Cairo University  
Faculty of Computers and Artificial Intelligent

**CS251**

**Software Engineering I**

Software Design

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# Document Purpose and Audience

This document is a brief explanation about the implementation and the design of the application. Each diagram represents the flow of the coding, class diagrams represent the class inside the application, sequence diagrams present the flow of events between the actor and the application.

Presented to our project owner and the developer.

# System Models

## I. Class diagrams

Diagram

Description automatically generated

| **Class ID** | **Class Name** | **Description & Responsibility** |
| --- | --- | --- |
| 1 | Controller | Controlling the system functions |
| 2 | Garage | Storing the data of the garage and the status |
| 3 | Screen | Boundary, displayed to user |
| 4 | Slot | Class stores the slots |
| 5 | Vehicle | Class stores the vehicles |
| 6 | Calculator | Calculate the fees and get the income |
| 7 | Park in | Interface have the configuration and park |
| 8 | Park out | Class has function to park out |
| 9 | Best fit | Park the car in best fit slot |
| 10 | First fit | Park the car in the first slot suitable |

## 

## II. Sequence diagrams

(1)Diagram

Description automatically generated

### 

### (2)

### Diagram Description automatically generated

### (3)

Diagram

Description automatically generated

### (4)

Diagram

Description automatically generated

### (5)

Diagram

Description automatically generated

### Class - Sequence Usage Table

| **Class Name** | **Sequence Diagrams** | **Overall used methods** |
| --- | --- | --- |
| Controller | 1,2,3,4,5 | Park-in, park-out, showavbslots, displayincome, displaynumofslots. |
| screen | 1,2,3,4,5 | Displaymenu and take the inputs and interact with controller Class |
| Garage | 1,2,3,5 | Checkavbslots, bookslot, checkvehicleid, showvehicle. |
| Slot | 1,2,3,4 | Getstatue() ,Set arrival time(),get arrival time(),Set leave time(),get leave time() |
| Park in | 1 | Park in () |
| Park out | 2,3 | Parking out () |
| Vehicles | 1 | <<create>> |
| Calculator | 2.3 | get income () ,Calculate fees () |

# 

# Does your class diagram respect or violate SOLID principles?

**Yes, our class diagram respect SOLID principles:**

1. **Single responsibility our classes just make one responsibility**
2. **Open/close when we edit in any class the other classes don’t change**
3. **Interface segregations (park in class)**