Cairo University  
Faculty of Computers and Artificial Intelligent

**CS251**

**Software Engineering I**

Project Name

Software Design

Team Names

Month & Year

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# Instructions [To be removed]

* **IMPORTANT. Rename this document according to the naming style stated in the project description.**
* **Remove the following notes and any red notes**
* **This document is the template document for your Software Design.**
* **For further guidelines and information, READ project details document (C251-Project Description-ParkingGarage-v1.0).**

# Team

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Name** | **Email** | **Mobile** |
|  | 1st name is team leader |  |  |
|  |  |  |  |
|  |  |  |  |

# Document Purpose and Audience

**What is this document?**

This document shows the System’s models (Class Diagram and Sequence Diagram) .

**Who is excepted to read it?**

The project Manager and the customer.

# System Models

## I. Class diagrams

* **Put stereotypes of the classes to give more information. UML predefines some stereotypes like: <<interface>>, <<type>>, <<implementationClass>>, <<enumeration>>, etc. and you create your own also.**



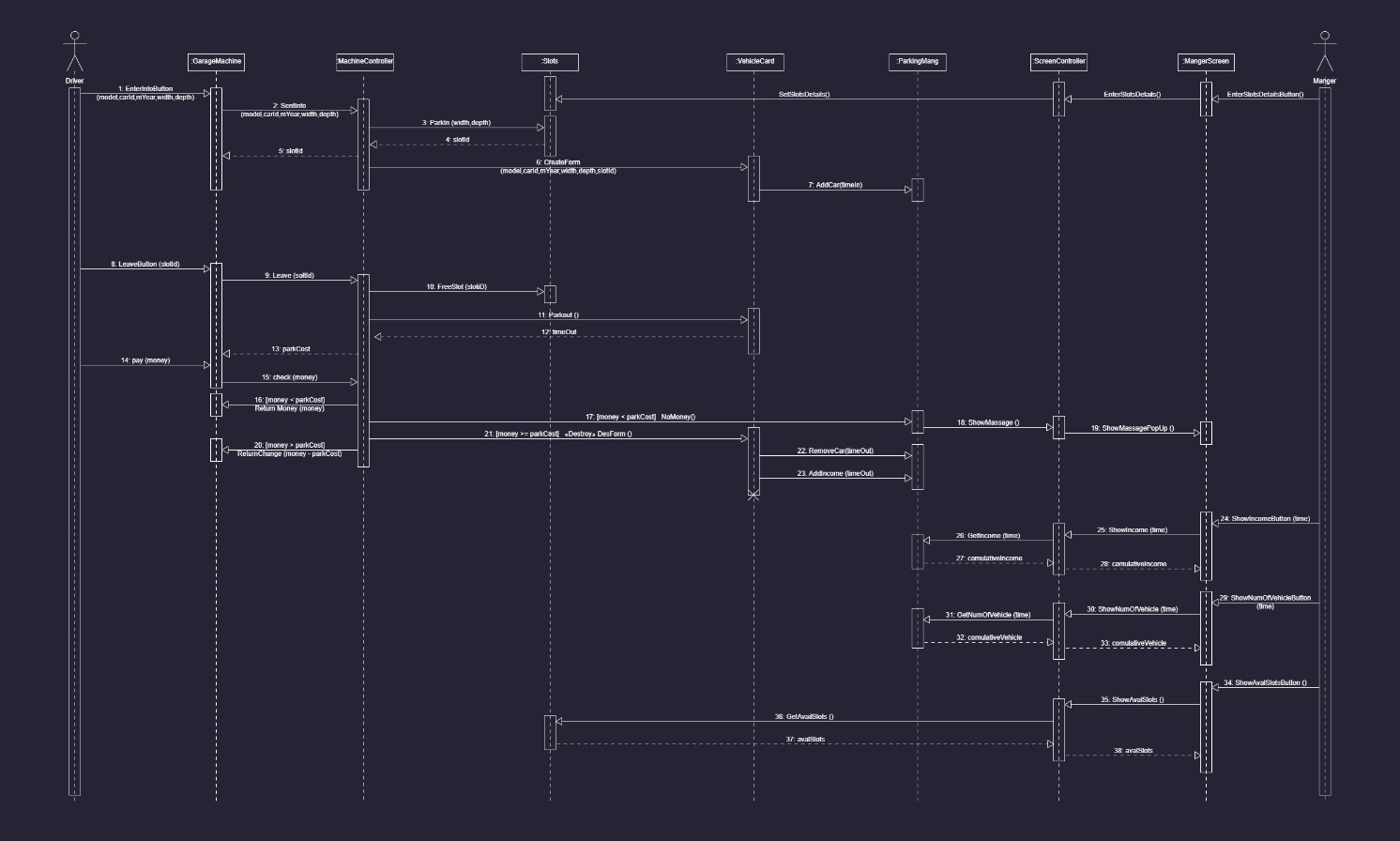
**List down your classes and describe them**

