System Requirements Specification

For

Sunland Cruises

Version 2.0 - Final Draft

FPG4: Banana

4/22/2020

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1. Customer Statement of Requirements

Sunland Cruises is currently in need of a modernized interface that will make it easier for its passengers to make use of on-board amenities, and to sign up for

off boat activities. These include dining and beverage options, activities on board, excursions, amenities, concierge service, medical service, and retail. Passengers will be able to book all of these types of services through a phone and computer application and will be able to find their way through the ship to their desired destination, as well as locate family members and friends who have shared their locations with the members of their group with an interactive map complete with location services.

Currently Sundland cruises is reporting that all required hardware to get the system to operate is accounted for and will be managed separately by their own IT staff. We estimate the IT support cost to manage this system to be 50 million dollars as well as a stable network connection cost of 2 million dollars for the first year, with these costs increasing by 10% each year. The system will also require each ship to have it's own map, which will cost 1 million dollars per map as well as an additional 1 million dollars for the graphical design of all 10 ships and an ongoing 100 thousand dollars to update any maps that are in need of updates. We are confident this will guarantee accurate and well polished graphic designs for all ten ship layouts implemented into the system. Sunland Cruises is world wide and therefore should not be limited by language. We will be giving those that use the system an option on what language they would prefer to use. These options include English, Spanish, French, German, Italian, Tagalog, Potugese, Japanese, Mandarin Chinese, Korean, Russian, Arabian, and many others to come in the future. This language translation cost will be a one time payment of 100 thousand dollars, and will have an ongoing cost of 10 thousand dollars for the first year, decreasing by 10% each year for new languages to be added to the system. The final cost we estimate for this system will be the system development cost of 1 billion dollars to create the system and allow it to work on all ships maximizing profit, customer growth, and satisfaction.

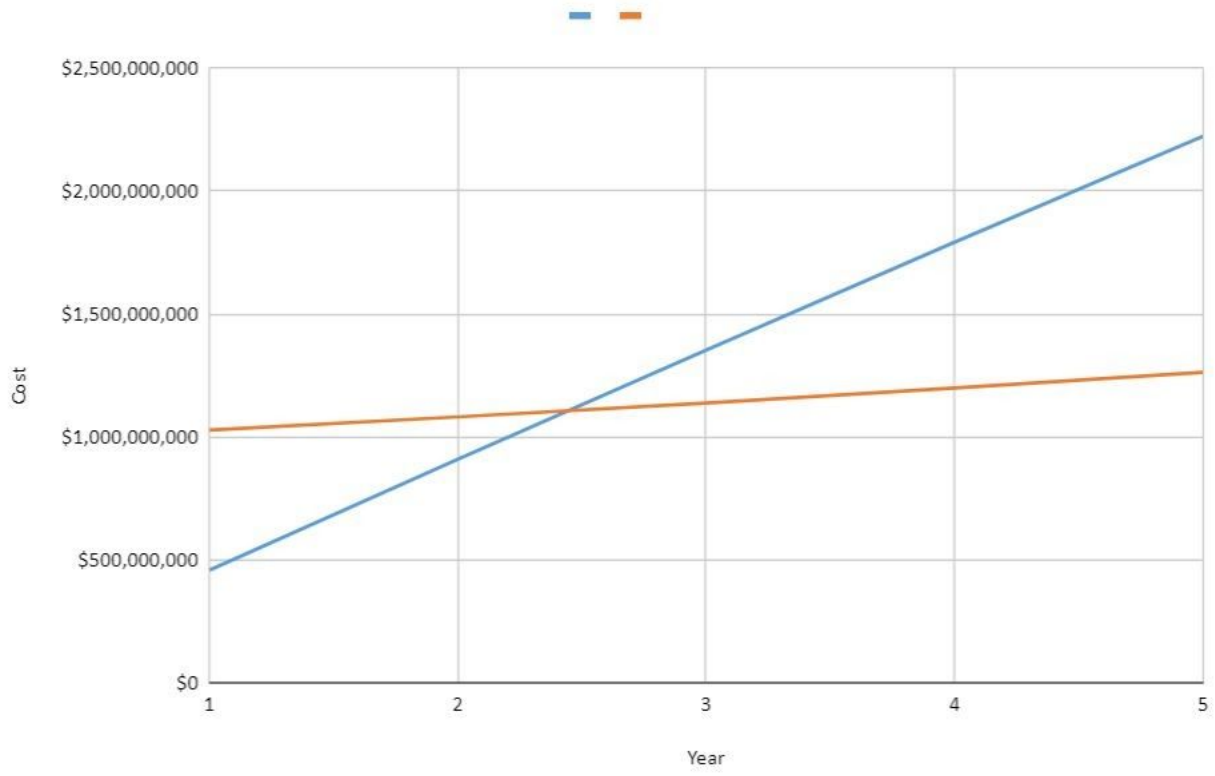
ONE TIME COSTS						
Ship Maps (x10)		$10,000,000	$0	$0	$0	$0
Developers		$1,000,000,000	$0	$0	$0	$0
Language Translation		$100,000	$0	$0	$0	$0
Graphic Design		$1,000,000	$0	$0	$0	$0
ONGOING COSTS						
Support		$50,000,000	$55,000,000	$60,500,000	$66,550,000	$73,205,000
Increased Internet Costs		$2,000,000	$2,200,000	$2,420,000	$2,662,000	$2,928,200
Language Translation		$10,000	$9,000	$8,100	$7,290	$6,561
Map Updates		$100,000	$110,000	$121,000	$133,100	$146,410
TC		$1,063,210,000	$57,319,000	$63,049,100	$69,352,390	$76,286,171

