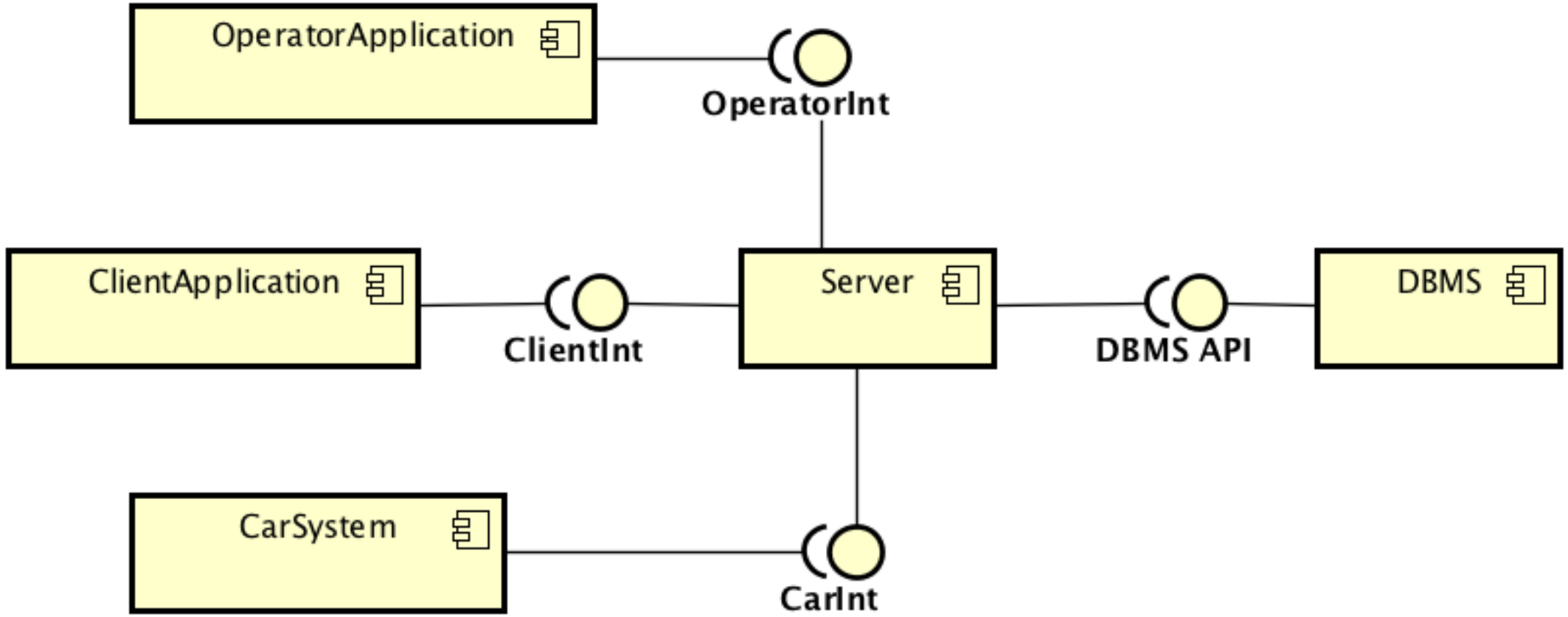
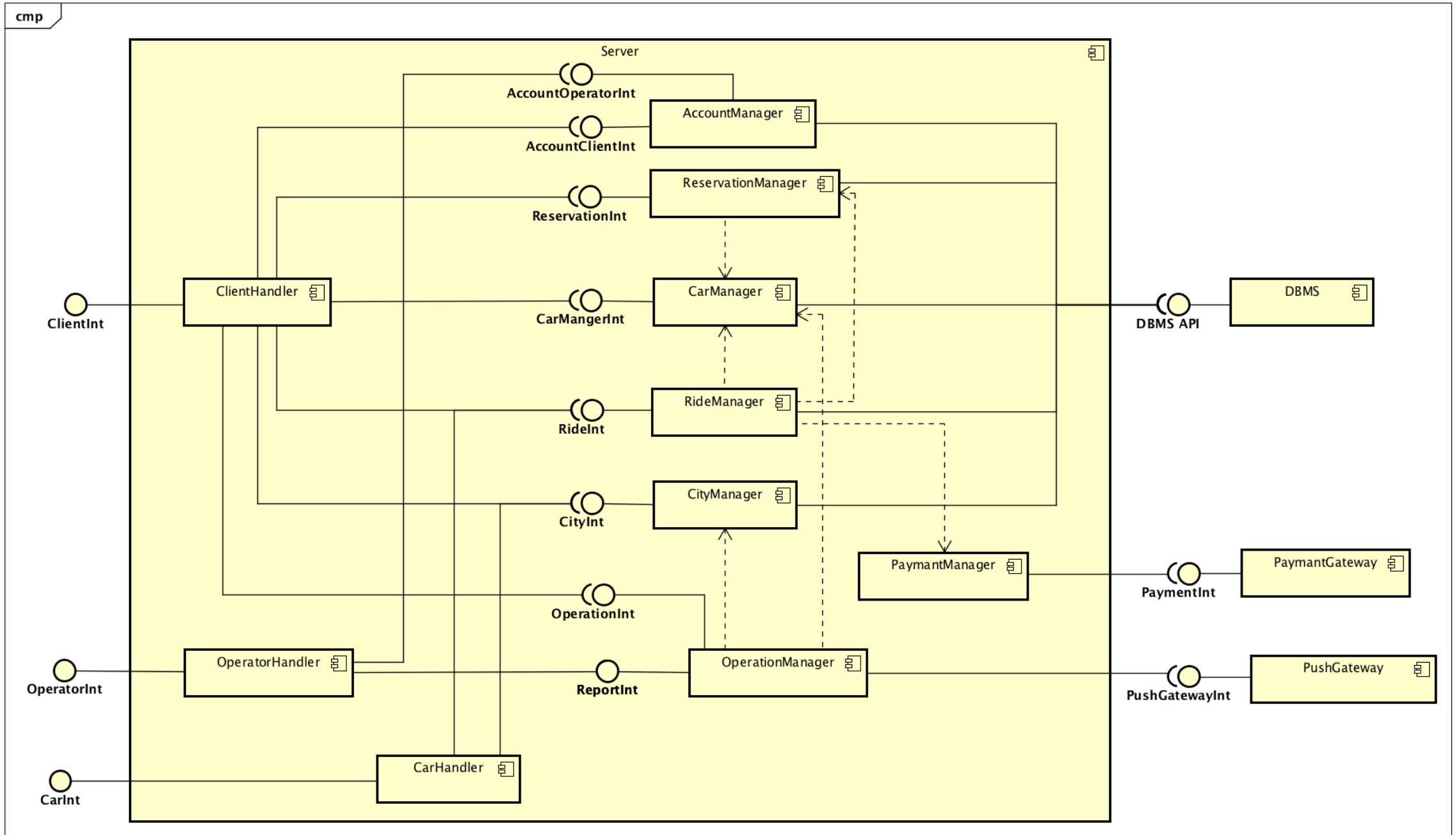
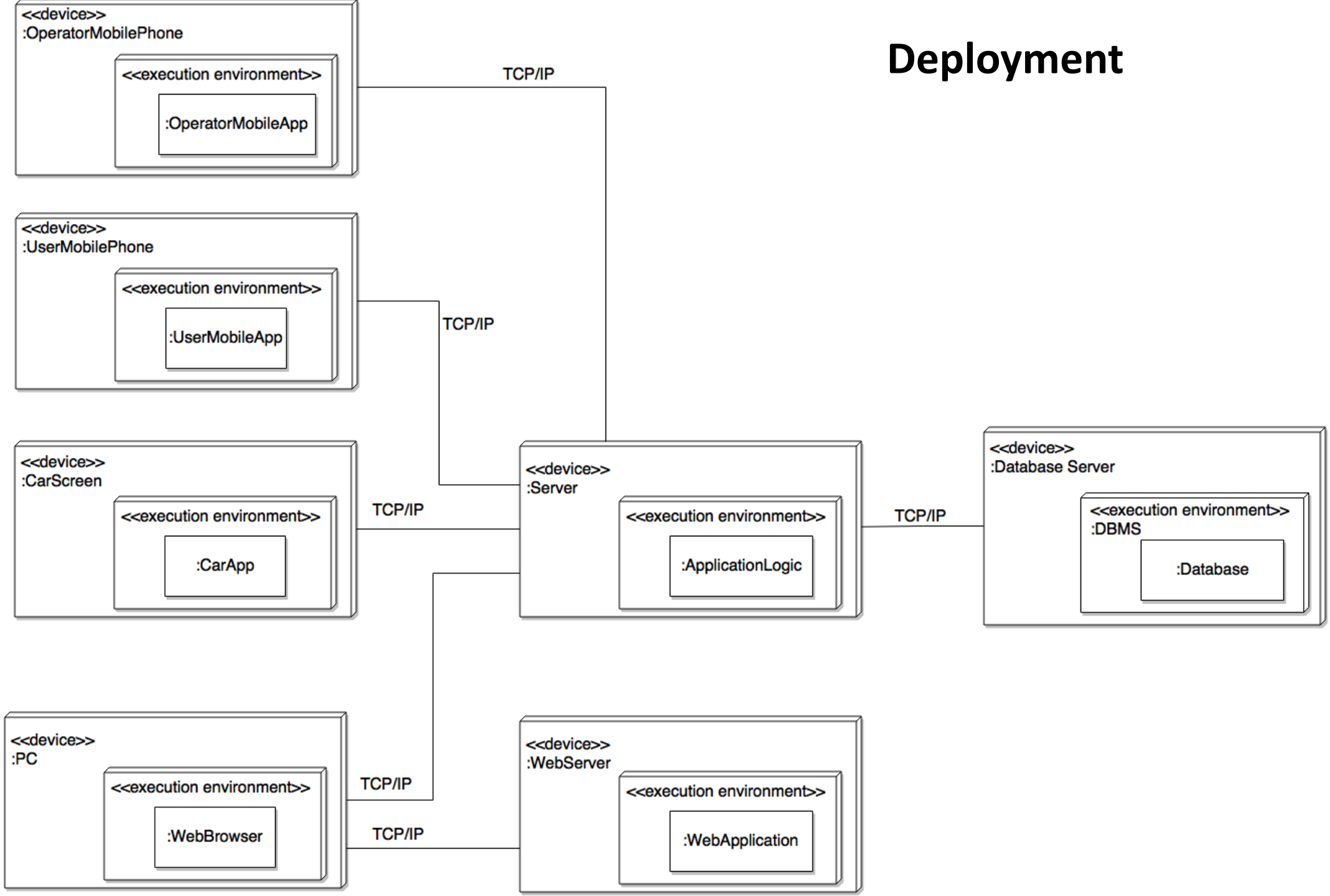
High level components and their interaction



