**TO DO LIST**

* Scenario 1 da modificare, Luca torna da lezione, non sta andando (secondo me si può anche lasciare così by Gabri)
* Aggiungere scenari:
  + in cui si specifica una posizione diversa da quella attuale dell’utente,
  + uno dove viene specificata operazione di unlock,
  + scenario intervento cars hub controller

**ANGELO**

* Intro (?)
* Mock up

**GABRIELE**

* UML (use cases study + sequence (+ activity e statechart se serve), class diagram)

**MARCO**

* Alloy

La parte in cui vengono spiegati a grandi linee I’implementazione hardware e software penso si possa lasciare a dopo che avremo fatto il design document

**ASSUMPTION**

**ASSUMPTION: sconti applicati tutti insieme, (MAX= 10+20+30=60%)**

**ASSUMPTION: car with less than 20% battery life remaining are considered unavailable**

ASSUMPTION: auto non si spegne se non è in una safe area (o continua a addebitare anche se spenta, se fuori da safe area?)

**ASSUMPTION: Special parkin areas with power grid are a subset of the predefined set of the safe areas**

**ASSUMPTION: casi C (macchina messa in carica dopo uso) e D (macchina lasciata con meno del 20% di batteria) si compensano, no charges né discount di 30%**

ASSUMPTION: The car lock occours after 60 seconds the car was parked in a safe area (this include that the users exit the car and closed the car doors). After this time, the system calculate the total amount to pay. To obtain the 30% discount, the user has to plug the car into the power grid within this time

DOMAIN PROPERTIES: There is a CAR HUB CONTROLLER which monitor the status of every car and dispatch the “in place recharge” if a car is left with less than 20% battery life remaining and it isn’t connected to a power grid

🡪UNLOCK? **Utente localizzato vicino alla macchina (100m) fa richiesta di unlock**

🡪INCIDENTI? assicurazione casco, user non subisce rincari (troppo difficile capire se è colpa sua o meno), auto capace di rilevare incidente e avvisa cars hub controller. Servirebbe scenario apposta e modifica use case...

🡪PROBLEMI PAGAMENTI? **ASSUMPTION: The only payment methods accepted are credit card (payment guaranteed by the bank)**

🡪CANCELLAZIONE RESERVATION? Se vogliamo permetterla, aggiunta use case e scenario

**SCENARI**

Scenario 1

Title: Deal with the strike

Luca should go to class this afternoon, but unfortunately, today there is a strike of transport. His university is on the opposite part of the city, so he decides to try the new car-sharing service “PowerEnJoy”. Since it’s the first time he tries the service, first he should download the app and register to the system; after filling in his own personal data, including the payment information, he clicks on the submit button and, after a few seconds, he receives a message with his password. Now he can start looking for a car near to him.

Scenario 2

Title: Friends in saving

Marco, an expert user of “PowerEnJoy”, has gone to see a concert with his roommates Mario and Matteo, and now they want to come back home. Due to the late hour, the public transportation is no more available and, as the evening was rather expensive, they aim to spend as little as possible. Marco decides to use the “PowerEnJoy” service and, after he found and reserved a car near to them, he checks the “Money saving” option. When they get into the car, they set up their destination and the system calculates the most convenient place to leave the car. When they arrive at their destination, they will have to walk a bit, but they will have saved a lot.

Scenario 3

Title: A busy businessman

William is a businessman always in a hurry; he has just arrived to his office, but he already knows that, as soon as he will finish the morning’s meeting, he will have to go to the opposite part of the city for urgent commitments. William saw a “PowerEnJoy” car parked at a few meters from his office, so he thinks that he can save time using the car-sharing service instead of wait for a taxi after the meeting. William then register quickly to the service without paying much attention to all warnings and book the car.

Unfortunately the meeting dwells and William’s reservation expires and the system charges him 1€; when he leaves the office, he cannot get in the car because it was booked by another user, forcing William to call a taxi.

Scenario 4

Title: Desperate housewife

Laura went to the grocery store on foot, but when she exits the supermarket she realizes that it starts raining; she notices a “PowerEnJoy” car parked and, since his son has already registered her to the service to encourage her to use it, she decides to book the car to come back home without getting wet.

Once she arrives at destination, the car is low, but Laura’s first problem is to not get wet, so she looks for a park as close as possible to her house, and she doesn’t mind the warning concerning the fact she will pay more if she won’t leave the car in a recharge park.

Scenario 4 (FIXARE L’INGLESE)

Title: A Long Road

Yuri recently moved to a new built house so he needs some furnitures.

