*­­­Florida International University*

*School of Computing and Information Sciences*

Final Deliverable

TODO LIST OPTIMIZER 1.0

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***Abstract***

*Todo…*

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### Introduction

Todo-list Optimizer attempts to be a solution for the busy day schedule. It is meant to be a mobile application to make it accessible at any time to the user. The main focus of the Todo-list Optimizer is to combine the best of routing and task management algorithms in an easy-to-use and improved user interface (UI) that enhances the user experience (UX). Todo-list optimizer provides a seamless integration between navigation and task management, improving efficiency using intelligent routing.

### Current System

The current system consists of applications such as Google Maps, Waze, Apple Reminders, Todoist, among others. These systems work well as independent modules but it does not exist an application that combines those features (task management and efficient routing). Some applications(e.g. MapQuest, Apple Remainders) have attempted to combine these obtaining non-intuitive user interfaces or excessive steps to accomplish a goal. Overall, there are no application in the market that combines the task management with routing algorithm in an efficient and pleasant way or within the same application.

### Purpose of New System

Todo-List optimizer !{Current.System}

Todo-List optimizer attempts to improve the daily schedule by providing a better integration between task management and routing algorithms. The application enables the user to create tasks (e.g. milk, vegetables, toothpaste, etc.) associated with places (e.g. Walgreens, Home Depot, Walmart, Home) to find the optimal route to accomplish them. It serves not only as a navigation system, but also, once the user is in the desired place, he or she can follow up with the task related to it. The application allows the user to save his or her favorite places so the next time it will be easy to access and them. Another feature is that the application learns user patterns (e.g. time that the user spends in an specific place or type of places) allowing it to predict more accurately the length of the solving all the tasks.

## User Stories

The following section provides the detailed user stories that were implemented in this iteration of the Todo-List Optimizer project. These user stories served as the basis for the implementation of the project’s features. This section also shows the user stories that are to be considered for future development.

### Implemented User Stories

**User Story Name: Setup Sign Up System (Frontend + Backend)**

* Description: As a user, I would like to be able to register with the system so I and only I have access to my tasks and itineraries.

Acceptance Criteria

* The User must enter a valid username(email) and password, or use a third-party authentication method (Facebook, Google+) in order to register.
* If user’s username or password are not a valid, user must be notified and reenter a valid username and password in order to register.
* If username is already in use, notify the User.
* Once registered, the User will be able to navigate through all of the application views.

**User Story Name: Setup Login System (Frontend + Backend)**

* Description: As a registered user, I would like to be able to authenticate to the system so I can access to my tasks and itineraries.

Acceptance Criteria

* If user enters correct username and password, the user can authenticate successfully to the system.
* If user’s username or password does not match with the records in the system, user must be notified that credentials were not correct, but the notification will not specify if the username was valid or not.
* Usernames and passwords must be encrypted when being transferred over the network, and they most never be sent as plain text.
* Users can be authenticated through a third party (Facebook, Google+)
  + If the email collected from a third-party authentication matches an existing account, the account will be linked to the third-party authentication method.
  + If there is no match with an existing account, the third-party credentials will be used to sign-up/in.
* Once signed in, the User should be able to navigate through all of the application views with its tasks and itineraries.

**User Story Name: Setup Reset Password (Frontend + Backend)**

* Description: As a registered user, I would like to be able to reset my password in case I forget my current password, or if someone has attempt several times to access my account.

Acceptance Criteria

* The User must enter a registered email in order to receive an email with the recovery code and instructions.
* The User should be able to enter a new password and confirm it after the proper code has been inserted.
* The new password has to be different from the old password.

**User Story Name: Add Places**

* Description: As a registered user, I would like to be able to add a place to my itinerary.

Acceptance Criteria

* The User should be able to search for a valid entity (e.g. CVS, Walmart).
* The User should be able to search for a valid address.
* The User should be able to pick from the pool of favorite places.
* The User must select one of the previous choices in order to add a new place to the itinerary.

**User Story Name: Add tasks to places**

* Description: As a registered user, I would like to be able to add tasks to be done in a specific place of the itinerary.

