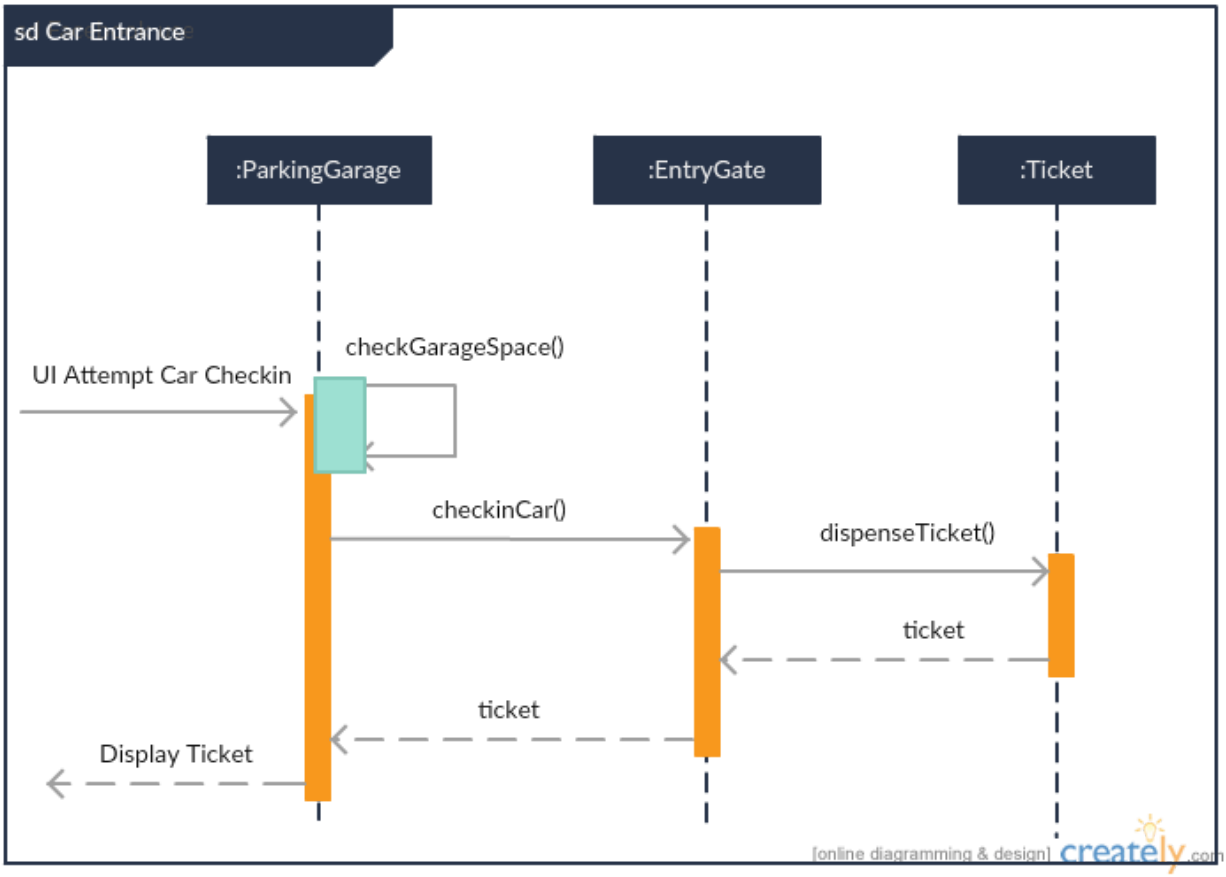
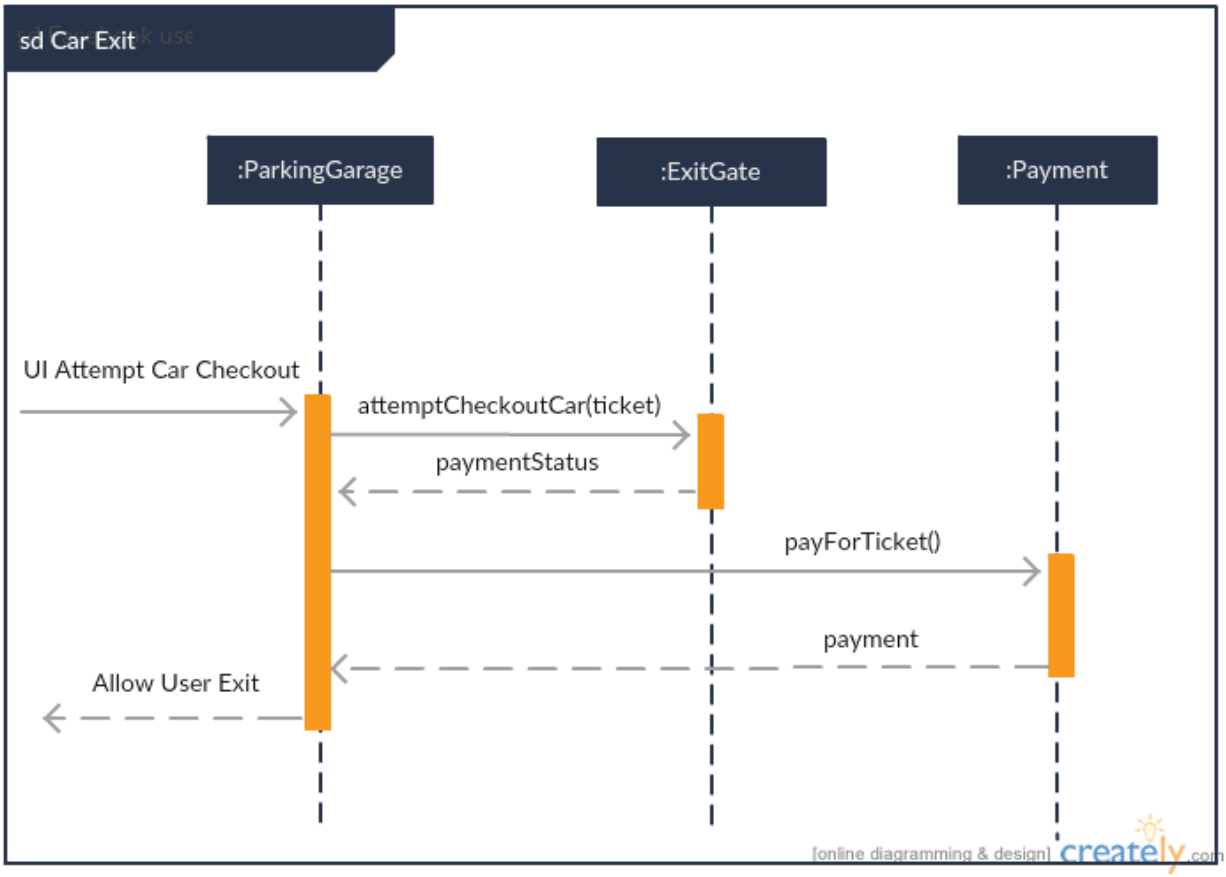