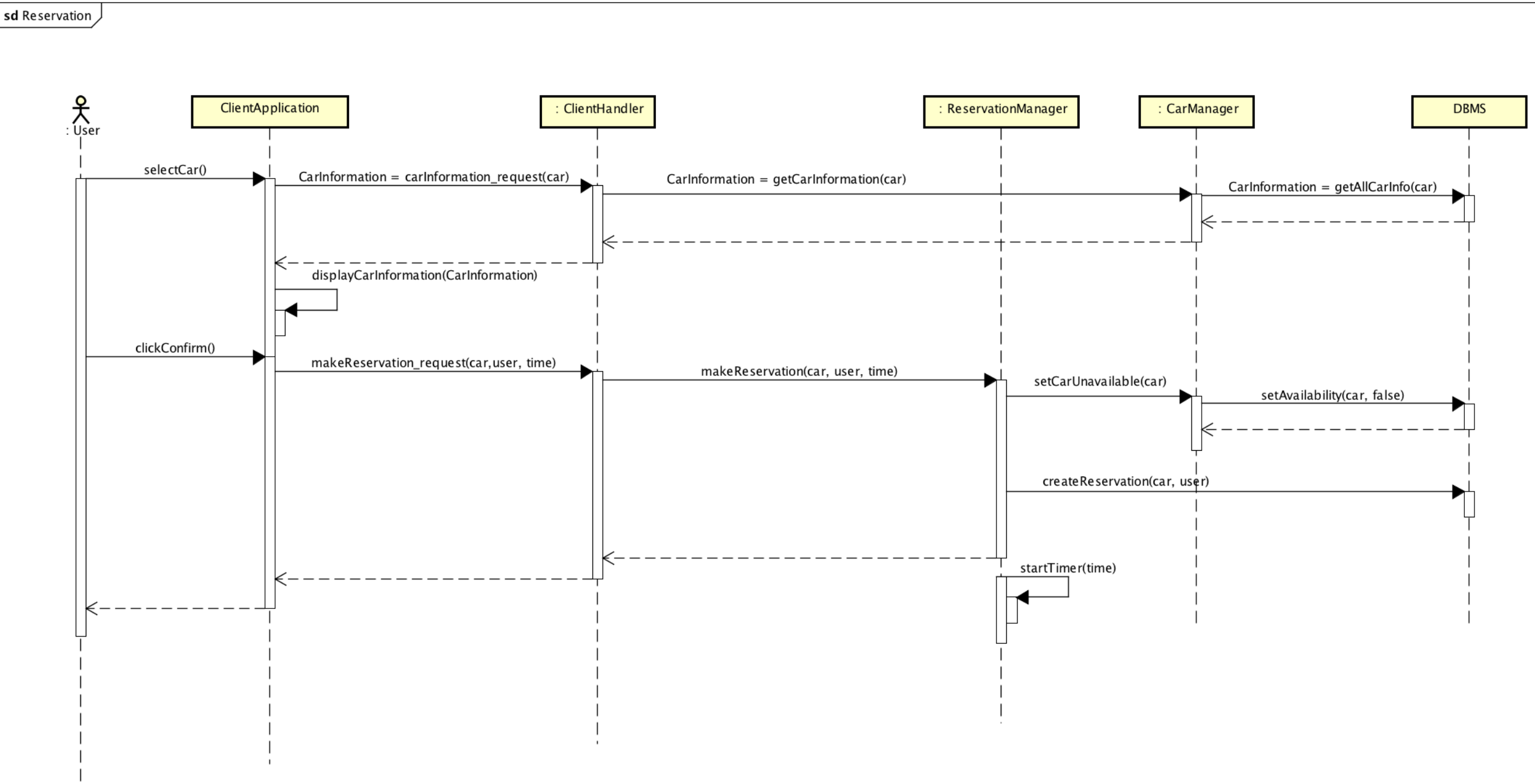
High level components and their interaction