The only store near his house is an Ikea so he decides to go there. Having in mind to buy some initial stuff like pillow and sheets, he knows that he won’t use the *Home Delivery*, as it would turn out in an extremely high fee for such small items.

He thinks then to use a “PowerEnjoy”’s car.

After registering on the app, he adds his license and ID, his data and his credit card infos.

He finds out that there’s a car near his house, so he goes there, obtains the Unlock QR code, and starts driving.

After parking, he decides to use the “*I need more time*” feature, booking the car for 5 additional hours, paying the extra fees in advance.

**GOALS**

G1: Ensure system’s accessibility

Requests:

* The system must prevent guests from accessing any service before being registered or logged in
* The system must recognize already registered user
* The system must allow new user’s registration
* The system must allow user’s login
* The system must check data correctness (including payment method validity)
* If user is new and data are correct, system must provide a password to the user

G2: Cars hub controller must be able to check each car’s status

Requests:

* The system must be able to show each car’s remaining power
* The system must be able to show each car’s position
* The system must be able to show if a car is in use
* The system must be able to show if a car is reserved
* The system must be able to show each car’s “availability state”
* The system must be always able to communicate with each car

G3: Cars hub controller must know which cars need “in place recharge”

Requests:

* The system must notify the cars hub controller if a car is left with less than 20% of the battery and is not plugged into a power grid

G4: Guarantee the correctness of each car’s “availability state”

Requests:

* The system must consider a car “unavailable” if it has low battery (<20%)
* The system must consider a car “unavailable” if it has already been reserved by a user
* The system must consider a car “available” in any other case
* The system must consider a reservation expired after 60 minutes if the car reserved isn’t used
* The system must consider a reservation expired as soon as the car reserved is parked in a safe area and the user exits the car

G5: Allow user to find available cars within a certain distance from a specified place

Requests:

* The system must be able to detect the user’s location according to the user’s device’s GPS.
* The system must be able to detect cars’ location according to the cars’ GPS.
* The system must be able to detect a specific location according to the address provided by the user
* The system must be able to determinate the distance between available cars and the indicated position
* The system must show to the user the position, on the app’s map, of the available cars that are within 500 meters from the indicated position

G6: Allow user to reserve a single car

Requests:

* The system must allow the user to select a car among the ones that are showed after the search
* The system must allow the user to click the “reserve” button after he has selected a car
* The system must not allow reservation if no car has been selected first
* The system must prevent a user to reserve more than one car at a time

G7: Discourage fake and unnecessary long reservation

Requests:

* The system must notify the user about the fee he will pay if he won’t use the car that he is reserving within 60 minutes
* The system must emit a payment request of 1 € to the credit card of the user who has reserved a car and did not use it within 60 minutes

G8: Allow user to access his reserved car

Requests:

* The system must be able to check the position of the user
* The system must allow the user to click the “unlock” button after he has reserved a car
* The system must not accept request of unlock if the user is more than 100 meters away from the car
* The system must unlock the car when he receives the unlock request from the user
* The system must relock the car if no user enters the car within 60 seconds from the unlock request
* The system must not accept request of unlock if less than 60 seconds are elapsed since the last unlock request for that car

G9: Guarantee the correctness of the cost calculated for a trip

Requests:

* The system must be able to check when the car’s engine ignites
* The system must start count the minutes of car’s usage as soon as the engine ignites
* The system must switch off the car’s engine when the car is parked in a safe area and all the users have exited the car
* The system must stop count the minutes of car’s usage as soon as the car’s engine have stopped
* The system must calculate the cost of the trip based on the minutes of car’s usage

**Conteggio lavoro:**

GABRIELE MARCO

22/10/16: 1h

23/10/16: 2h 23/10/16: 1.3h (thinking about Scenarios/goal/use cases and commenting on Gabriele’s one)

24/10/16: 30m 24/10/16: 30m (sharing ideas)

26/10/16: 3h

29/10/16: 2h (mixed things)

**Note da cancellare:**

While formulating that requirement we had in mind the following situation:   
Our main objective is that cars are used as much as possible by our customers. The more they use them the more we earn.   
If the car is left even a few meters from the power station but with the battery almost empty, the probability that a user will take it will be low as the car would not be in the condition of working for more than a few meters. I don't know how many meters/kms the car will do in this case, but we can imagine that in any case the user will not trust a car in such condition. This implies that the car will be unusable (or almost unusable) and we will have to ask an operator to go and to attach it to the power station. For this reason we thought that this is an undesirable situation. We would like to encourage "self-service" behaviors as this way we limit intervention by the operators of our service.    
The case in which the car is far away from the station but with a reasonable level of battery is instead less critical as users in that area will still be able to use it.   
As it happens in the reality, your question has triggered an answer that will allow you to better understand the general goals of our system and the specific requirement we are talking about. At this point, you can also come back to your customer (Luca and I in this case) and negotiate with us a new formulation of the requirement that makes more sense than the original one.   
Thank you for your question! We are looking forward to hear more of these during the lab session tomorrow and of course also in the forum

2)

Good question, thank you.  
  
