PROJECT

You are required to automate the information system for a tourism complex or campsite. The main functionality that it must support is that of managing reservations for the accommodation available at a tourism complex or *campsite*. The general requirements of the problem are the following:

1. **The complex has two types of accommodation: pitches and *cabins*. All types of accommodation at the complex have a unique identifier (P# or C#, depending on whether they represent a pitch or a *cabin*, respectively). For each type of accommodation, it is necessary to register its price per night, the maximum number of people that can occupy the accommodation and the area on the campsite in which it is located (0-"area near the sinks and toilets", 1 -"area near the swimming pool" and 2 - "quiet area"). With regard to the pitches, it is necessary to know whether they are suitable for campervans and whether or not they have barbecues for individual use. In the case of the *cabins*, it is necessary to know the number of bedrooms and whether they are within the *wi-fi* zone of the complex. All the *cabins* on the campsite have barbecues for individual use.**
2. **It is necessary to be able to consult the availability of each of the pitches and cabins. The accommodation can be reserved for a specific number of days. Each reservation should include the identification number. In order to reserve we need the data of the person who made the reservation (ID number, name and credit card number) and the number of days for which the reservation has been made. There can be only one reservation for each accommodation, but each customer can reserve up to a maximum of 5 accommodation items. There is a special type of customer, denominated as a 'VIP Customer'. These customers have a VIP Customer card number, which should be stated when making the reservation.**
3. **The campsite has a discount policy that is applicable to customers. A discount of 5% on each new reservation made is applied to any customer who already has a reservation registered in the system. An additional discount of 10% is applied to VIP Customers.**
4. **The tourism complex publicises its accommodation by means of a Web operator/platform that obtains a certain percentage of the cost of total number of reservations made using the *online* reservation service.**
5. **The campsite is assisted by a Cleaning and Maintenance Company, which may change each year or whenever the campsite wishes to do so. This company is characterised by its name, the amount its charges to clean and prepare each cabin (wash the dishes, change the bed linen and towels…), and replace the materials required in order to be able to use the barbeques (charcoal, matches, firelighters…).**
6. The customer should be able to perform:
    a) **The customer must be able to see the information concerning all the accommodation items available on the campsite [*the student will be provided with a file containing the information regarding accommodation*].**
    b) **Let us suppose that the "Limpieza y Mantenimiento S.L." cleaning and maintenance company charges 15€ to clean each cabin. You must show how much it would cost to clean and prepare all the (unoccupied) cabins and to replace the materials required for the barbecues throughout the campsite, supposing an average cost of 2€ per barbecue.**
    c) **The customer must be able to reserve accommodation. [*If the customer is not already in the file that you have been given, you must request these data. It is NOT NECESSARY to add these data to the file*].**
    d) **The customer must be able to consult the cost of reserving a particular accommodation item for a specific number of days. You must calculate**

whether any discounts are applicable, and if so, the percentage that is applicable and the final cost of that reservation. [*It is necessary only to calculate and show on the screen the prices before and after the discount has been applied, along with the % that is applicable. You do not have to make the reservation*].

e) **You must show all the information regarding the reservations made by a particular customer.**

f) **If all the cabins that are free at a particular moment are reserved for a week by means of the *online* platform (which charges 5% of the total cost of the reservation), calculate how much money the Web operator will earn for carrying out this task**

g) **You must show the information regarding all the accommodation items with barbecues that have been reserved by a VIP Customer.**

7. All interactions with the system must be carried out using an options menu.

The initial information regarding the accommodation and customers should be obtained from the "Alojamientos.txt" and "Clientes.txt" files, which are available at the 'Campus Virtual'.

The program will be not case sensitive (difference between lower and upper case letters).

It is necessary to catch at least the **following exceptions**:

1. Whether or not the files exist.
2. Whether or not the option of the menu is in the range of valid options. If the submitted option is not within this range, the program will ask the user to enter another option without aborting the program.
3. Whether when awaiting numeric data, non-numeric data is introduced.
4. Those cases in which a customer has made more than 5 reservations.

SESSIONS AND MILESTONES

There will be three milestones::

- **First milestone: Week of the 28th of February.**
- **Second milestone: Week of the 21st of March.**
- **Third and final milestone: Submission on the 28th of April before 23:55. All of the practical work must function, including the exceptions.**

1st Session (Week of the 14th of February)

- Professor: general presentation of the practicals (evaluation, etc.). Mention the fact that it is necessary to read the information concerning the Customers and Accomodations in the files provided (available at the Campus Virtual). **In this session, remind the students how to read a sequential text file..**

- Students: Underline the candidate clases and discuss whether or not they can be the definitive classes.

2nd Session (Week of the 21 of February)

- Professor: Discuss the possible candidate classes with the students.