Acceptance Criteria

* The User must have a place in the itinerary in order to add a task.
* The User can add any descriptive text as a task.

**User Story Name: Show Itinerary and Total Time**

* Description: As a registered user, I would like to be able to see an overview of all the places in the itinerary and how long it would take to go through all of them.

Acceptance Criteria

* The User must have at least one place in the itinerary.
* The User should be able to see an overview of the itinerary and the optimized order of the places.

**User Story Name: View Map Overview**

* Description: As a registered user, I would like to be able to see an overview of the itinerary of the trip at any time on the map.

Acceptance Criteria

* The User must have at least one place in the itinerary.
* The User must be in navigation mode in order to see the overview of the itinerary on the map.
* In navigation mode, the User should be able to move back and forth between step by step mode and overview of the map.

**User Story Name: Setup Navigation (Frontend + Backend)**

* Description: As a registered user, I would like to be able to have a navigation mode where I follow step by step instructions to go through my itinerary.

Acceptance Criteria

* The User must have at least one place in the itinerary.
* The User should be able to see the estimated time to the place he/she is heading to.
* The User should be able to see the maneuver that he/she has to perform.
* The view in the map should be center in the User’s location to orient the User better.
* The view in the map should be able to toggle between compass and direction modes.
* In navigation mode, the User should be able to move back and forth between step by step mode and overview of the map.

**User Story Name: View Places on the Map**

* Description: As a registered user, I would like to be able to see all of the places of my itinerary on the map, and an excerpt of the tasks.

Acceptance Criteria

* The User must have at least one place in the itinerary.
* The User must be in the map view in order to tap on places and see an excerpt of tasks.
* After a place is taped, moving the map or tapping outside of the pin will hide the excerpt of the place.

**User Story Name: Add New Place while Navigating**

* Description: As a registered user, I would like to be able to add a place to modify my itinerary once the navigation has started.

Acceptance Criteria

* The User should be able to have a gesture to add new place into the itinerary from the map view.
* The new place should be inserted in the itinerary and optimized position.

**User Story Name: Update Route on Map View if Delays**

* Description: As a registered user, I would like to be able to follow an optimized path at all times.

Acceptance Criteria

* The User must have at least one place in the itinerary.
* The User will be notified when changes in to the ETA occur.
* If changes occur, routes will be updated with the new optimized path.
* When optimized path is ready, user will be redirected to follow new route.

**User Story Name: Add Favorite Places**

* Description: As a registered user, I would like to be able to save places that I visit often as a favorite list.

Acceptance Criteria

* The User must have at least one place in the itinerary.
* The User must be in the Place View to selected as a frequently used place.
* If a User visit a place often it will also be added to frequently used place.

**User Story Name: Add History**

* Description: As a registered user, I would like to be able to see the places I have visited before.

Acceptance Criteria

* The User must have visited at least one place to have a history of places.
* Every time a user visits a place in the itinerary, the visit will be recorded.
* There is a History View for the user to review the places and tasks accomplished.

**User Story Name: Time Spent in Places**

* Description: As a registered user, I would like to be able to see the time I spent in places I have visited before.

Acceptance Criteria

* The User must have visited at least one place to have a record of time.
* Every time a user visits a place in the itinerary, the time spent will be recorded.
* The time of a visit will be in the History View included in a visit record for the User to review the time spent in a specific visit.
* The time of a visit will be used for future itinerary estimates.

**User Story Name: Register, Update and Delete User (Backend)**

* Description: As a developer, I should be able to add users to the database. Update each user’s information and delete users from the database.

Acceptance Criteria

* Verify the User information is correctly filled.
* Verify the User’s email is unique.
* Verify the User was added to the database.
* Verify the User’s information is updated to the new information.
* Verify the User was Deleted from the Database.

**User Story Name: Add Places to User (Backend)**

* Description: As a developer, I should be able to add Places to a User’s Itinerary, and reflect this change in the database.

Acceptance Criteria

* Verify the Place is added to the correct User.
* Verify the Place is added to the User’s Itinerary.
* Verify the Place’s address is correct.

