TravelDream

1 Problem description

The TravelDream company is selling travel packages and is asking you to develop an e-commerce system to support its sale process. The users of this system are:

- The TravelDream employees: they add/delete/modify the basic products that can compose a travel. For the moment the company is offering as basic products only flights, hotels, and pre-planned excursions but in the future it plans to include also other transportation means (e.g., trains, car rental, …). Moreover, they create predefined travel packages to be sold to customers.

- The TravelDream customers: after registering with the system, they can browse and search through the travel packages, select one of them, and personalize it; for instance, adding the departure and return date and modifying hotels and pre-planned excursions. Moreover, customers can let their friends access the travel package they are personalizing. They do so by sending, through an external system (e.g., email), their travel package identifier to their friends. Finally, they can confirm the travel.

- The TravelDream customers' friends: they can be invited to see a travel package and can decide to join this. In this case, they have to register with the system thus becoming customers themselves.

The system should support all actions the three actors above should perform, except the action of sending the travel package identifiers to the friends.

2 Your task

You must develop the system using the JEE platform. In particular, you will use 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. During the development you should fulfill the deadlines indicated in Section 3 and should abide by the rules described in Section 4.

3 Steps and deadlines

The steps you must proceed through and the milestones for your development process are the following:

Deadline 1 November 2013, 23.59: *Group registration*. You should form your group and register it by strictly following the directions that will be published on the course website and will be presented during the project lab of October 24th. You will start keeping track of the number of hours each group member works toward the fulfillment of each deadline.

Deadline 29 November 2013, 23.59: *Requirements analysis and specification document (RASD)*. The RASD contains the description of the scenarios, the use cases that describe them, and the models describing requirements and specification. You are 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 provided above 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. You will also include in the document information on the number of hours each group member has worked towards the fulfillment of this deadline.

Deadline 20 December 2013, 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. You will also include in the document information on the number of hours each group member has worked towards the fulfillment of this deadline.

Deadline 31 January 2014, 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 executable, installation and use manuals, system test cases. You will also include in the release a document containing information on the number of hours each group member has worked towards the fulfillment of this deadline.

Deadline 7 February 2014, 23.59. *Acceptance 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. You will also include in the document information on the number of hours each group member has worked towards the fulfillment of this deadline.

Deadline 11 February 2014, 23.59. *Project reporting*. You will apply the Function Point approach to your project and check if the results you get are similar to the actual size of your project. Moreover, you will use the project's actual size to apply the formulas from COCOMO and compare the resulting effort with the one you have actually spent. The project reporting document will contain the results of this analysis.

Date to be defined. *Final presentation*. You will have to present your project providing an overview on your requirement and design decisions, a demo of the system, describe your code and test cases and present the results of the acceptance testing you have performed. Overall, groups of two students will have 30 minutes, groups of three students will have 40 minutes, while single students will have 20 minutes.

1. 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 all functions associated to the customer's friends.
- **Groups composed of two persons** will develop the entire set of functions described above.
- **Groups composed of three persons** will extend the system by adding: i) a mechanism that checks the consistency of all products being part of a travel (e.g., a hotel reservation period in a certain place should be included between the arrival and the departure date from that place); ii) the possibility for a customer to build a gift list from the travel components and to have friends buying for him/her travel components from the list (you are not required to implement the

payment process).

- **Telecom students**: Students enrolled in "corso di laurea in Ingegneria delle Telecomunicazioni" and with limited experience in programming 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 featuring a telecom student should do 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 featuring a telecom student should do the implementation part 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 kinds of changes that you need to introduce in the RASD, and update the RASD accordingly by including, at the end of the new version, a short summary of changes.

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.