Software Engineering 2—Project description

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SWIMv2:Small World hypothesIs Machine v2

Problem description

A network of friends is usually a very important way to find support and help by trusted people. You are to develop a software system called SWIM that allows people to find in the network of friends the right person for the right job.

The system supports the activities of three types of users:

- *Registered users*. They can:

    1) declare a set of abilities (e.g. cooker, plumber...);

    2) search for users;

    3) send a friendship request to a user or reply to a received friendship request;

    4) search for help within the network of friends or within the entire set of users in the system;

    5) provide feedbacks about users for received help;

    6) send requests for adding new abilities to the administrator (see below).

- *Unregistered users*: They can exploit only the functionality of searching for help. In this case, the search is performed only through the entire set of registered users,

- *Administrator*: he/she defines the set of abilities the users can declare and can receive requests for adding new abilities by all other registered users.

Your task

You must develop SWIMv2 using the JEE platform and, in particular, EJBs to develop the business logic. The user interface can either be a web application or a normal Java application. In both cases the user interface has to interact with the business logic. These are the steps through which you must proceed and the milestones for your development process:

Deadline 27 October 2012, 23.59: *Group registration and project planning*. You should form your group and register it by strictly following the directions that will be published on the course website and presented during the project lab. Also, you will submit your project plan in which you will identify the tasks that you will execute during the project, the responsible person for each task and will provide a rough estimate of the required effort. To support you in quantifying this effort we will provide on the course website some statistics from last year's project. Make sure that you start working at your plan immediately so that you can rapidly move to the next phase.

Deadline 24 November 2012, 23.59: *Requirements analysis and specification document (RASD)*. RASD contains description of the use scenarios, the use cases that describe them, and the models describing requirements and specification. You are asked to use a suitable mix of natural language,

UML and Alloy. UML and Alloy MUST be part of the documentation. You must also show that you used the Alloy tool for analysis, by reporting the models you obtained by using it. Of course, the initial written problem statement we provided suffers from the typical drawbacks of natural language descriptions: it is informal, incomplete, uses different terms for the same concepts, etc. You may choose to solve the incompleteness and ambiguity as you wish, but be careful to clearly document the choices you make.

Deadline 22 December 2012, 23.59: *Design document (DD)*. DD must contain a functional description of the system, and any other view you find useful to provide. You should use all the UML diagrams you need to provide a full description of the system. Alloy may also be useful.

Deadline 26 January 2013, 23.59. *Implementation*. You should provide an implementation for the requirements you specified in the RASD, following the design you specified in the DD. You are requested to release source code and executables, installation and use manuals, system test cases.

Deadline 2 February 2013, 23.59. *Testing*. You will define acceptance test cases and report on the execution of tests for the system developed by a different group. We will do the assignments. In this case you will act as a quality assurance group.

Rules

The project should be developed by groups of 1, 2 or 3 persons (two persons is the suggested size).
- **Groups composed of one person** will skip points 5 and 6 concerning registered users and the functions offered to administrators (thus, the abilities will be predefined).
- **Groups composed of two persons** will develop the entire set of functions described above.
- **Groups composed of three persons** will extend the mechanisms for establishing friendships as follows: Through the search function a user can look for friends by specifying their names and ask them to establish a connection. When a connection between two users, A and B, is established, the system suggests to both of them a new set of contacts derived from the contacts of the newly acquired friend. If A agrees to request a friendship to C (who is friend of B), then the system forwards the request to C as usual. If C accepts, being C an indirect friend of A, the system does not reveal to A the list of C's friends (and vice versa).
- **Telecom students**: Students enrolled in "corso di laurea in Ingegneria delle Telecomunicazioni" will develop a more extensive testing activity instead of implementing the solution using JEE. These students could possibly join computer science students in their groups. A group with a telecom student should carry out the implementation part as if it was composed of a number of students not comprising the telecom student. For instance a group of three people with a telecom student should carry out the implementation mandated for a group of two.
- Each group must provide the requested artifacts within the stated deadlines. It is mandatory to provide these artifacts and to present them to the reference professor in a final meeting that will be scheduled on the web.
- The material presented in one artifact is not fixed in stone. You can provide updates as part of the following deliverables. For instance, if you realize that you need to modify the RASD document and you are in the implementation phase, you can include in your implementation deliverable a short document explaining the changes that you need to introduce in the RASD.

For any question related to the project that could be interesting also for the other groups please use the forum available on the course website. We will answer as promptly as possible.