**User Story Name: Add Task to Places (Backend)**

* Description: As a developer, I should be able to add one or more tasks to a Place.

Acceptance Criteria

* Verify the task is added to the correct Place.
* Verify the task are added to the database.

**User Story Name: Delete Places When Tasks are Completed (Backend)**

* Description: As a developer, I should be able to delete a Place corresponding to an User, once the User completed all the tasks in the Place.

Acceptance Criteria

* Verify all the Tasks in a Place are completed.
* Verify the Place is deleted from the User’s Account.
* Verify the Place is deleted from the Database.

**User Story Name: Delete Places Manually (Backend)**

* Description: As a developer, I should be able to delete a Place Manually, and delete all the task corresponding to that task.

Acceptance Criteria

* Verify all the Tasks corresponding to the Place are deleted from the database
* Verify the Place is deleted from the database.

**User Story Name: Update Places (Backend)**

* Description: As a developer, I should be able to update a Place (change address) corresponding to an User..

Acceptance Criteria

* Verify all the Tasks in a Place are completed.
* Verify the Place is deleted from the User’s Account.
* Verify the Place is deleted from the Database.

**User Story Name: Delete Places (Backend)**

* Description: As a developer, I should be able to delete a Place corresponding to an User, once the User completed all the tasks in the Place.

Acceptance Criteria

* Verify all the Tasks in a Place are completed.
* Verify the Place is deleted from the User’s Account.
* Verify the Place is deleted from the Database.

## Project Plan

This section describes the planning that went into the realization of this project. This project incorporated the agile development techniques and as such required the sprints to be planned. These sprint plannings are detailed in the section. This section also describes the components, both software and hardware, chosen for this project.

In order to plan out a successful execution of To-Do list optimizer, an agile and effective methodology was used to keep all developers, project managers, and product owners on track. Various brainstorming sessions took place detailing issues ranging from user interface design to whether features should be prioritized sooner rather than later. The team also aimed to have the design of each feature completed by our designer Euge, before the frontend team began working on them to minimize the cost of development.

Iterations on the product were divided into sprints. Each sprint lasted 2 weeks, with a sprint  
checkpoint meeting halfway. Their goal was to plan out what each developer had to work on for  
the next two weeks. Once a feature was built out, demos took place in weekly sprint meetings.  
Each team member would present their work from the past week and discuss with the rest of the  
team. This served as a method for all team members to be aware of what their colleagues were  
working on. Additionally, each day the team had scrum meetings which outlined what each  
member was working on, what they accomplished since the day before, and what hurdles they  
were currently facing.

### Hardware and Software Resources

The following is a list of all hardware and software resources that were used in this project:

1. Hardware
   1. Local Server (MacBook Pro)
      1. 16 GB RAM
      2. 256 GB SSD Disk
      3. 1000 GB Transfer
2. Software
   1. Express
   2. React Native

### Sprint Plan

#### Sprint 2

**Sprint Planning Meeting**

Release #: 1

Sprint #: 3

Date:

Attendees: Salvador Ricardo, Manuel Garcia, Daniel Gonzales, Monique Ross

Start Time: 2:30 pm

End Time: 3:00 pm

After discussion, the velocity of the team was estimated to be 30 hours

* + - 1. Manuel Garcia:
      2. Daniel Gonzales:
      3. Salvador Ricardo: 1 hours

The goal for the next Sprint is:

* + - 1. Asd
      2. Ase
      3. Asd

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

* #680 Register User [Backend]
* #690 Scene Basic Transitions
* #695 Update User [ Backend]
* #697 Delete User [Backed]
* #703 Center Map
* #706 Connect to google maps API to autocomplete place search [front-end]
* #707 Create New Entry Scene [front-end]
* #704 Overview Map

The team members indicated their willingness to work on the following user stories.