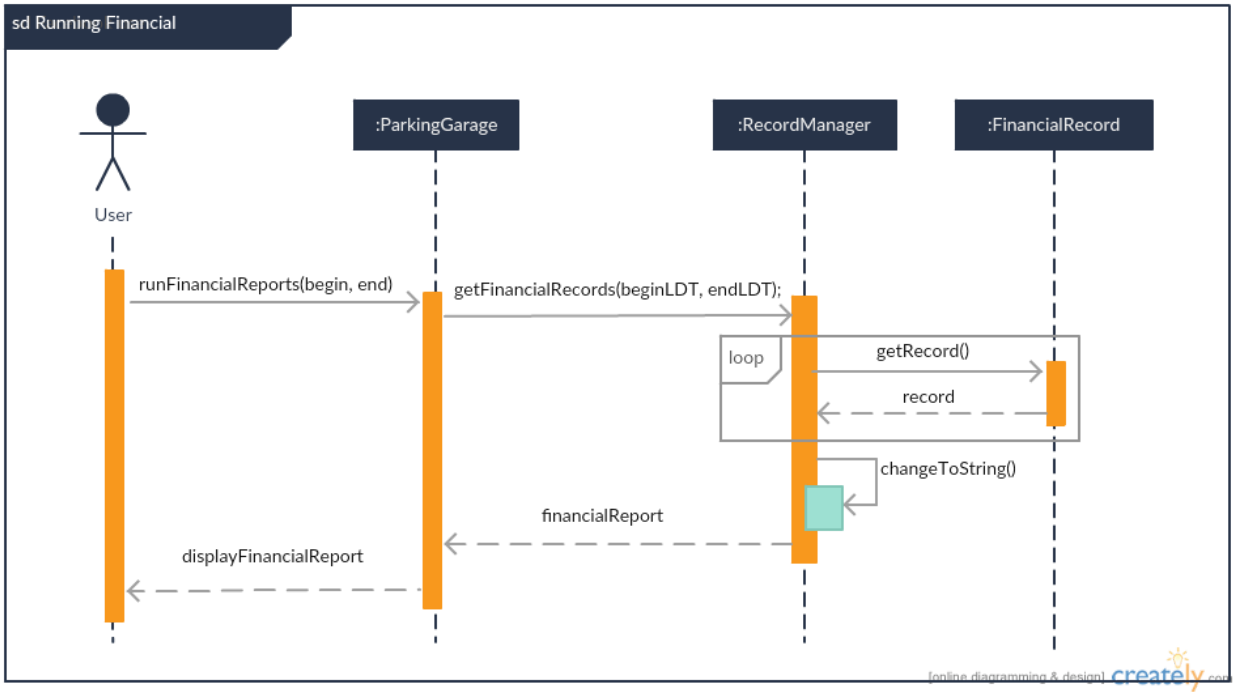
Sequence Diagrams:




sd Car Exit
:ParkingGarage
:ExitGate
:Payment
UI Attempt Car Checkout
attemptCheckoutCar(ticket)
paymentStatus
payForTicket()
payment
Allow User Exit
[online diagramming & design] creately.com


sd Running Financial
User
:ParkingGarage
:RecordManager
:FinancialRecord
runFinancialReports(begin, end)
getFinancialRecords(beginLDT, endLDT);
loop
getRecord()
record
changeToString()
financialReport
displayFinancialReport
[online diagramming & design] creately.com

System Test Cases:
Requirements:

PARKING GARAGE ENTRY/EXIT:

1. The parking garage shall have one entry and one exit gate.

2. Cars shall enter through the entry gate and exit through the exit gate.

3. There shall be one ticket provided to a car upon entering the parking garage through the entry gate.

4. There shall be a payment upon exiting the parking garage based upon the number of minutes spent inside the parking garage.

5. The ticket shall be verified to be the ticket given to the car upon entry.

6. The parking garage shall keep track of the current occupancy.

7. Multiple cars should be allowed to enter and exit during the day.

8. If the parking garage is at maximum occupancy a sign shall be shown stating the garage is at full occupancy, otherwise it is not illuminated

PARKING GARAGE STATISTICS:

1. An administrator shall be able to query statistics about the occupancy of the parking garage on a hourly, daily, weekly, and monthly basis.

2. The parking garage system shall allow track payments and ticket sales.

3. The parking garage shall collec occupancy summaries for each hour of the day.

USE CASE 1:

- Use Case Name
    a. Enter Garage
- Scope
    a. Parking Garage Application
- Level
    a. UserGoal
- Primary Actor
    a. Car
- Stakeholders and Interests
    a. Car: Wants a quick and easy way to enter the parking garage.
    b. Parking Garage: Wants to accurately record time car entered, update occupancy, and dispense a ticket.

c. Administrator: Wants to be able to query statistics that include this car.