What do you think would make your customer satisfied of your work?  
Your system needs to have some operators otherwise your cars will soon remain far away and with no battery. You need at least to reason on this and then make a decision on what you want to assume (interfaces for operators could be within the boundaries of your software to be or they could be pre-existing ones, and in this case you will need to understand how to interface with them...)  
  
You are focusing on defining the boundaries of your system. As we have discussed in class, such boundaries are not always obvious. We must not forget to identify and define them explicitly. Also, we have to consider the fact that this need often is not considered by our customer (as in our example).  
  
Cheers  
E

3)

Emanuele, it appears there are mixed concerns in your message.  
  
One issue is what happens when a user, for whatever reason, cannot complete a payment. Note that the project description generally talks about "payment information", not about (rechargeable) credit cards. Have you negotiated with your customer that payments are only going to use this means? emoticon In any case, it is your job to come up with a reasonable set of assumptions on how payments take place, and thus on the chances that a payment cannot complete, if at all.  
  
The other issue is what to do with users unable to complete a payment sometime in the past. Preventing them from using the service for a given amount of time looks like a reasonable option to me, as long as this remains consistent with the assumptions you make to address the first issue.  
  
More than the specific details, I think this is a case that shows how fundamental it is to separate out different concerns and to capture their relationships. If you don't separate them out, it is going to be much more difficult to reason on them.  
  
Did anyone else reason on the same or similar issues? You're welcome to post a message describing how you tackled them.   
  
Take care,    
  Luca

4)

Hi Giovanni,  the project description reads like this:  
  
- The system stops charging the user as soon as the car is parked in a safe area and the user exits the car; at this point, the system locks the car automatically  
- The set of safe areas for parking cars is pre-defined by the management system.  
  
Today we had some discussions about the fact that the project description talks about "safe" area but doesn't really define what "safe" means.  
  
I guess this is simply a case where the project description lends itself to many different interpretations. For example, some people in our class wondered whether "safe" corresponds to "legal", that is, it is an area where you are not going to get a fine. Other people assumed that "safe" here means it is an area somehow owned by the car sharing company and reserved only for their cars. We ended up debating whether it makes sense to flesh out this notion and to use different corresponding terms. You would then have "legal" parking areas, "private" parking areas, ...  
  
It would be up to you to explore this to a level of detail that you think is reasonable. Be careful not to over-do things. There is no such a thing as a "right" or "wrong" solution here. What we are interested in is how you've been reasoning to resolve this ambiguity and whether you've resolved it consistently with the rest of the requirement analysis.   
  
Take care,  
 Luca

My message is crossing with Luca's one. In addition to what he wrote, let me comment con the specific point you are considering.  
  
In this specific case, the document you have got from your customer says: "The set of safe areas for parking cars is pre-defined by the management system". So, it seems that your customer has clear ideas of what a safe area is and you can make the assumption that at start-up time your system will be inizialized with such a set of safe areas. Since the text is talking about "set" of areas, we can imagine that it will be composed by a number of elements, not only one as you are assuming when you consider the whole city as a safe area (of course, we can have sets composed of a single element or not elements at all, but we neeed to be able to handle also the general case). What you have to understand is how your customer is providing information about these areas. He/she could provide you with an address that corresponds to the area or with a set of coordinates... From our perspective, you are free to make your choice here and motivate and document it in the RASD  
  