* Salvador Ricardo
* #680 Register User [Backend]
* #695 Update User [Backend]
* #697 Delete User [Backed]
* Manuel Garcia
* #690 Scene Basic Transitions
* #703 Center Map
* #704 Overview Map
* Daniel Gonzalez
* #706 Connect to google maps API to autocomplete place search [front-end]
* #707 Create New Entry Scene [front-end]

#### Sprint 3

**Sprint Planning Meeting**

Release #: 1

Sprint #: 3

Date:

Attendees: Salvador Ricardo, Manuel Garcia, Daniel Gonzales, Monique Ross

Start Time: 2:30 pm

End Time: 2:00 pm

After discussion, the velocity of the team were estimated to be 38 hours

* + - 1. Manuel Garcia:
      2. Daniel Gonzales:
      3. Salvador Ricardo: 1 hours

The goal for the next Sprint is:

* + - 1. Asd
      2. Ase
      3. Asd

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

* #666 Setup Sign Up
* #669 Add Places
* #670 Add tasks to places
* #671 Show Itinerary and Total Time
* #673 Setup Navigation Information
* #681 Add Places to User [Backend]
* #683 Add Task to Places [Backend]
* #685 Delete Places Manually [Backend]
* #687 Update Places [Backend]
* #688 Delete Task [Backend]
* #684 Delete Places [Backend]
* #705 Display Markers of Places in the Map

The team members indicated their willingness to work on the following user stories.

* Salvador Ricardo
* #681 Add Places to User [Backend]
* #683 Add Task to Places [Backend]
* #685 Delete Places Manually [Backend]
* #687 Update Places [Backend]
* #688 Delete Task [Backend]
* #684 Delete Places [Backend]
* Manuel Garcia
* #673 Setup Navigation
* #705 Display Markers
* #671 Show Itinerary and Total Time
* Daniel Gonzalez
* #666 Setup Sign Up
* #669 Add Places
* #670 Add tasks to places

#### Sprint 4

**Sprint Planning Meeting**

Release #:

Sprint #: 3

Date:

Attendees:

Start Time: 5:00 pm

End Time: 5:30 pm

After discussion, the velocity of the team were estimated to be 36 hours

* + - 1. Manuel Garcia:
      2. Daniel Gonzales:
      3. Salvador Ricardo: 1 hours

The goal for the next Sprint is:

* + - 1. Asd
      2. Ase
      3. Asd

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

* #675 Add New Place while Navigating
* #676 Update Route on Map View if Delays
* #679 Track the time spent in places
* #713 Front End RestFul Api
* #714 Move Backend to Production Server
* #715 Asynchronous request of possible routes

The team members indicated their willingness to work on the following user stories.

* Salvador Ricardo
* #713 Front End RestFul Api
* #714 Move Backend to Production Server
* Manuel Garcia
* #675 Add New Place while Navigating
* #676 Update Route on Map View if Delays
* #679 Track the time spent in places
* #715 Asynchronous request of possible routes
* Daniel Gonzalez

#### Sprint 5

**Sprint Planning Meeting**

Release #:

Sprint #: 3

Date:

Attendees: Salvador Ricardo, Manuel Garcia, Daniel Gonzales, Monique Ross

Start Time: 6:00 pm

End Time: 6:45 pm

After discussion, the velocity of the team was estimated to be 52 hours

* + - 1. Manuel Garcia:
      2. Daniel Gonzales:
      3. Salvador Ricardo: 1 hours

The goal for the next Sprint is:

* + - 1. Asd
      2. Ase
      3. Asd

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

* # 713 Front-end restful API.
* # 679 Track time spent in places.
* # 676 Update route on map view if delays.
* # 716 Improve visuals in the map view.

The team members indicated their willingness to work on the following user stories.

* Salvador Ricardo
* # 713 Front\_end restful APi.
* Manuel Garcia
* # 679 Track time spent in places.
* # 676 Update route on map view if delays.
* # 716 Improve visuals in the map view.
* Daniel Gonzalez

#### Sprint 6

**Sprint Planning Meeting**

Release #:

Sprint #: 3

Date:

Attendees:

Start Time:

End Time:

After discussion, the velocity of the team were estimated to be 391 (0.8 \* 489) hours

* + - 1. Manuel Garcia:
      2. Daniel Gonzales:
      3. Salvador Ricardo: 1 hours

The goal for the next Sprint is:

* + - 1. Asd
      2. Ase
      3. Asd

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their numbers.