- Preconditions:

  a. Car has arrived at an entry gate with the garage not at maximum occupancy.

- Postconditions:

  a. Car has been given a ticket, parking garage has a record of the ticket, parking garage has updated occupancy records.

- Main Success Scenario

  1. Parking Garage is not at maximum occupancy and car arrives at entry gate
  2. Car requests a ticket from Parking Garage
  3. Parking Garage dispenses a ticket while recording entry time and ticket number
  4. Car takes ticket and parks inside Parking Garage

- Extensions:

  *a. At any time, System fails:

    1. Entry Gate does not dispense any tickets until system is fixed.

  1a. Parking Garage is at maximum occupancy

    1. Car waits until a car leaves and a ticket is dispensed.
    2. Car leaves and goes to park in another place and ticket is not dispensed.

  2-3a. Car requests a ticket but no paper is available to print ticket

    1. Error is thrown to system indicating more paper is needed.

  3b. Parking Garage attempts to save information but system fails

    1. Error is thrown indication information was not saved

  4a. Car takes ticket but does not enter garage

    1. Administrator is able to go in and clear ticket entry from server

- Special Requirements:
  - Entry Gate must be connected to main Parking Garage server
  - Entry Gate state should be able to be recovered
- Technology and Data Variations:
  - Typically will be dealt with through the Entry Gate to Car meeting
  - Rare case that an administrator can edit information about car’s ticket.
- Frequency of Occurrence:
  - Very frequent. Only way for cars to enter Parking Garage

USE CASE 2:

- Use Case Name
    a. Exit Garage
- Scope
    a. Parking Garage Application
- Level
    a. UserGoal
- Primary Actor
    a. Car
- Stakeholders and Interests
    a. Car: Wants a quick and easy way to leave the parking garage.
    b. Parking Garage: Wants to accurately record time car exited, update occupancy, and verify ticket.
    c. Administrator: Wants to be able to query statistics that include this car.
- Preconditions:
    a. Car has arrived at an exit gate with a valid ticket.
- Postconditions:
    a. Car has paid for the ticket and has left parking garage, parking garage has a record of the ticket and transactions, parking garage has updated occupancy records.
- Main Success Scenario
    1. Car arrives at the Exit Gate with a valid ticket and valid form of payment
    2. Car gives ticket to Exit Gate
    3. Parking Garage verifies ticket is valid and figures out how much is owed for parking
    4. Parking Garage displays amount needed for the payment
    5. Car pays for ticket and Exit Gate opens allowing Car to leave
    6. Exit time and transaction information are stored in the Parking Garage for Administrator querying.
- Extensions:
    *a. At any time, System fails:
        1. Exit Gate does not verify any tickets until system is fixed.
        2. System is able to be recovered.

3a. Car gives Parking Garage an invalid ticket.

1. Error is thrown from system asking for Administrator to take a look.

3b. Exit Gate is unable to figure out how much is owed

1. Error is thrown from system asking for Administrator to take a look

2. Administrator is able to calculate how much is owed and manually enter this information

4a. Car is unable to pay for amount owed

1. Error is thrown from system asking for Administrator to take a look

- Special Requirements:
  - Exit Gate must be connected to main Parking Garage server
  - Exit Gate state should be able to be recovered
- Technology and Data Variations:
  - Typically will be dealt with through the Exit Gate to Car meeting
  - Rare case that an administrator can edit information about car's ticket.
- Frequency of Occurrence:
  - Very frequent. Only way for cars to exit Parking Garage

USE CASE 3:

- Use Case Name
  a. Query Statistics
- Scope
  a. Parking Garage Application
- Level
  a. User Goal
- Primary Actor
  a. Administrator
- Stakeholders and Interests
  a. Administrator: Wants to be able to query statistics regarding occupancy over a period of time.