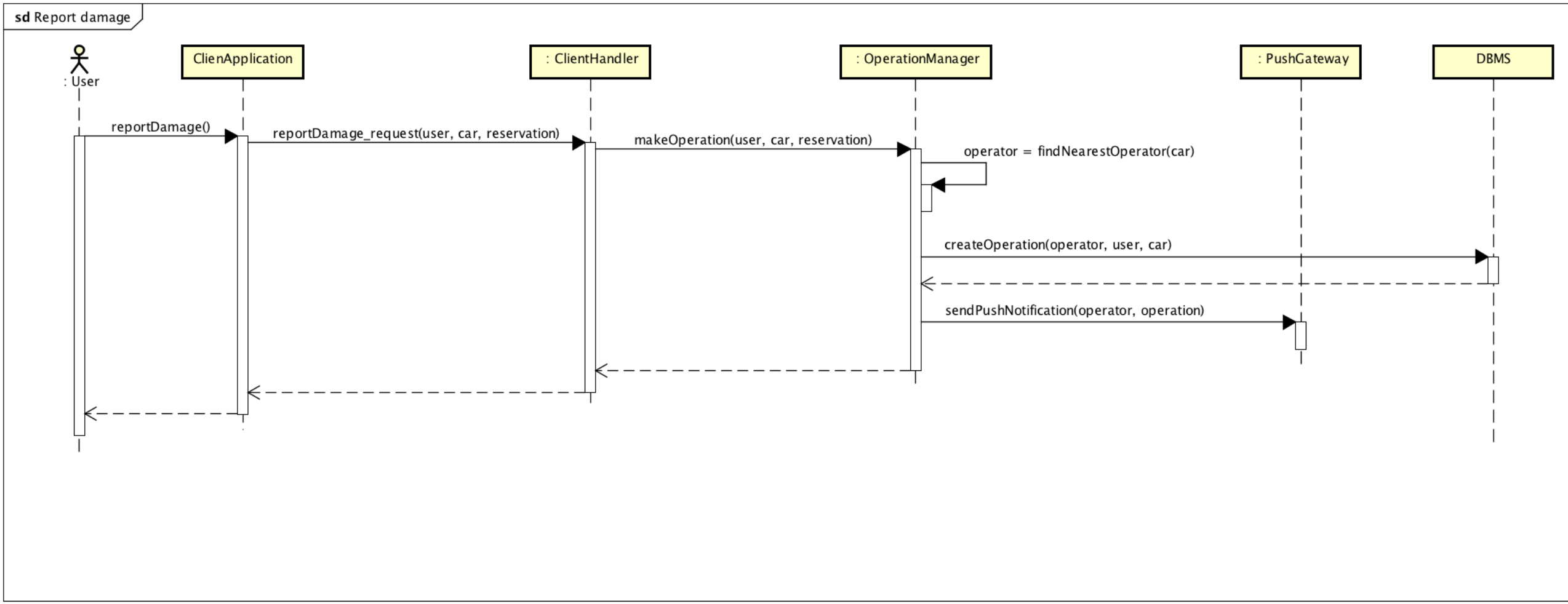


Deployment


<<device>>
:OperatorMobilePhone
<<execution environment>>
:OperatorMobileApp
TCP/IP
<<device>>
:UserMobilePhone
<<execution environment>>
:UserMobileApp
TCP/IP
<<device>>
:CarScreen
<<execution environment>>
:CarApp
TCP/IP
<<device>>
:Server
<<execution environment>>
:ApplicationLogic
TCP/IP
<<device>>
:Database Server
<<execution environment>>
:DBMS
:Database
<<device>>
:PC
<<execution environment>>
:WebBrowser
TCP/IP
TCP/IP
<<device>>
:WebServer
<<execution environment>>
:WebApplication

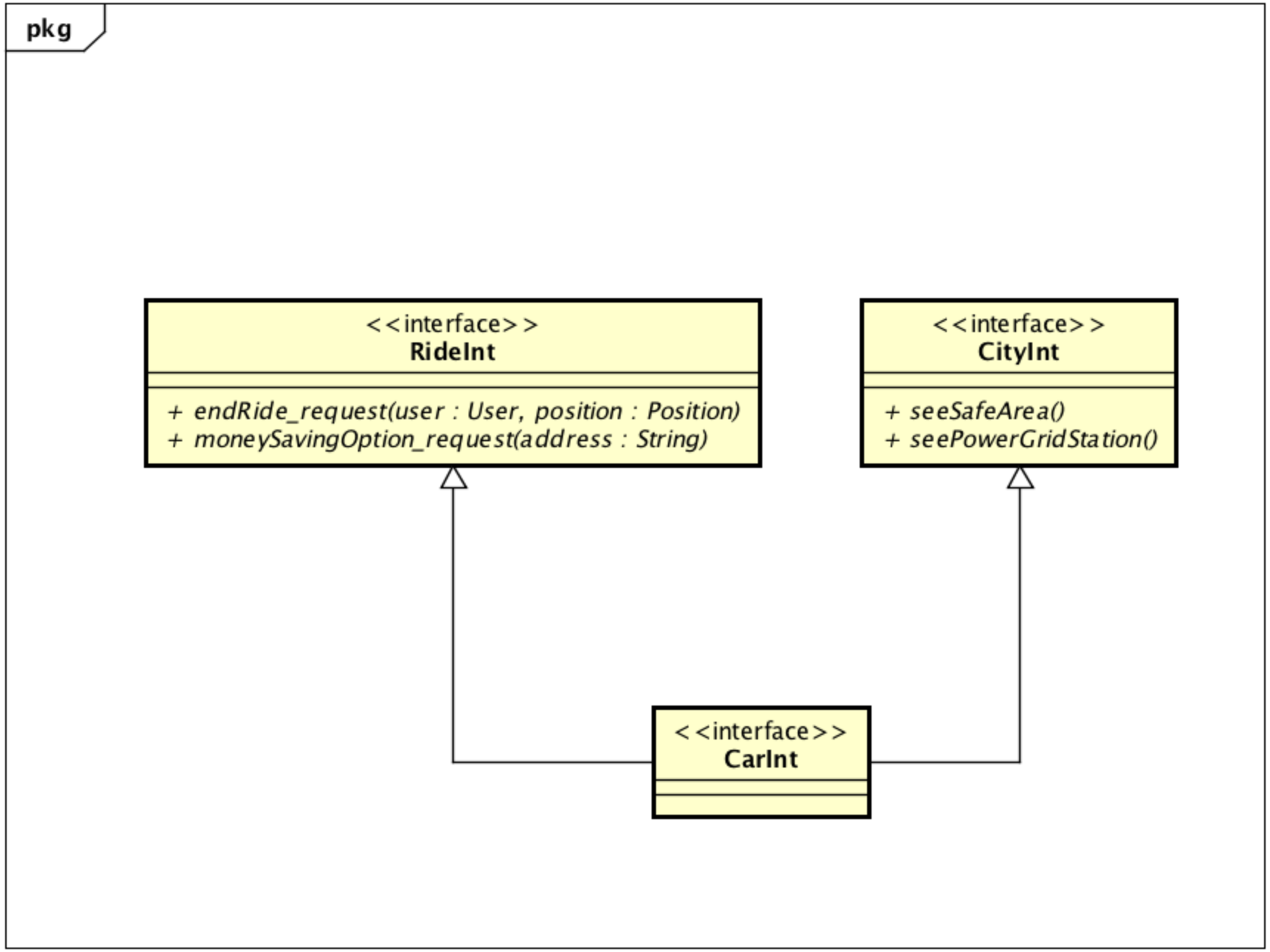
Runtime view


sd Reservation
: User
ClientApplication
: ClientHandler
: ReservationManager
: CarManager
DBMS
selectCar()
CarInformation = carInformation_request(car)
CarInformation = getCarInformation(car)
CarInformation = getAllCarInfo(car)
displayCarInformation(CarInformation)
clickConfirm()
makeReservation_request(car,user, time)
makeReservation(car, user, time)
setCarUnavailable(car)
setAvailability(car, false)
createReservation(car, user)
startTimer(time)