- Students: Create a UML diagram for each class, along with the relationships that exist among them (if they have already studied these relationships in theory classes). Bring the UML diagram to the next session (Milestone 1).

3rd Session (Week of the 28 of February). Evaluable. Attendance obligatory. Milestone 1.

- Professor: Review/Evaluation of UML diagram. Indicate any mistakes in the diagram.

- Students: Bring the corrected UML diagrams and the code for the "Cleaning and Maintenance Company" and "Web operator/platform" class to the next session.

4th Session (Week of the 7th of March)

- Professor: Review the classes implemented in the last session.
- Student: Bring the code for the Accomodation and Customer class to the next session.

5th Session (Week of the 14th of March)

- Professor: Review the Accomodation and Customer class.
- Student: Attempt to implement all the classes that are still missing, with the exception of the Campsite class and the Main class.

6th Session (Week of the 21 of March). Evaluable. Attendance obligatory. Milestone 2.

- Professor: Review the UML diagrams, the relationships among classes and whether the code implemented shows these relationships correctly.

- Student: Begin to implement the **Campsite** class. This class must have a dependency relationship with the "Cleaning and Maintenance Company" and with "Web operator/platform" class.

7th Session (Week of the 28th of March).

- Professor: Discuss the methods that the Campsite class should have.
- Student: Complete and improve the Campsite class and begin to implement the Main class.

8th Session (Week of the 4h of April)

- Professor: Discuss the methods that the Main class should have with your students
- Student: Complete and improve the Main class.

9th Session (Week of the 18th of April)

- Professor: Discuss the methods that the Main class should have with your students.
- Student: Complete and improve the Main class and begin to add code in order to control the exceptions.

10th Session (Week of the 265h of April)

- Resolve any doubts and finish implementing what is left. We recommend the use of an interface for the constants (e.g., for the percentages that must be applied to the discounts).

11th Session (Week of the 2nd of May). Evaluable. Attendance obligatory. Milestone 3 (Final practical Project). Defence of practical work in the laboratory for those who have time. For those who do not, this will take place in tutorials with the professor.

Submission on the 28th of April before 23:55 (upload to Campus Virtual):

In order to pass each activity (memory and code), **it is obligatory to both defend it**. The defence will take place on the date indicated, and **both members of the pair must attend**. If one of them is not present, the practical work will be marked as a fail. The source code of the programme that is uploaded to Campus Virtual must function without errors and provide the correct results. If not, the practical work will be condidered as a fail.

Assessment of the project

The grade of this part is 25% of the final grade of the subject.

Documentation of the project

The activity called "Documentation of the project" refers to the documentation of the Project, and its grade is 15% of the final grade of the subject. This documentation must be

submitted on the same date as the final project in pdf format.

Documentation to be delivered via Campus Virtual. Delivery rules

a) Code of the program corresponding to the activity called "Assessment of the project".
b) Documentation of the Project corresponding to the activity called "Documentation of the project". This documentation must contain a **title page with the names of the members of the team, an index with the pages corresponding to the different sections, the analysis of the requirements, the design, including the UML diagrams and the user manual. The percentage carried out by each student. The documentation will be formatted as a pdf file.**

A compressed file will be upload with the following format:

G2_FirstSurname1FirstSurname2.zip

which will contain:

1. The .java files of all the classes of the program (**do not include folders**). The classes containing the main method will be named:

   G2_FirstSurname1FirstSurname2.java

2. The **pdf file** including the documentation will be named:

   G2_FirstSurname1FirstSurname2.pdf

General issues

- The practical activities will be carried out in pairs, **but the final grade will be individual.**
- The correct performance of the final project will be the minimum requirement to pass this activity, but other factors such as efficiency, quality of the design, use of comments (internal documentation),etc., will also be taken into account to grade the project.
- The project is compulsory, and it is necessary to obtain at least 4 points (out of 10) to pass the subject.
- The documentation of the project is not compulsory. The grade obtained will be maintained for the extraordinary examination.

Re-sit of Practical Exam: EXTRAORDINARY EVALUATION

The closing date for submission will be the **27th of June at 23:55**, although we recommend that the work be submitted before that date. Your professor will then decide when you will then be able to sit the practical exam, which will take place during office hours.

In this call, the submission and correction of the practical work will take place **on an individual basis**, regardless of the fact that this took place in pairs in the ordinary call.

In this call, the students must do the following:

- Correct all the errors detected in the ordinary call.
- The application permits the inclusion of new customers, who must be included in the file: "Clientes.txt".

- Employ an exception in order to control and capture that the new customer's ID number introduced is composed of 8 numbers and one letter.

Provide two new consultations with support:

- Show information regarding the pitches that have parking space for a campervan.
- Consult the number of reservations that house a specific customer in the area near the swimming pool.