- Preconditions:
    a. Parking Garage has been sending data to be stored and is in a format that is able to be queried.
- Postconditions:
    a. Information regarding to the query of the Administrator have been displayed or saved to a file.
- Main Success Scenario
    1. Administrator arrives at a terminal.
    2. Administrator asks Parking Garage to display information based upon occupancy of (hourly, daily, weekly, monthly).
    3. Information is displayed to Administrator correctly.
- Extensions:
    *a. At any time, System fails:
        1. Information should not be corrupted
    2a. Data is corrupted.
        1. Error is thrown indicating information has been corrupted.
- Special Requirements:
    - Data has been stored in a way that is queryable.
- Technology and Data Variations:
    - Information will only be entered by the Administrator.
- Frequency of Occurrence:
    - Infrequent as Administrator will probably query for reports and maybe once or twice a day.

Github Commit Log:

```
commit 32a50835834baa155d525b9665266908d3b043e0
Author: Ren Bettendorf <Ren Bettendorf>
Date:   Thu Oct 27 20:08:49 2016 -0700

    Added final sequence diagram from creately

commit 92eddd3aa91e2144c313a6c2cb1507ab5914ce7a
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date:   Thu Oct 27 19:51:43 2016 -0700

    Final Push of Unit Tests

commit d43b0eb6cf4fcd7cd171a0d25728fe06c61a8c95
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date:   Thu Oct 27 19:02:30 2016 -0700

    Updated tests for ExitGate

commit 01aee4c055331c437c44e726ead7be8921b346e4
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date:   Thu Oct 27 18:43:43 2016 -0700

    More changes to Unit Tests

commit d63e6f82398e51b9bafc39cfe37e21454bcd8dc6
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date:   Thu Oct 27 17:43:44 2016 -0700

    Updated Unit Tests

commit f72a35f2c13e217d7a4bc28ed767a8f6e33872ae
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date:   Thu Oct 27 16:46:39 2016 -0700

    Reports are working

commit 90afe9db3d97eca7792ea3cf10140845bffff203
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date:   Wed Oct 26 20:35:30 2016 -0700

    Done with stuffffss
```

commit 70e2652ce54f32d9e7b5b99a32d1bed1926c6f9f
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date: Wed Oct 26 20:23:57 2016 -0700

    Does anyone actually read these?

commit 77f3c629fba303fcf487da07adbd03593c1114b5
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date: Wed Oct 26 19:41:38 2016 -0700

    Split records into Financial and Occupation

commit 795df6935c6407c8f710bb81aa0f3d421a0994bc
Merge: ee9bd00 53c97f0
Author: rebettendorf <ren.bettendorf@karlstorz.com>
Date: Wed Oct 26 17:15:28 2016 -0700

    Merge branch 'master' of https://github.com/renaldorini/ParkingGarage

commit ee9bd00454dae3779a60e419fa22054eeec68dd6
Author: rebettendorf <ren.bettendorf@karlstorz.com>
Date: Wed Oct 26 17:15:10 2016 -0700

    Added second sequence

commit 53c97f0a8147090dd63a42361412ef5a48e43e39
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date: Wed Oct 26 15:41:14 2016 -0700

    Finished Financial Records

commit fa82387305b68ad550a59554933bbf82d56ac568
Merge: 5fde61f 82e17a7
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date: Wed Oct 26 15:26:00 2016 -0700

    WORK

commit 5fde61ffe9b2ded78db038e94090497ae057d06e
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date: Wed Oct 26 15:20:52 2016 -0700

    Added beginning functionality for Reports being generated

commit 82e17a7049a0f9d068cbc21d032016e4845196ed
Author: rebettendorf <ren.bettendorf@karlstorz.com>
Date: Wed Oct 26 14:43:02 2016 -0700

    Adjusted to make prettier

commit a077c566f9913867dcac47233e584603482f44d3
Author: rebettendorf <ren.bettendorf@karlstorz.com>
Date: Wed Oct 26 14:41:53 2016 -0700

    Added first sequence diagram

commit 5bdad456c4832c0df37ff0cbcd147e4602b56a13
Author: Ren Bettendorf <Ren Bettendorf>
Date: Tue Oct 25 22:13:49 2016 -0700