| **Class ID** | **Class Name** | **Description & Responsibility** |
| --- | --- | --- |
| 1 | GarageMachine | It is a class of the machine that the driver will communicate with it by enter his car`s info to enter to the garage , press leave button to show him the cost and the drive pay it and leave , Return Change to show him if there are rest of the money or not ,Return money to return to him the rest of money |
| 2 | MachineController | It is a class that control the machine by sending the info to the system to and receiving the suitable slot ,if the driver pass leave button the machine controller use function leave and  Checkout to calculate the cost of the parking and show it to the driver |
| 3 | MangerScreen | It is a class that the manger communicate with to show the manger all things of the garage ,if the manger press the show income button it sent to the controller to show the income if the manger press show num of the vehicle button it sent to the controller to show the num of vehicle , if the manger want to see the available slots he press on the button of showAvalSlots and sent to the controller to show the free slots |
| 4 | ScreenController | It is a class that control the manger screen , show the manger the total income that the garage earn in a point of time,  Show the manger the number of the vehicle in a point of time , show the manger the available slots in the garage and show the manger if there are a problem with the driver in the payment |
| 5 | Slots | It is a class receive the request of the driver and call the function of park in ,search for free slots in the garage then call function of getAvailslots to send the available slot to the machine |
| 6 | Slot | This class get the information of the driver`s vehicle by three functions [Getwid(),GetDep(),GetId()],and then search for the suitable slot to the vehicle then call function ifAvail() to show if it found it or not |
| 7 | vehicleCard | It is a class to collection all data about the vehicle ,create form and fill the form by the model , carNum , model year , the car`s width , the car`s depth and slot id and if the driver want to prakout it calculate the time that the car take in the garage and calculate the park cost then destroy the form |
| 8 | ParkingMang | It is a class to manage the garage , when the driver enter to the garage the parkingMang call function add car and pass to it the entry time , function no money if the driver does not have money in his card , when the driver park out the class call remove car to calculate the taken time and remove the this car from the system and made there slot available , the function of addIncome to add the new income to the total income , function get income to show the total income and function GetNumOfVehicle to count the number of vehicle in the garage In any point of time |

### Important Algorithm

* **If any method in a class is implementing an algorithm (complex enough), then you should describe it here.**

## II. Sequence diagrams



### 

### Class - Sequence Usage Table

* **In this table, we will list EVERY class in class diagram and which sequences used this class diagram. This helps in avoiding either unused classes or extra classes appears in sequence diagrams. In "Overall used methods" section, put all functions appeared in all sequences. If this table was built in ignorance of actual class / sequence diagrams = REJECTED for whole document.**

| * **Class Name** | **Sequence Diagrams** | **Overall used methods** |
| --- | --- | --- |
| GarageMachine | 1,8,14,16,20 | EnterInfoButton , leaveButton , pay ,ReturnMoney , ReturnChange |
| MachineController | 2,9,15 | SetInfo , leave , check |
| slots | 3,10,36 | Parkin , freeSlot , GetAvalSlots |
| VehicleCard | 6,11,21 | createForm , ParkOut , Desform |
| ParkingMang | 7,17,22,23,26,31 | AddCar , NoMoney , RemoveCar , AddIncome , GetIncome ,GetNumOfVehicle |
| ScreenController | 18,25,30,35 | ShowMassage , ShowIncome , ShowNumOfVehicle , ShowAvalSlots |
| MangerScreen | 19,24,29,34 | ShowMangerPopUp , ShowIncomeButton , ShowNumOfVehicleButton , ShowAvalSlotsButton |

# Ownership Report

* **Remove the following notes and any red notes**
* **For every item in this document, write the owners. If someone is owner of something, s/he understands it 100.%**
* **Team leader must verify the table with the team members.**

|  |  |
| --- | --- |
| **Item** | **Owners** |
|  |  |
|  |  |

# Policy Regarding Plagiarism:

**Students have collective ownership and responsibility of their project. Any violation of academic honesty will have severe consequences and punishment for ALL team members.**

1. تشجع الكلية على مناقشة الأفكار و تبادل المعلومات و مناقشات الطلاب حيث يعتبر هذا جوهريا لعملية تعليمية سليمة
2. ساعد زملاءك على قدر ما تستطيع و حل لهم مشاكلهم فى الكود و لكن تبادل الحلول غير مقبول و يعتبر غشا.
3. أى حل يتشابه مع أى حل آخر بدرجة تقطع بأنهما منقولان من نفس المصدر سيعتبر أن صاحبيهما قد قاما بالغش.
4. قد توجد على النت برامج مشابهة لما نكتبه هنا أى نسخ من على النت يعتبر غشا يحاسب عليه صاحبه.
5. إذا لم تكن متأكدا أن فعلا ما يعد غشا فلتسأل المعيد أو أستاذ المادة.
6. فى حالة ثبوت الغش سيأخذ الطالب سالب درجة المسألة ، و فى حالة تكرار الغش سيرسب الطالب فى المقرر.