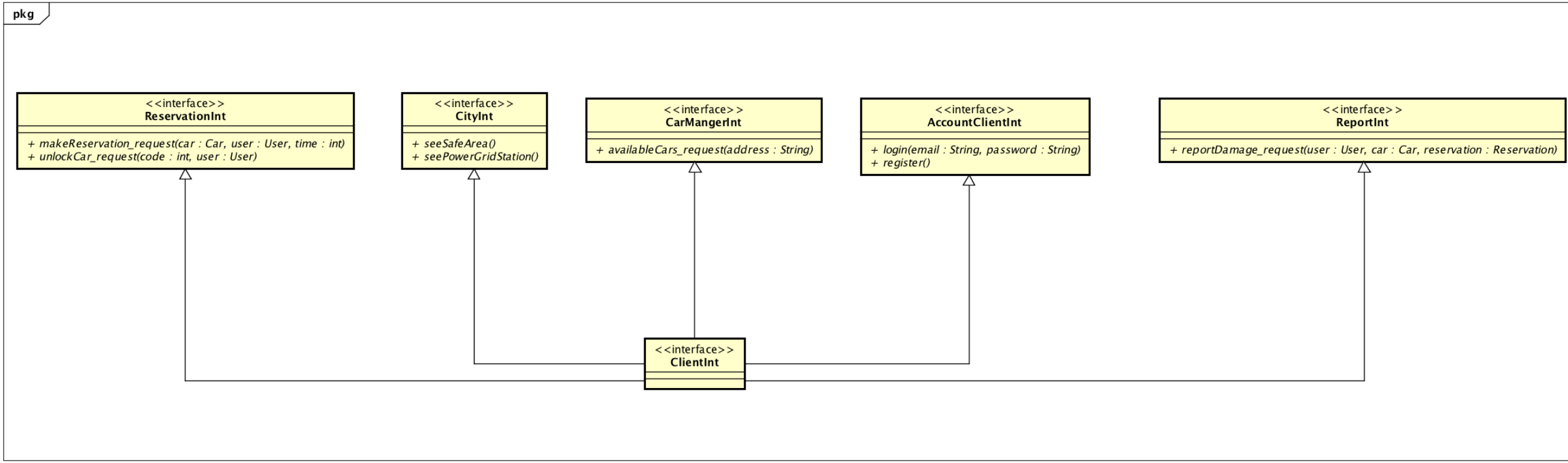

sd Report damage
: User
ClienApplication
: ClientHandler
: OperationManager
: PushGateway
DBMS
reportDamage()
reportDamage_request(user, car, reservation)
makeOperation(user, car, reservation)
operator = findNearestOperator(car)
createOperation(operator, user, car)
sendPushNotification(operator, operation)

