Tutorial Sheet 1   **hand out: 01.11.2011**
Artificial Intelligence   **due to: 07.11.2011, 8:15 am**
Dr. Tomáš Horváth, André Busche   **Winter 2011/12**

Requirement for the current sheet:

> Answer each question with at most two (2) sentences!

Exercise 1a)   [3 points]

Please request credentials for access to a dedicated student server used for the course, by sending an email to <u>busche@ismll.de</u>, with the following information:

header: `[ai] credentials request`

text:

`username: <your-chosen-username>`

`password: <your-chosen-password>`

With information in `<>` chosen at your wishes.

Exercise 1b)   [6 points]

Implement the vacuum-cleaner sample (cf. Slide 4) from the lecture slides in a programming language of your choice, for a 2x2 tile.

Make up your mind (and write a sentence each), how to model (any why you did implement it that way) each of the agents logical components (cf. Slide 3) in an efficient way (What is efficiency in your case?)

Name and specify relevant aspects of (your/the) solution (e.g., „one needs a strategy to move the cacuum cleaner within the world over each tile" → Path finding/waypointing).

You must not not spend more than 1 hour for this task to solve it. If you don't finish in time, write two sentences about the problems you were facing while working at the problem (good reasons here still allow you to get full points for this exercise).

Exercise 1c)   [3 points]

What needs to be changed in your solution to exercise 1b, if arbitrary tiles should be considered? Is there any difference between an n x m tile and an m x m tile? Imagine further extensions, e.g., obstacles on the floor: Which aspects as identified in exercise 1b are affected – and how?

(you don't have to implement those changes)

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Exercise 2a)   **[3 points]**

Define the Turing test in your own words.

Think of two slight variations and argue whether and how they affect the difficulty of the test for both humans and computers.

Exercise 1b)   **[5 points]**

Define intelligence, artificial intelligence, and agents in your own words.

Write one sentence for each tuple: how can they be differentiated from each other?

General Advice:

Questions may be answered in either English or German. However, you are encouraged to answer in english, as mistakes do not affect your marking (exception: concatenation of random words do not gain you any points...). You will be asked to present your solutions, in english.

For each following tutorial, please always hand in a small solution sketch, making me able to follow your ideas.

Solutions should be handed in by e-mail to busche@ismll.de. Please note that this adress differs from my moodle-email adress! Please use an email header starting with `[ai]`. You will get a manually written „recieved" message once I read you email.