* *USE CASE : Register Account.*

***Id****: UC1 (Use Case 1)*

***Description***

***Visitor*** wants to create an account for the Car-Sharing Service.

***Actors***

***Visitor.***

***Entry Conditions***

The ***Visitor*** *connects to the* ***Company’s Car Sharing*** *Web Site/ Application and selects the function “Sign Up”.*

**Flow of events**

1. *The* ***System*** *returns a form to enter all the required data: Name, Surname, Birth date, Social Security Number, ID Card Number, Driving License number and Credit Card number. It also asks for an Email address and a password which will be used for the future logins.*
2. The ***Visitor*** *fill the forms with all the required information.*
3. *The* ***System*** *stores the request together with all the data provided with it, generates a random activation URL and asks the* ***Mail System*** *to forward this URL to the email address of the* ***Visitor****.*

***Exit Condition***

The ***Mail System*** *sends the activation URL to the* ***Visitor’s*** *email provided in the registration form.*

***Alternative flow of events***

* *The* ***System*** *recognizes invalid or missing data in the form compiled by the* ***Visitor*** *and informs him of the error. The flow of events restarts from point 1.*
* *The* ***Visitor*** *inserts in the form a Social Security Number, or ID Card Number, or Driving License number, or Email Address, which is already present in the* ***System.*** *The* ***System*** *shows an error message saying that some of those credentials were already been inserted into the* ***System*** for another account***.*** *The flow of events restarts from point 1.*
* *USE CASE : Activate Account.*

**Id**: UC2

**Description**

The ***Visitor*** wants to activate hiss account.

**Actors**

***Visitor.***

**Entry Conditions**

The ***Visitor*** has received the activation URL on his mail box.

The ***Visitor*** clicks on the received activation URL.

**Flow of events**

1. The ***System*** acknowledges that the ***Visitor*** has arrived in his activation Web Page and activates his account.

**Exit Condition**

The ***Visitor*** is now become the ***User*** which can access the ***System*** using the credentials (Email, password) he provided during the registration phase.

* *USE CASE : Log in*

**Id**: UC3

**Description**

The ***User*** wants to log in the System.

**Actors**

***User.***

**Entry Conditions**

The ***User*** *connects to the* ***Company’s Car Sharing*** *Web Site/Application and selects the function “Login”.*

**Flow of events**

1. The ***System*** shows the ***User*** a login form, asking him to insert his account Email and password.
2. The ***User*** inserts the pair (Email, Password) used during the registration phase and selects the function “Log me in”.

**Exit Condition**

The ***System*** verifies the existence of an account associated with that pair (Email, Password) and logs the ***User*** in; the ***User*** has now access to the System functionalities.

**Alternative Flow of Events:**

The ***System*** doesn’t find an account associated with that pair (Email, Password) and sh

ows an error message, the flow of events starts from point 1.

* *USE CASE : Log out*

**Id**: UC4

**Description**

The ***User*** which is logged in the ***System*** wants to exit.

**Actors**

***User***

**Entry Conditions**  
The ***User*** *is logged in the* ***System*** *and selects the “Logout” function on the* ***Company’s Car Sharing*** *Web Site/Application.*

**Flow of events**

1. The System performs the ***User***’s logout.

**Exit Condition**

The ***System*** shows the confirmation of the logout to the ***User***; the ***User*** is now not able to use the ***System*** functionalities anymore (unless he logs in).

* *USE CASE : Locate available car.*

**Id**: UC5

**Description**

The ***User*** wants to locate a **Car**.

**Actors**

***User*.**

**Entry Condition**

The ***User*** must be logged into the ***System*** and select “Locate Cars” function in ***Company’s Car Sharing*** *Web Site/Application.*

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**Flow of events**

* The ***System*** shows a text box asking the ***User*** to provide an address near which he would like to see the available **C*ars***.
* The ***User*** inserts the desired address and selects the “Locate” function.

**Exit Condition**

The ***System*** shows to the ***User*** all the **Cars**, whose state is **Available,** which are inside a certain distance range from the given address.

**Alternative flow of events**

* The ***User*** selects the function “Near me” instead of inserting a specific address.

The ***System*** retrieves the ***User***’s GPS coordinates.

The ***System*** shows to the ***User*** all the **Cars**, whose state is **Available,** which are inside a certain distance range from the ***User’***s position.

* The ***System*** does not find the inserted address and informs the ***User.***

The Flow of Events starts from point 1.

* There are no available **Cars** in the specified address/***User’***s Position.

The System informs the **User.**

The Flow of Events start from point 1.