1. Manuel Garcia
   * #123 Refaf
   * #213 sad
2. Daniel Gonzales
   * #12323 sadsd
3. Salvador Ricardo
   * #123 asdsfafa

#### Sprint 6

**Sprint Planning Meeting**

Release #:

Sprint #: 3

Date:

Attendees:

Start Time:

End Time:

After discussion, the velocity of the team were estimated to be 391 (0.8 \* 489) hours

* + - 1. Manuel Garcia:
      2. Daniel Gonzales:
      3. Salvador Ricardo: 1 hours

The goal for the next Sprint is:

* + - 1. Asd
      2. Ase
      3. Asd

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their numbers.

1. Manuel Garcia
   * #123 Refaf
   * #213 sad
2. Daniel Gonzales
   * #12323 sadsd
3. Salvador Ricardo
   * #123 asdsfafa

#### Sprint 7

**Sprint Planning Meeting**

Release #:

Sprint #: 3

Date:

Attendees:

Start Time:

End Time:

After discussion, the velocity of the team were estimated to be 391 (0.8 \* 489) hours

* + - 1. Manuel Garcia:
      2. Daniel Gonzales:
      3. Salvador Ricardo: 1 hours

The goal for the next Sprint is:

* + - 1. Asd
      2. Ase
      3. Asd

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their numbers.

1. Manuel Garcia
   * #123 Refaf
   * #213 sad
2. Daniel Gonzales
   * #12323 sadsd
3. Salvador Ricardo
   * #123 asdsfafa

## System Design

This section contains information on the design decisions that went into this project. The architecture patterns are outlined and explained. The entire system is shown in a package diagram and the subsystems are explained. Finally, the design patterns used in the project are discussed.

### Architectural Patterns

### System and Subsystem Decomposition

### Deployment Diagram

### Design Pattern

## System Validation

Unit Tests:

* + Test case ID: signup
  + Description/Summary of Test: sasdas
  + Pre-condition: N/A
  + Expected Result:
  + Actual Result:
  + Status (Fail/Pass): Pass

## Glossary

1. MVC: Model, View, Controller architecture design paradigm.

## Appendix

### Appendix A – UML Diagrams

### Appendix B – User Interface Design

### Appendix C – Sprint Review Reports

#### Sprint 2

Attendees:

* Salvador Ricardo, Manuel Garcia, Daniel Gonzales, Monique Ross

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

* #680 Register User [Backend]
* #690 Scene Basic Transitions
* #695 Update User [ Backend]
* #697 Delete User [Backed]
* #703 Center Map
* #704 Overview Map
* #706 Connect to google maps API to autocomplete place search [front-end]
* #707 Create New Entry Scene [front-end]

The following ones were rejected and moved back to the product backlog to be assigned to a future sprint at a future Sprint Planning meeting.

* No User Stories were rejected

#### Sprint 3

Attendees:

* Salvador Ricardo, Manuel Garcia, Daniel Gonzales, Monique Ross

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

* #666 Setup Sign Up
* #669 Add Places
* #670 Add tasks to places
* #671 Show Itinerary and Total Time
* #673 Setup Navigation Information
* #681 Add Places to User [Backend]
* #683 Add Task to Places [Backend]
* #685 Delete Places Manually [Backend]
* #687 Update Places [Backend]
* #688 Delete Task [Backend]
* #684 Delete Places [Backend]

The following ones were rejected and moved back to the product backlog to be assigned to a future sprint at a future Sprint Planning meeting.

* No User Stories were rejected

#### Sprint 4

Attendees:

* Salvador Ricardo, Manuel Garcia, Daniel Gonzales, Monique Ross

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

* #675 Add New Place while Navigating
* #714 Move Backend to Production Server
* #715 Asynchronous request of possible routes

The following ones were rejected and moved back to the product backlog to be assigned to a future sprint at a future Sprint Planning meeting.