Component interfaces

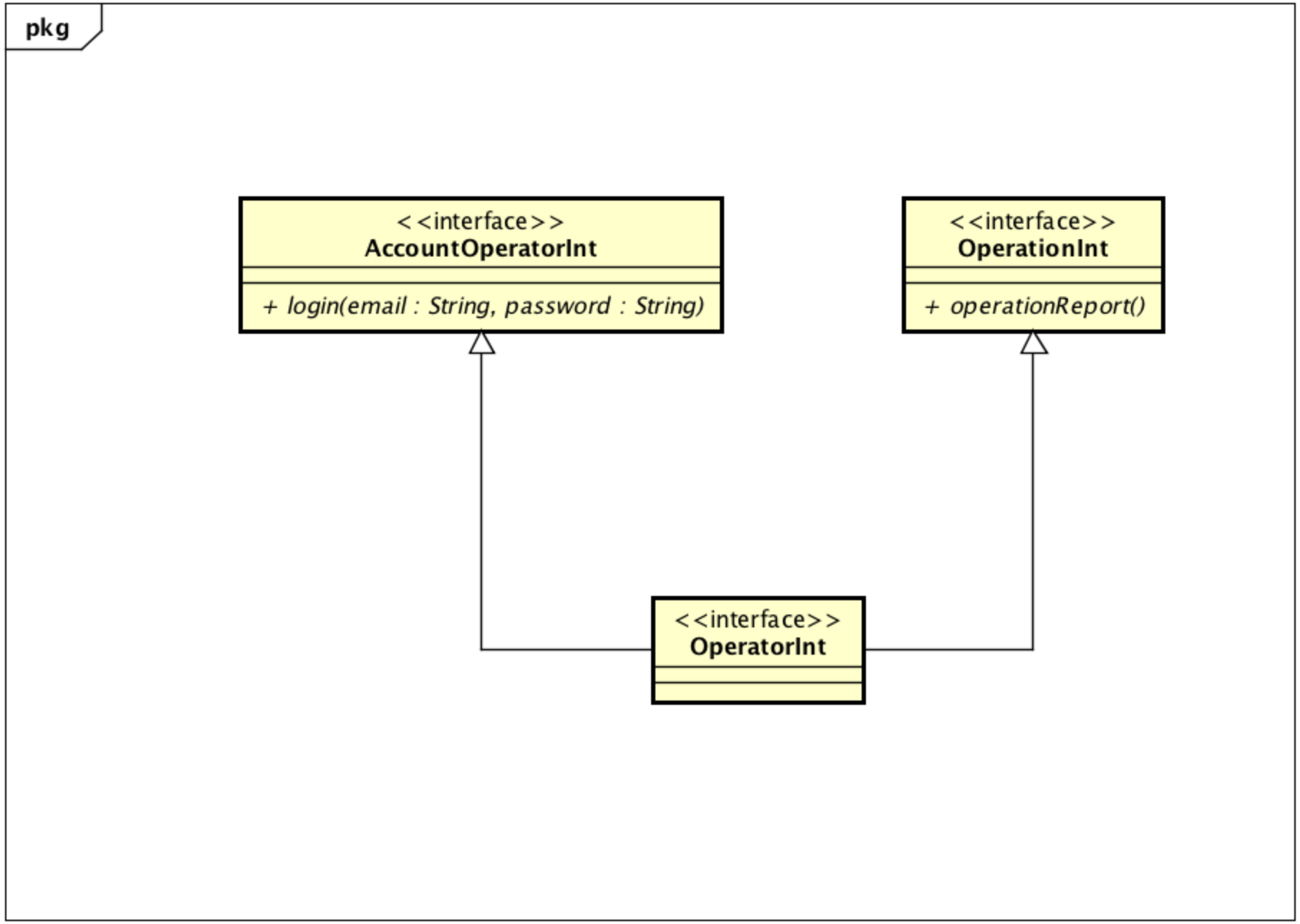
Car Interface



Client Interface

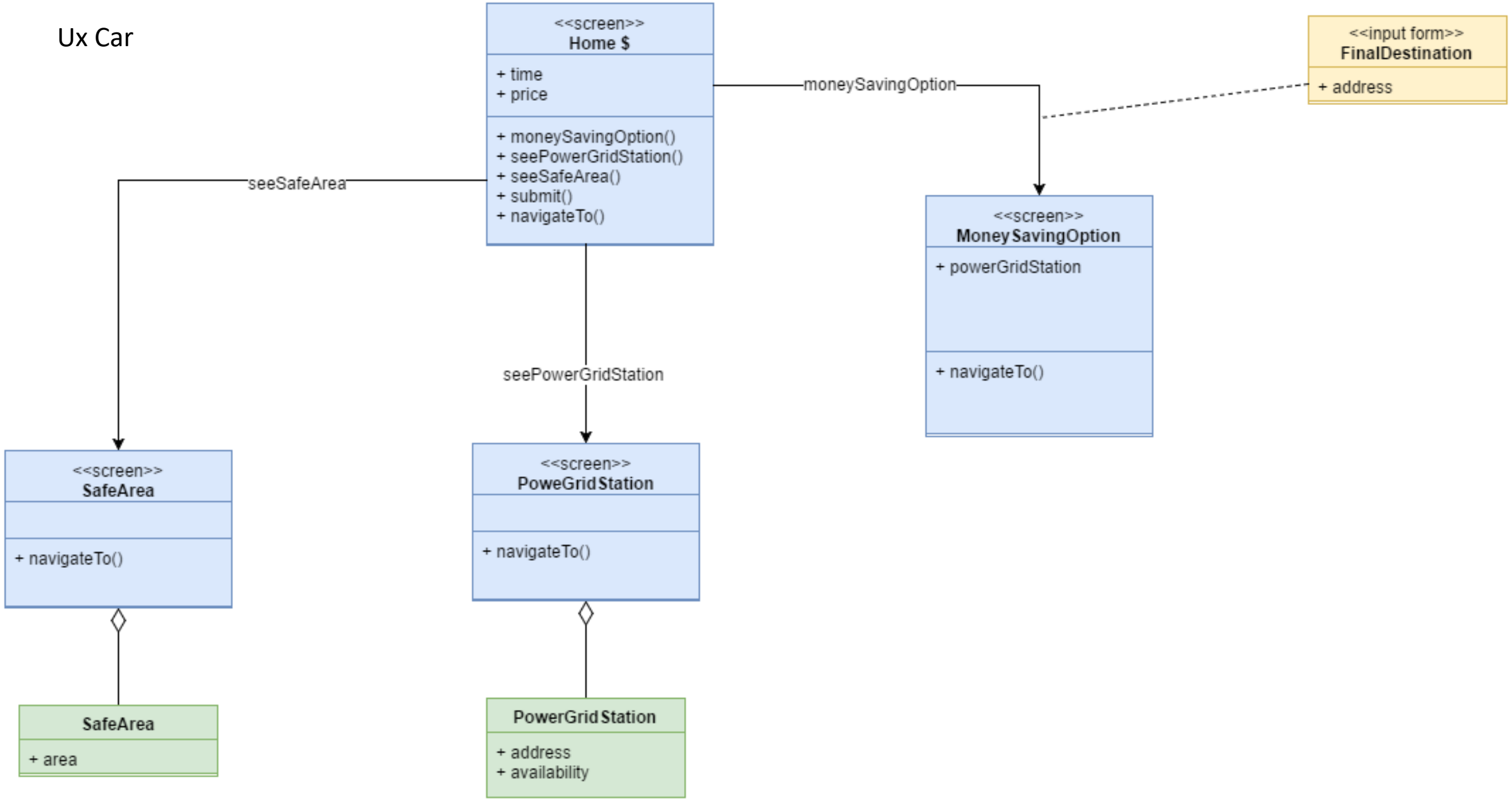


Operator Interface

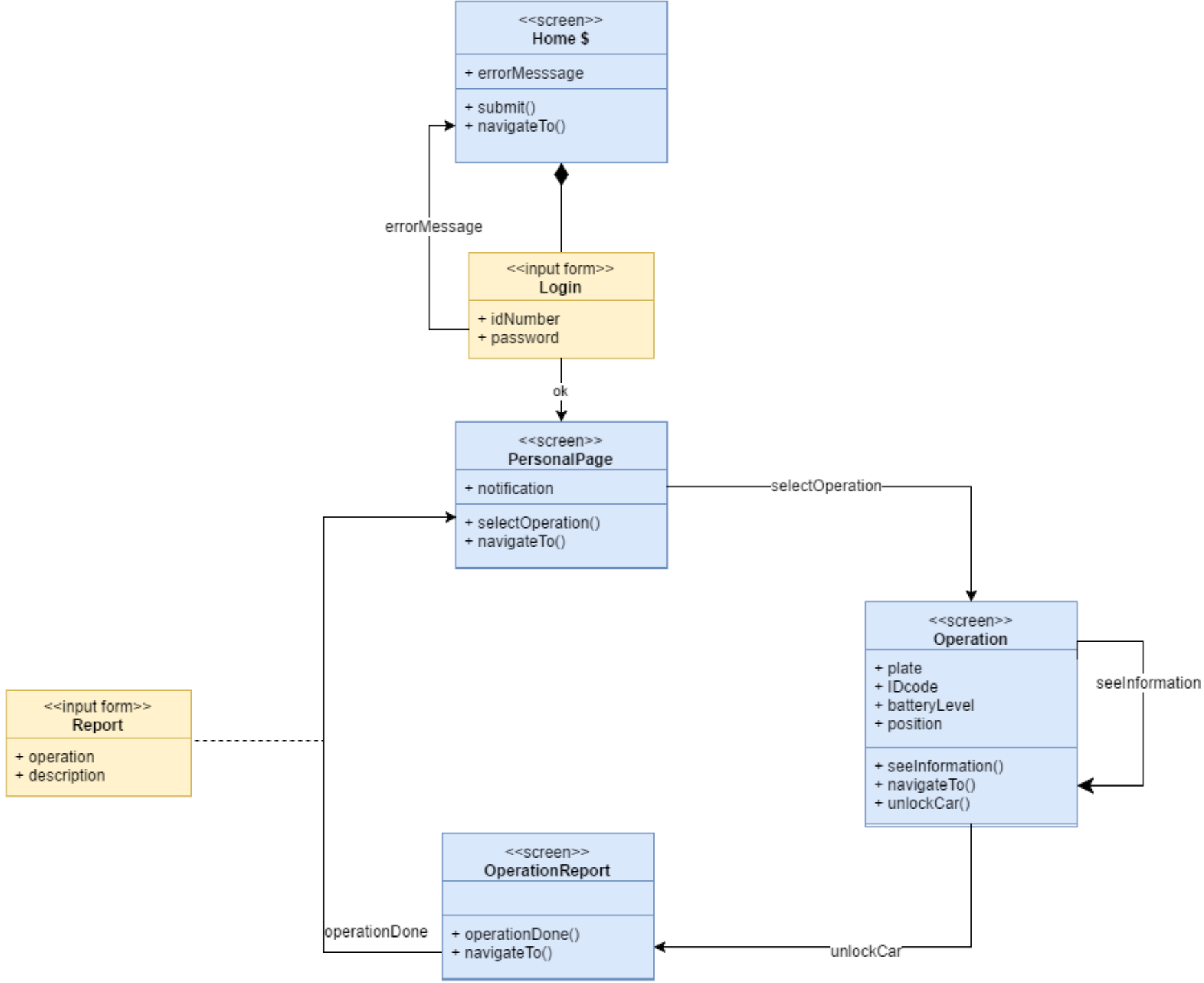


UX

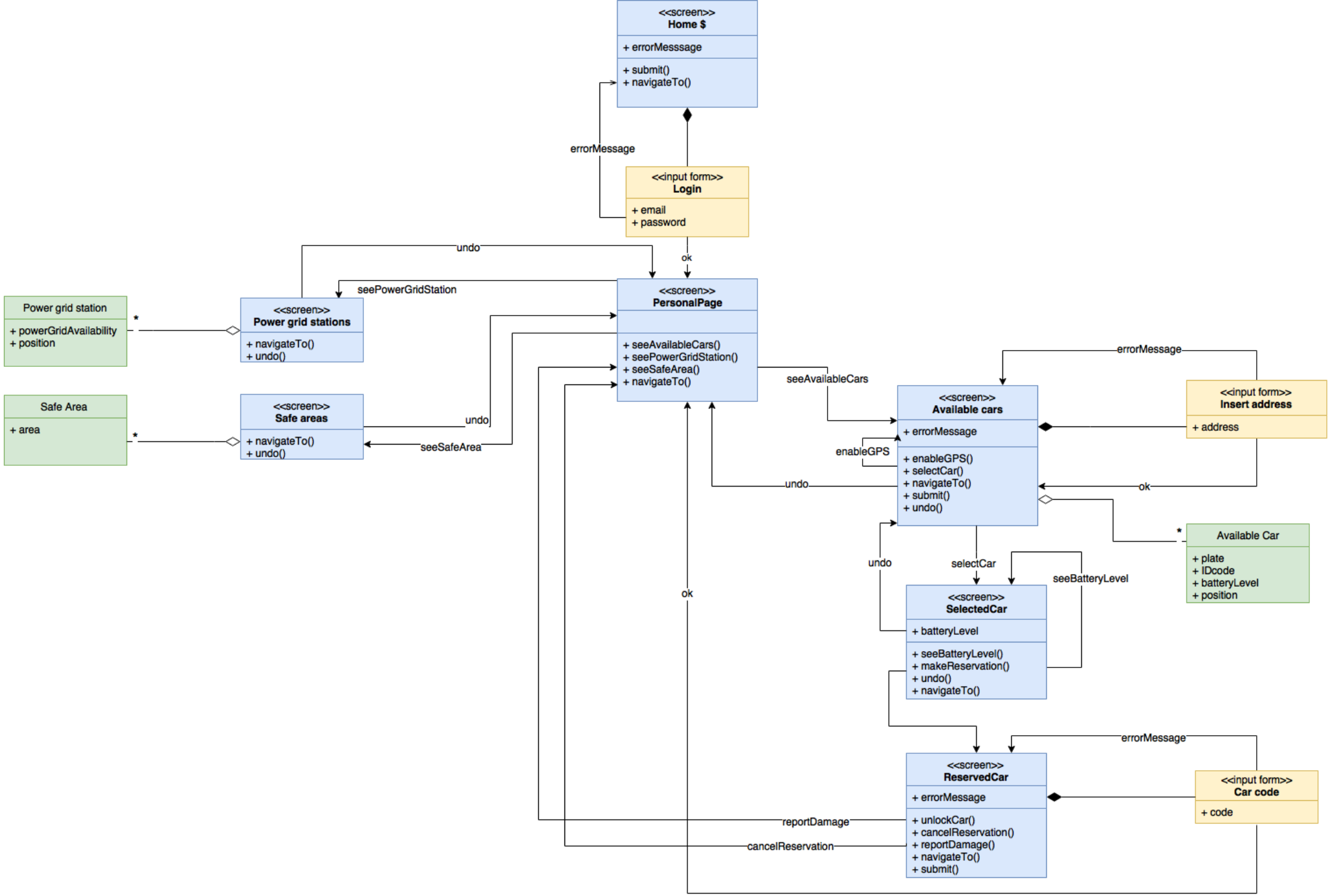
Ux Car


<<screen>>
Home $
+ time
+ price
+ moneySavingOption()
+ seePowerGridStation()
+ seeSafeArea()
+ submit()
+ navigateTo()
moneySavingOption
<<input form>>
FinalDestination
+ address
seeSafeArea
<<screen>>
Money SavingOption
+ powerGridStation
+ navigateTo()
seePowerGridStation
<<screen>>
SafeArea
+ navigateTo()
<<screen>>
PoweGrid Station
+ navigateTo()
SafeArea
+ area
PowerGrid Station
+ address
+ availability