    Another commit

commit f3cd8a5561c64327754d0f058d7778cfd30030ba
Author: Ren Bettendorf <Ren Bettendorf>
Date: Tue Oct 25 21:41:16 2016 -0700

    Another commit

commit d9ce80a6cd82f5901ed9e9d5975152f351d43894
Author: Ren Bettendorf <Ren Bettendorf>
Date: Tue Oct 25 20:32:15 2016 -0700

    Refactored payments

commit 945435f2f31080fa170b453d55c118cbc36ae51a
Author: Ren Bettendorf <Ren Bettendorf>
Date: Tue Oct 25 20:22:43 2016 -0700

    Created Admin Payment option for lost or invalid tickets

commit 7d4b4464baa33ee5e2f79901fc201c598c9bf4d4
Author: Ren Bettendorf <Ren Bettendorf>
Date: Tue Oct 25 20:05:17 2016 -0700

    Finished Cash and Credit Payment options. Removed Car because unused

commit e85b3599723087c4c8c3a7aea4e95102202ec78f
Author: rebettendorf <ren.bettendorf@karlstorz.com>
Date: Tue Oct 25 16:12:25 2016 -0700

    Another commit

commit 2bb737acd4077a422ced842c6f445360be8a534c
Author: Ren Bettendorf <Ren Bettendorf>
Date: Tue Oct 25 13:21:50 2016 -0700

    Added functionality for finding ticket for exiting gate

commit e9744aa7d3a585cddb02090699b28e154f4d04eb
Author: Ren Bettendorf <Ren Bettendorf>
Date: Tue Oct 25 12:36:08 2016 -0700

    Removed Car class and am now dealing strictly with tickets because it is easier to manage

commit 66c141ac6972518d49867f472cf55cb3f7bb867a
Author: rebettendorf <ren.bettendorf@karlstorz.com>
Date: Tue Oct 25 11:03:17 2016 -0700

    Added UI functionality for checking in car to garage with vacancy or full

commit a952899d8ee0ef402041a43a681624fc810a7731
Author: Ren Bettendorf <Ren Bettendorf>
Date: Tue Oct 25 08:40:45 2016 -0700

    Pushing so I can work on this at work

commit dc5f86f1a42b2b7b60522aaa5d94b7d3adc83188
Author: Ren Bettendorf <Ren Bettendorf>
Date: Mon Oct 24 23:06:27 2016 -0700

    Moved tests to test folder and removed all Swing based functions.

commit ec68cdc68ed490c09b738b12da83f99288ccae13
Author: rebettendorf <ren.bettendorf@karlstorz.com>
Date: Mon Oct 24 15:42:55 2016 -0700

    Added AdminPayment for lost and invalid tickets

commit b32dfb67b39ac4655e646e36fdfa722bbcbb205c

Author: rebettendorf <ren.bettendorf@karlstorz.com>
Date: Mon Oct 24 14:31:30 2016 -0700

    Added EntryGateController, options for Payments, and gate status

commit 17f20a9ea966df6a3275f0e85b9556ad60797ccd
Author: rebettendorf <ren.bettendorf@karlstorz.com>
Date: Mon Oct 24 11:49:30 2016 -0700

    Updated Error in Entry and added message for when garage is full

commit 4e07ef4ad0bce673b7061c23ebb421b78cc44a88
Author: Ren Bettendorf <Ren Bettendorf>
Date: Sun Oct 23 20:53:56 2016 -0700

    Another update... YAY

commit e1abff7208149ea286cabd4af469dbe0f62d3814
Author: Ren Bettendorf <Ren Bettendorf>
Date: Sun Oct 23 20:10:23 2016 -0700

    Redid Ticket to create uniqueID, UI now displays uniqueID for user as well

commit 1b804f0c6bc6d2f2f78e8e500023e084dd23a62b
Author: Ren Bettendorf <Ren Bettendorf>
Date: Sun Oct 23 19:33:37 2016 -0700