Cheers  
E

5)

|  |  |
| --- | --- |
| Dear Sir, We have some questions about the project.   1. We decided that the users do the payment in the end of the ride. We consider the case that the user does not have enough money in the credit card when the system gets the money and we want to assume that the users always have enough money in their credit card. Is it a reasonable assumption ? 2.We are going to follow the template provided in the slides and we realised that there is no scenarios mentioned in that template. So is it still necessary to add the scenarios in the document ? 3.In the assignment pdf, there is no specific information whether the digital management system provides mobile application or web application or both. Can we decide on this ? 4.While specifying the goals, we want to provide features like logging out and updating user profile to the system users. Is it reasonable? 5.And finally, we thought that we can define the certain distance particularly. Is it also acceptable?  Thanks in advance. | |
| [[https://beep.metid.polimi.it/beepoli-theme/images/ratings/flagged_icon.png](javascript:;) Segnalazione](javascript:;)   * [Torna su](https://beep.metid.polimi.it/web/121843524/forum/-/message_boards/message/123786825?&#_19_message_0) | |
| [LUCA MOTTOLA**LUCA MOTTOLA**](https://beep.metid.polimi.it/c/my_sites/view?groupId=4300250&privateLayout=0)  Messaggi: 15  [Messaggi recenti](https://beep.metid.polimi.it/web/121843524/forum/-/message_boards/recent-posts?_19_groupThreadsUserId=4300248&#p_19) | [**RE: Doubts about the project**](https://beep.metid.polimi.it/web/121843524/forum/-/message_boards/message/123786825?&#_19_message_123787977)  27/10/16 18.12 come risposta a DEMET SUDE SAPLIK.   * [[https://beep.metid.polimi.it/beepoli-theme/images/spacer.png](https://beep.metid.polimi.it/web/121843524/forum?p_p_id=19&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_count=1&_19_struts_action=/message_boards/edit_message&_19_redirect=https://beep.metid.polimi.it/web/121843524/forum/-/message_boards/message/123786825?%26#p_19&_19_mbCategoryId=122435780&_19_threadId=123786826&_19_parentMessageId=123787977&#p_19) Rispondi](https://beep.metid.polimi.it/web/121843524/forum?p_p_id=19&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_count=1&_19_struts_action=%2Fmessage_boards%2Fedit_message&_19_redirect=https%3A%2F%2Fbeep.metid.polimi.it%2Fweb%2F121843524%2Fforum%2F-%2Fmessage_boards%2Fmessage%2F123786825%3F%26%23p_19&_19_mbCategoryId=122435780&_19_threadId=123786826&_19_parentMessageId=123787977&#p_19) * [[https://beep.metid.polimi.it/beepoli-theme/images/spacer.png](https://beep.metid.polimi.it/web/121843524/forum?p_p_id=19&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_count=1&_19_struts_action=/message_boards/edit_message&_19_redirect=https://beep.metid.polimi.it/web/121843524/forum/-/message_boards/message/123786825?%26#p_19&_19_mbCategoryId=122435780&_19_threadId=123786826&_19_parentMessageId=123787977&_19_quote=true&#p_19) Rispondi con Citazione](https://beep.metid.polimi.it/web/121843524/forum?p_p_id=19&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_count=1&_19_struts_action=%2Fmessage_boards%2Fedit_message&_19_redirect=https%3A%2F%2Fbeep.metid.polimi.it%2Fweb%2F121843524%2Fforum%2F-%2Fmessage_boards%2Fmessage%2F123786825%3F%26%23p_19&_19_mbCategoryId=122435780&_19_threadId=123786826&_19_parentMessageId=123787977&_19_quote=true&#p_19)   Demet,  see next for some answers:  1. Ask yourself how realistic is your assumption. Is this what happens in real life?  2. As mentioned during the lectures, there is no structure to follow mandatorily. The document structures we have shown represent examples and guidelines. If you think adding scenarios is important, feel free to do so. If you decide not do so, you need to have a good reason for that and explain it in the document.  3. Ask yourself whether this aspect is important and/or relevant. Keep in mind we are at the stage of **requirement** analysis.   4. Here you are free to choose yourself... Again, it may be just something that the customer took for granted and so it's not explicit in the project description.  Could you elaborate on question 5? I'm not sure I understood...  Plus, let me make a general consideration. We already mentioned that making assumptions to clarify ambiguities in the project description is ok as long as you can provide a reasonable motivation. However, you also need to pay attention that your assumptions are not going to over-simplify or trivialize the problem. Finding the right balance is not trivial... emoticon   Luca |
|  |

6)

**This looks like what we called "the IKEA scenario" during the discussion in class. A user rents a car, drives to IKEA far from the city center, and wants to keep the car also while shopping to get the furniture back home.  
  
It is entirely up to you to decide if and how to support this, even if it's not explicitly listed in the project description. The important bit is to ensure that whatever decision you take here does not impact any of the functionality the customer is explicitly asking for, which are listed in the document. The risk of introducing inconsistencies is always there.**

7)