* #713 Front End RestFul Api
* #679 Track the time spent in places
* #676 Update Route on Map View if Delays

#### Sprint 5

Attendees:

* Salvador Ricardo, Manuel Garcia, Daniel Gonzales, Monique Ross

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

* # 713 Front-end restful API.
* # 679 Track time spent in places.
* # 676 Update route on map view if delays.
* # 716 Improve visuals in the map view.

The following ones were rejected and moved back to the product backlog to be assigned to a future sprint at a future Sprint Planning meeting.

None

### Appendix D – Sprint Retrospective Reports

#### Sprint 2

Attendees:

* Salvador Ricardo, Manuel Garcia, Daniel Gonzales, Monique Ross

What went wrong?

* Did we do a good job estimating our team's velocity?
  + We did a good job, it could have been better but it was pretty good. A lot of learning required to start working.
* Did we do a good job estimating the points (time required) for each user story?
  + We underestimated the time required for each thing. Sometimes it took more than the expected amount.
* Did each team member work as scheduled?
  + Yes.

What went right?

* Coupling as a team was something that worked really well during this sprint.

How to address the issues in the next sprint?

* How to improve the process?
  + Study more about the the user stories technologies needed to estimate better velocity.
* How to improve the product?
  + We are planning on finding state-of-the-art products using the same technology and look at how they structure their products to improve ours.

#### Sprint 3

Attendees:

* Salvador Ricardo, Manuel Garcia, Daniel Gonzales, Monique Ross

What went wrong?

* Did we do a good job estimating our team's velocity?
  + We did a good a good job managing our team velocity although we underestimated the time some tasks would take.
* Did we do a good job estimating the points (time required) for each user story?
  + Some of the stories took more time than the estimated time
* Did each team member work as scheduled?
  + All the team member worked as scheduled, and although we took a little more time, every team member finished their User Stories.

What went right?

* We finished all the User Stories assigned to the Sprint 3 and didn’t moved any back to the backlog.

How to address the issues in the next sprint?

* How to improve the process?
  + Now that we have a better understanding of the framework we can estimate better the amount of time that the tasks would take and be more thorough.
* How to improve the product?
  + Since we are using a framework that is not native to the language of the platforms, we can learn some swift and help improve the code by adding native code.

#### Sprint 4

Attendees:

* Salvador Ricardo, Manuel Garcia, Daniel Gonzales, Monique Ross

What went wrong?

* Did we do a good job estimating our team's velocity?
  + We did do a good job estimating the team’s velocity, but some User Stories where longer than 1 sprint’s worth.
* Did we do a good job estimating the points (time required) for each user story?
  + We did a good job estimating the points for each user story
* Did each team member work as scheduled?
  + Yes, all the team members worked as scheduled.

What went right?

* We made progress in the app, both in the frontend and backend. We are certainly on time to finish the application.

How to address the issues in the next sprint?

* How to improve the process?
  + Try to better estimate the points for next sprint.
* How to improve the product?

To improve the product, we will subject the application to extensive testing.

#### Sprint 5

Attendees:

* Salvador Ricardo, Manuel Garcia, Daniel Gonzales, Monique Ross

What went wrong?

* Did we do a good job estimating our team's velocity?
  + At this point of the semester the team is adjusting better to the phase and it is calculating better the time that each story would take since the knowledge of the framework has increased.
* Did we do a good job estimating the points (time required) for each user story?
  + The team is doing a better job estimating the points, but we still have those stories that we under rate.
* Did each team member work as scheduled?
  + Every team member worked according to the schedule and was on time for each of the scheduled meetings.

What went right?

* The synergy among the member of the team.

How to address the issues in the next sprint?

* How to improve the process?
  + A little bit of communication would improve the process since this sprint we had some conflicts on some commits.
* How to improve the product?
  + At this point the best way to improve the product would be to release a beta so people can try it out and give some feedback

### Appendix F - User Manuals, Installation/Maintenance Document, Shortcomings/Wishlist Document and other documents

#### Videos

* Intro Video

#### Posters

* sdfsdfdsf