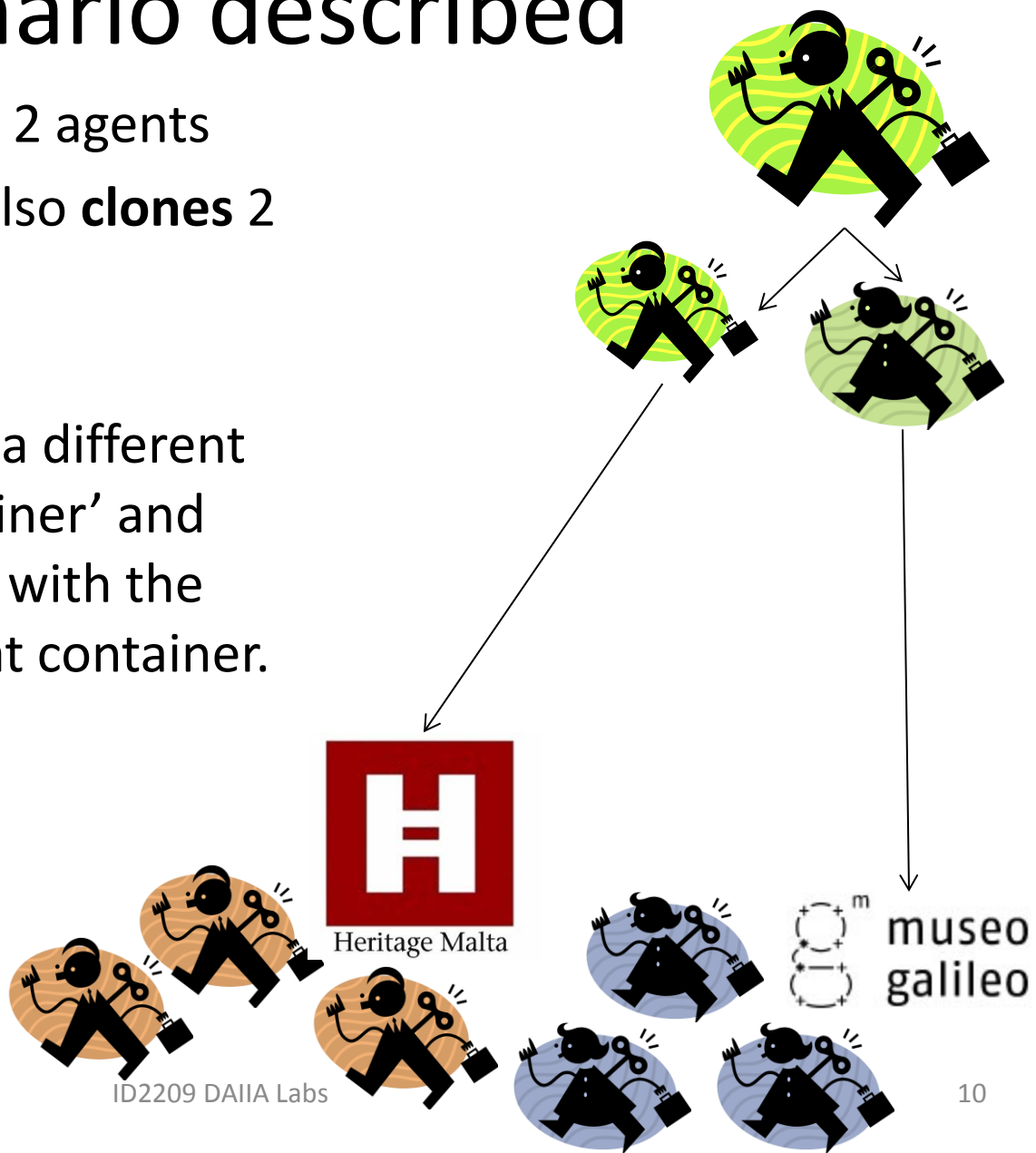
museo galileo

http://www.museogalileo.it/en/index.html
http://www.heritagemalta.org/museums/museums.html

Scenario described

- auctioneer agent **clones** 2 agents
- each participant agent also **clones** 2 agents

- each of which moves to a different ‘participant agent container’ and executes **Dutch Auction** with the participant agents in that container.



Assumptions

- Consider at least two participants in each ‘participant agent container’.

- These participants
  - One being the actual participant agent and the other ones are their clones.

Scenario continued

- Upon the end of execution
  - the clones migrate back to their home container, share best price obtained among them and announce the best price offered from any of the participants.

Deliverables

- Deadline: **December 2**
- Demo: December 4

- Documented Source Code (with instructions for execution) to misha@kth.se, siskos.filotas@gmail.com and niksta@kth.se with Subject "DAIIA14 HW3".
  - Don't forget to write full names of group members in the email.

Time Slots for Demo:

- Slots sheet will be announced on mailing list.