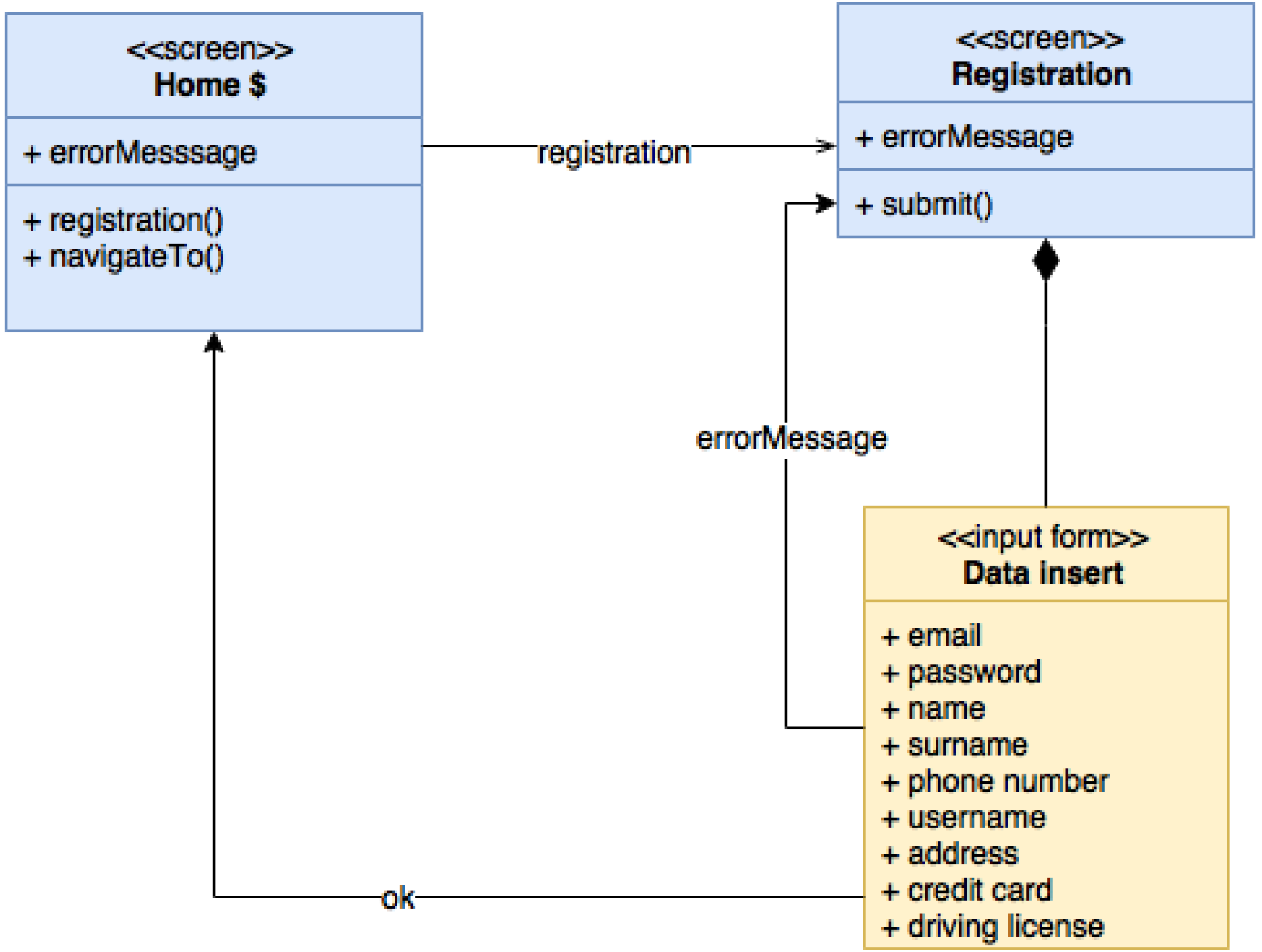
Ux Operator


<<screen>>
Home $
+ errorMesssage
+ submit()
+ navigateTo()
errorMessage
<<input form>>
Login
+ idNumber
+ password
ok
<<screen>>
PersonalPage
+ notification
+ selectOperation()
+ navigateTo()
selectOperation
<<screen>>
Operation
+ plate
+ IDcode
+ batteryLevel
+ position
+ seeInformation()
+ navigateTo()
+ unlockCar()
seeInformation
<<input form>>
Report
+ operation
+ description
<<screen>>
OperationReport
+ operationDone()
+ navigateTo()
operationDone
unlockCar