* *USE CASE : Reserve available car.*

**Id**: UC6

Description

The ***User*** wants to reserve a ***Car.***

Actors

***User***

**Entry Condition**

The ***User*** chooses a specific ***Car*** between the available ones showed in the map.

Flow of events

1. ***User*** selects the function “Reserve this Car”.
2. The ***System*** stores the ***Reservation*** of the ***Car*,** changing the ***Car*** status in *Reserved***.**

Exit Condition

The ***System*** activates a countdown of 1 hour during which the ***User*** will have the possibility to unlock the reserved ***Car.***

* *USE CASE : Reservation Expiration.*

***ID*** *: UC7*

*PARTECIPATING ACTORS :* ***User***

*ENTRY CONDITION :* The ***User*** *didn’t unlock the* **Car** *in the available 1-hour time slot after the reservation of the* ***Car****.*

*FLOW OF EVENTS :*

The 1 hour reservation countdown expires without having the ***User*** unlock the car.

The ***System*** cancels the reservation of the ***User*** on that car, making it available again;

*TERMINATION CONDITION :*

The ***System*** communicates to the ***Banking System*** the amount of money (corresponding to the fee of 1 EUR) to charge to the ***User***.

The ***System*** now allows the ***User*** to perform another reservation.

* *USE CASE : Unlock Car.*

*ID : UC8*

*PARTECIPATING ACTORS :* ***User***

*ENTRY CONDITION : The* ***User***  *has previously reserved a car and activates the function “Unlock Car” on the* ***Company’s Car Sharing*** *Web Site/Application.*

*FLOW OF EVENTS :*

The ***User*** sends his GPS coordinates to the ***System***;

The ***System*** checks if the GPS coordinates of the specific ***User*** ’s *Reserved* ***Car*** and the GPS coordinates of the ***User*** himself are in a specified distance range.

*ALTERNATIVE FLOW OF EVENTS :*

If one hour has passed since the reservation has been done and the ***User*** didn’t unlock the ***Car***, the reservation expires and the ***User*** cannot unlock the car anymore unless with another reservation. The ***System*** changes the ***Car*** status to Available.

*TERMINATION CONDITION :*

The ***System*** has verified that ***User*** is nearby the car (inside the specified distance range) and unlocks the ***Car*** doors. The ***System*** now changes the ***Car*** status to *In Use.*

(We take as an assumption that after the doors of the cars are unlocked the **User** always enters the car and ignites the engine.)

* *USE CASE : Drive Car.*

*ID : UC9*

PARTECIPATING ACTORS : ***User***

ENTRY CONDITION : The ***User*** starts the engine of the ***Car*.**

FLOW OF EVENTS :

The ***System***starts the Ride Timer which indicates the usage of the ***Car***.

The ***System*** calculates the current fee charged to the ***User*** (calculated as a given amount of money per minute multiplied by the minutes of the Ride Timer) while showing it on the on-board screen.

*TERMINATION CONDITION :*

The ***User*** ends the Ride.

* *USE CASE : Apply discount on the ride.*

*ID : UC10*

*PARTECIPATING ACTORS :* ***User***

*ENTRY CONDITION :* The***User*** parks the ***Car*** in one of the ***Charging Area***s designated by the ***System*** and plugs the car into the power grid within a (short) specified time period after the end of the ride.

FLOW OF EVENTS :

The ***System*** applies a discount of 30% on the fee of the last ***User*** ’s ride.

*TERMINATION CONDITION :*

The ***System*** communicates to the ***Banking System*** the amount of money, which corresponds to the 70% of the fee, to charge to the ***User***.

* *USE CASE : End ride.*

*Id : UC11*

*PARTECIPATING ACTORS :* ***User***

*ENTRY CONDITION :* The***User*** parks the ***Car*** in one of the ***Safe Area****s* and exits the car.

FLOW OF EVENTS :

The ***System*** verifies that no one is in the car.

The ***System*** stores the final amount of money corresponding to the ***User***’s fee.

*TERMINATION CONDITION :*

The ***System*** locks the doors of the ***Car.***

* *USE CASE : Apply over-tax on the ride.*

*Id : UC12*

*PARTECIPATING ACTORS :* ***User***

*ENTRY CONDITION :* The ***User*** has left the car at more than 3 KM from the nearest power grid station or with more than 80% of the battery empty.

FLOW OF EVENTS :

The ***System*** applies an **Over-tax** of 30% on the fee of the last ***User*** ’s ride.

*TERMINATION CONDITION :*

The ***System*** communicates to the ***Banking System*** the amount of money, which corresponds to the 130% of the fee, to charge to the ***User***.