    Added initial functionality for EntranceGate

commit 110bff3725c660a8ebd9b642211612082b503446
Author: Ren Bettendorf <Ren Bettendorf>
Date: Sun Oct 23 18:35:34 2016 -0700

    Added initial UI elements

commit 0c23ddb18bb7b4806def9ba8135ffe8b0cd8def6
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date: Sat Oct 22 18:49:31 2016 -0700

    Final changes to the Entry and Exit gates

commit f3453f7dc683bbcbd0906c39ca44c0ce833ab678
Author: Ren Bettendorf <Ren Bettendorf>

Date: Sat Oct 22 17:50:49 2016 -0700

    Refactored a bunch of classes due to bad domain model

commit 28c39c9207bc7a2af8e6340fb4a722e1f47ce9b5
Author: Ren Bettendorf <Ren Bettendorf>
Date: Fri Oct 21 21:38:27 2016 -0700

    Added more functionality for the ParkingGarage and EntryGate

commit 12dcd4f0d9b8506a8feadee94b9d6e222ad452f2
Author: Ren Bettendorf <Ren Bettendorf>
Date: Fri Oct 21 18:28:49 2016 -0700

    Added couple more changes

commit 067abae81292bf79f4d2f109db7e0a290b9172c2
Author: Ren Bettendorf <Ren Bettendorf>
Date: Fri Oct 21 11:56:07 2016 -0700

    Added a TestAll junit test suite and updated Record and Ticket for unit tests

commit fe125aae35f1042a9d1f163d20f1d5b4c8d87dd0
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date: Fri Oct 21 11:03:29 2016 -0700

    Pushing so I can change to desktop

commit 23545af1da4aaf5f8c87a12750ebe2a9febb3cee
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date: Thu Oct 20 20:13:34 2016 -0700

    Added rest of initial classes and tests

commit e2260690df450e59d619e70a265a6f2c845a0d1d
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date: Thu Oct 20 20:02:46 2016 -0700

    Added initial Car and CarTest

commit 974f4853cfeb750f883d3afc8e5a26faa95fa900
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date: Thu Oct 20 19:52:01 2016 -0700

Removed accidental file added in

commit a6c96f9130a611dbd1457c697a745748c61c67b9
Author: Ren Bettendorf <rbetten@Tannas-MacBook-Pro.local>
Date: Thu Oct 20 19:41:21 2016 -0700

Added initial Ticket and TicketTest classes

commit 2525d4bd4d636a67f1b3eb9ffae058a110b26d09
Author: Ren Bettendorf <Ren Bettendorf>
Date: Tue Oct 18 21:24:05 2016 -0700

Updated Domain Model to include Car with assoc to ExitGate, EntryGate, and Ticket. Need to move some of the methods for the UI from Exit and Entry to UI layer

commit 024c49e13b24eee60bb8f825edaaf2e6ab74f10b
Author: Ren Bettendorf <Ren Bettendorf>
Date: Tue Oct 18 20:29:09 2016 -0700

Initial Domain Model and System Test Cases

commit 54a4379af33ffa83440e6fdae0ad0ce2a4135c09
Merge: 040e55c 0e13df2
Author: Ren Bettendorf <Ren Bettendorf>
Date: Mon Oct 17 12:51:36 2016 -0700

Merge branch 'master' of https://github.com/renaldorini/ParkingGarage

commit 040e55cf3bcdf6423d622ea4369578e8f3828381
Author: Ren Bettendorf <Ren Bettendorf>
Date: Mon Oct 17 12:50:02 2016 -0700

Initial commit

commit 69a4efd0b28f659a43f19ac8bb09b939ce64a36d
Author: Ren Bettendorf <Ren Bettendorf>
Date: Mon Oct 17 12:44:02 2016 -0700

Initial commit for assignment 4

Steps to run assignment:

To run the program I have gone to the ParkingGarageUI and run this as a normal java project after importing to Eclipse.
NOTE:
I couldn’t figure out in time but I am having one of my tests in TicketTest.java fail when I run TestAll.java but running TicketTest.java has all of the tests passing.