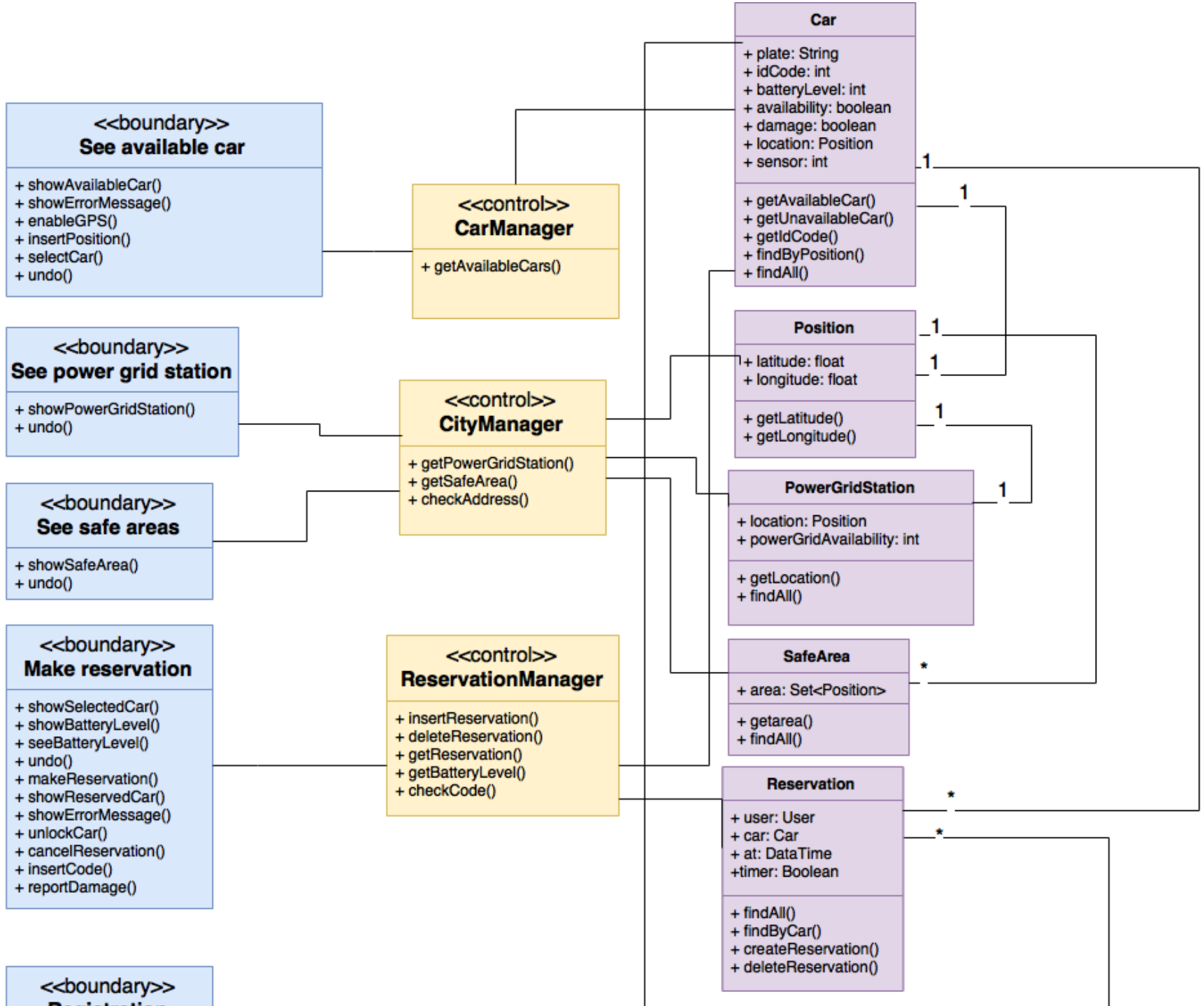
Ux User

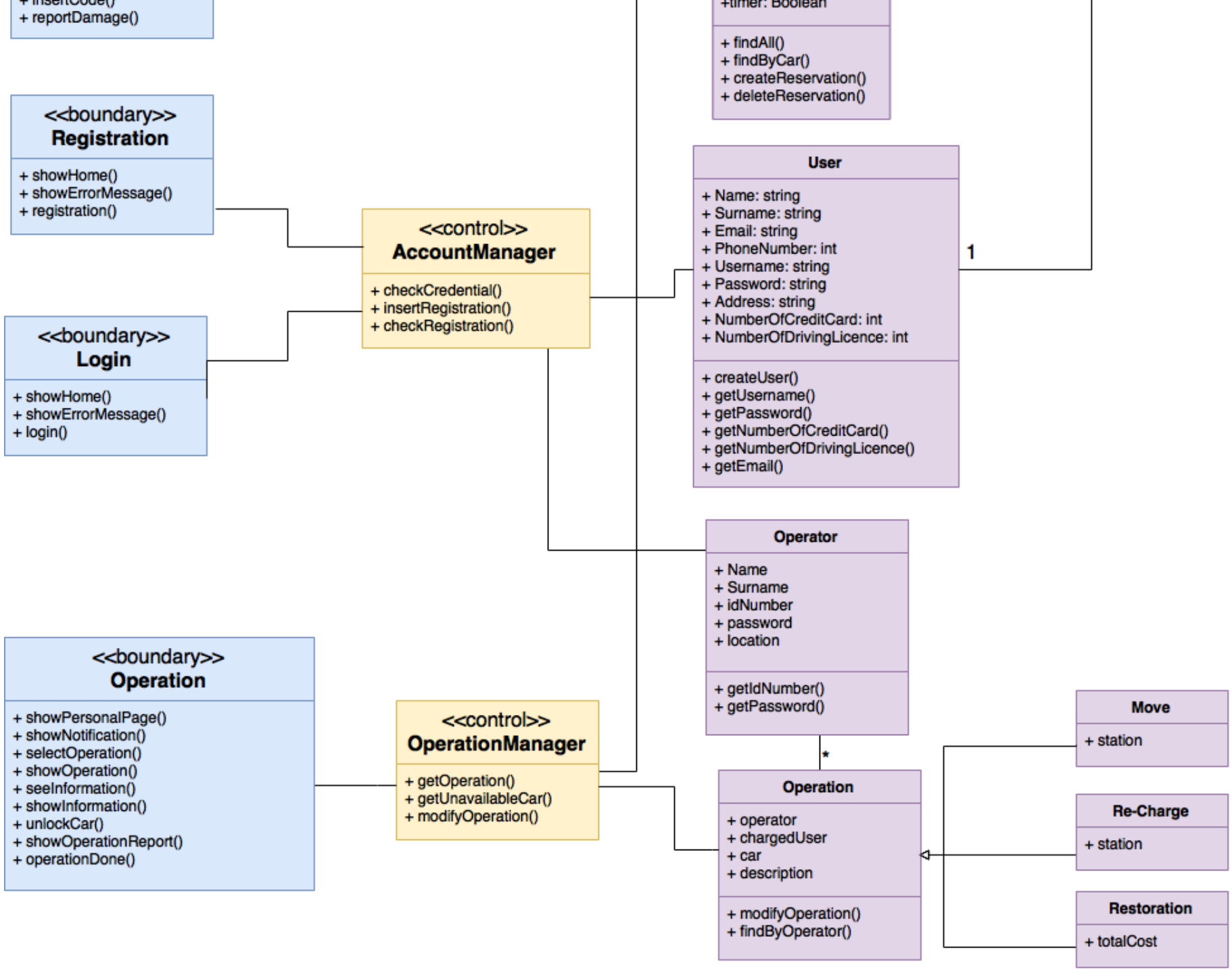

<<screen>>
Home $
+ errorMesssage
+ submit()
+ navigateTo()
errorMessage
<<input form>>
Login
+ email
+ password
undo
ok
seePowerGridStation
Power grid station
+ powerGridAvailability
+ position
*
<<screen>>
Power grid stations
+ navigateTo()
+ undo()
<<screen>>
PersonalPage
+ seeAvailableCars()
+ seePowerGridStation()
+ seeSafeArea()
+ navigateTo()
Safe Area
+ area
*
<<screen>>
Safe areas
+ navigateTo()
+ undo()
undo
seeSafeArea
seeAvailableCars
errorMessage
<<screen>>
Available cars
+ errorMessage
+ enableGPS()
+ selectCar()
+ navigateTo()
+ submit()
+ undo()
enableGPS
undo
<<input form>>
Insert address
+ address
ok
*
Available Car
+ plate
+ IDcode
+ batteryLevel
+ position
undo
selectCar
seeBatteryLevel
ok
<<screen>>
SelectedCar
+ batteryLevel
+ seeBatteryLevel()
+ makeReservation()
+ undo()
+ navigateTo()
errorMessage
<<screen>>
ReservedCar
+ errorMessage
+ unlockCar()
+ cancelReservation()
+ reportDamage()
+ navigateTo()
+ submit()
reportDamage
cancelReservation
<<input form>>
Car code
+ code

Ux Visitor


<<screen>>
Home $
+ errorMesssage
+ registration()
+ navigateTo()
registration
<<screen>>
Registration
+ errorMessage
+ submit()
errorMessage
<<input form>>
Data Insert
+ email
+ password
+ name
+ surname
+ phone number
+ username
+ address
+ credit card
+ driving license
ok

BCE


<<boundary>>
See available car
+ showAvailableCar()
+ showErrorMessage()
+ enableGPS()
+ insertPosition()
+ selectCar()
+ undo()
<<control>>
CarManager
+ getAvailableCars()
Car
+ plate: String
+ idCode: int
+ batteryLevel: int
+ availability: boolean
+ damage: boolean
+ location: Position
+ sensor: int
+ getAvailableCar()
+ getUnavailableCar()
+ getIdCode()
+ findByPosition()
+ findAll()
<<boundary>>
See power grid station
+ showPowerGridStation()
+ undo()
<<control>>
CityManager
+ getPowerGridStation()
+ getSafeArea()
+ checkAddress()
Position
+ latitude: float
+ longitude: float
+ getLatitude()
+ getLongitude()
<<boundary>>
See safe areas
+ showSafeArea()
+ undo()
PowerGridStation
+ location: Position
+ powerGridAvailability: int
+ getLocation()
+ findAll()
<<boundary>>
Make reservation
+ showSelectedCar()
+ showBatteryLevel()
+ seeBatteryLevel()
+ undo()
+ makeReservation()
+ showReservedCar()
+ showErrorMessage()
+ unlockCar()
+ cancelReservation()
+ insertCode()
+ reportDamage()
<<control>>
ReservationManager
+ insertReservation()
+ deleteReservation()
+ getReservation()
+ getBatteryLevel()
+ checkCode()
SafeArea
+ area: Set<Position>
+ getarea()
+ findAll()
Reservation
+ user: User
+ car: Car
+ at: DataTime
+timer: Boolean
+ findAll()
+ findByCar()
+ createReservation()
+ deleteReservation()
<<boundary>>
1
1
1
1
1
1
*
*
*


+ insertCode()
+ reportDamage()
+timer: Boolean
+ findAll()
+ findByCar()
+ createReservation()
+ deleteReservation()
<<boundary>>
Registration
+ showHome()
+ showErrorMessage()
+ registration()
<<control>>
AccountManager
+ checkCredential()
+ insertRegistration()
+ checkRegistration()
User
+ Name: string
+ Surname: string
+ Email: string
+ PhoneNumber: int
+ Username: string
+ Password: string
+ Address: string
+ NumberOfCreditCard: int
+ NumberOfDrivingLicence: int
+ createUser()
+ getUsername()
+ getPassword()
+ getNumberOfCreditCard()
+ getNumberOfDrivingLicence()
+ getEmail()
1
<<boundary>>
Login
+ showHome()
+ showErrorMessage()
+ login()
Operator
+ Name
+ Surname
+ idNumber
+ password
+ location
+ getIdNumber()
+ getPassword()
<<boundary>>
Operation
+ showPersonalPage()
+ showNotification()
+ selectOperation()
+ showOperation()
+ seeInformation()
+ showInformation()
+ unlockCar()
+ showOperationReport()
+ operationDone()
<<control>>
OperationManager
+ getOperation()
+ getUnavailableCar()
+ modifyOperation()
*
Operation
+ operator
+ chargedUser
+ car
+ description
+ modifyOperation()
+ findByOperator()
Move
+ station
Re-Charge
+ station
Restoration
+ totalCost