The current average revenue Sunland Cruises gets per passenger $1560. This revenue is split between10 categories where a certain percentage is allocated; commission, transportation and other (15.1%), marketing, selling and admin cost (13.7%), onboard and other expenses (5.7%), payroll (9.7%), food (5.5%), fuel (7.5%), other operating expenses (12%), depreciation and amortization (10.9%), other expenses (0.8%), profit (19.1%). With this system we will be expecting a 16% increase in revenue, bringing the average revenue of Sunland Cruises from $1560 to $1810. More importantly, this will increase profit from 19.1% to 30.3%, without increasing any of the 9 other categories. This is an 84% increase in profit from $298 to $548 average per guest. This system will also increase the guest growth by 1% per year.

COST BENEFITS						
increased profit per guest - 16 %		$468,936,000	$478,314,720	$487,881,014	$497,638,635	$507,591,407
1% additional increase to growth		$4,689,360	$4,783,147	$4,878,810	$4,976,386	$5,075,914
TB		$473,625,360	$483,097,867	$492,759,825	$502,615,021	$512,667,321

The total cost after the first first year will be 1.063 billion dollars for implementation, but will decrease dramatically to 57 million dollars the second year and will continue to grow by ten percent per year as the business grows. The total benefit of the system will earn Sunland Cruises 473 million dollars after the first year and will rise by 10 million dollars per year afterward. Due to this

Sunland Cruises will have this system paid off by the start of the third year after launch and will continue to increase their profits to be 84% higher per year.



2. Glossary of Terms

Application: A program designed for a specific function such as Microsoft word. This is what the user will interact with to use the system.

Cloud/Cloud Computing: A general term used to describe Internet services such as social networking services, online backup services, and applications that run within a

Connect: A term that commonly refers to accessing a remote computer

Database: A collection of information organized so that a computer application can quickly access selected information: it can be thought of as an electronic filing system

Hardware: The physical components of a computer including the keyboard monitor, disk drive, and internal chips and wiring. Counterpart of software

Help desk: an information and assistance resource that troubleshoots problems with computers or similar products

Interface: The screen the user sees and interacts with to use the application

Internet: A worldwide network based on the TCP/IP protocol that can connect almost any make or model of popular computers from micros to supercomputers

Layout: The design and placement of the application interface

Network: A group of interconnected computers capable of exchanging information

Pathing: Path of travel. This will be the path a user will follow on the map.

PC: Usually refers to an IBM PC or compatible, or when used generically, to a “personal computer”

Program: A set of instructions that tells a computer how to perform a specific task

Protocol: A set of rules that regulate how computers exchange information

Server: A computer that is responsible for responding to requests made by a client program

Software: Any program that performs a specific function

System: a set of things working together as parts of a mechanism or an interconnecting network.

Web browser. Includes computer networks that are connected over the Internet for server redundancy or cluster computing purposes

3. Functional Requirements

3.1 Stakeholders

Champion- The champion who has initiated and promoted this project is Alison Sunderland from Sunland Cruises. She has provided the necessary information and incentive to create this new system and to make sure that it reaches all of the requirements needed to fulfill the companies desires.

Organizational Managers- The individuals and groups that will be granted full access to the system and will be critical in the managing of different aspects of the system and encouraging customers and other employees to implement the system will be the Captain of the ship, the Cruise Director, the Hotel Director, the IT Staff, the Medical Director, and the Corporate Office Staff in Salt Lake City. Each of these directors will be responsible for their different departments of the ship to encourage use of the new system.

System Users- The users that will be utilizing this system the most will be the passenger. They will benefit the most from this system. The system will create opportunities for the passenger and will make their experience memorable and enjoyable. Other users that will have limited access to the system, depending on their role, are the Activities Director, Activities Coordinators, Excursion Director, Excursion Staff, Tour Guides, Amenities Director, Amenities Staff, Executive Chef, Assistant Chefs, Food and Beverage Managers, Guest Services, Housekeeping Floor Supervisor, Cabin Steward, and the Retail Manager. All of these users will benefit from using the system and will all be affected directly from the implementation of the new system.

3.2 Actors and Goals

Passenger (Initiating and Participating) - The passenger will be able to create an account that will give them access to the system through an application. They will initiate events throughout the system by registering for events, ordering food, booking an activity. They will be able to participate in the events. They will be able to initiate contact with their registered friends on the boat.

Captain (Initiating and Participating) - The captain will have all access that other employees have as well as the ability to set parts of the ship as off limits.

Director - The director will have access to manage events as well as announcements. They can view passenger account information as well as the registration data. Directors will initiate events in the system by creating and editing various activities, excursions, amenities, and food services.

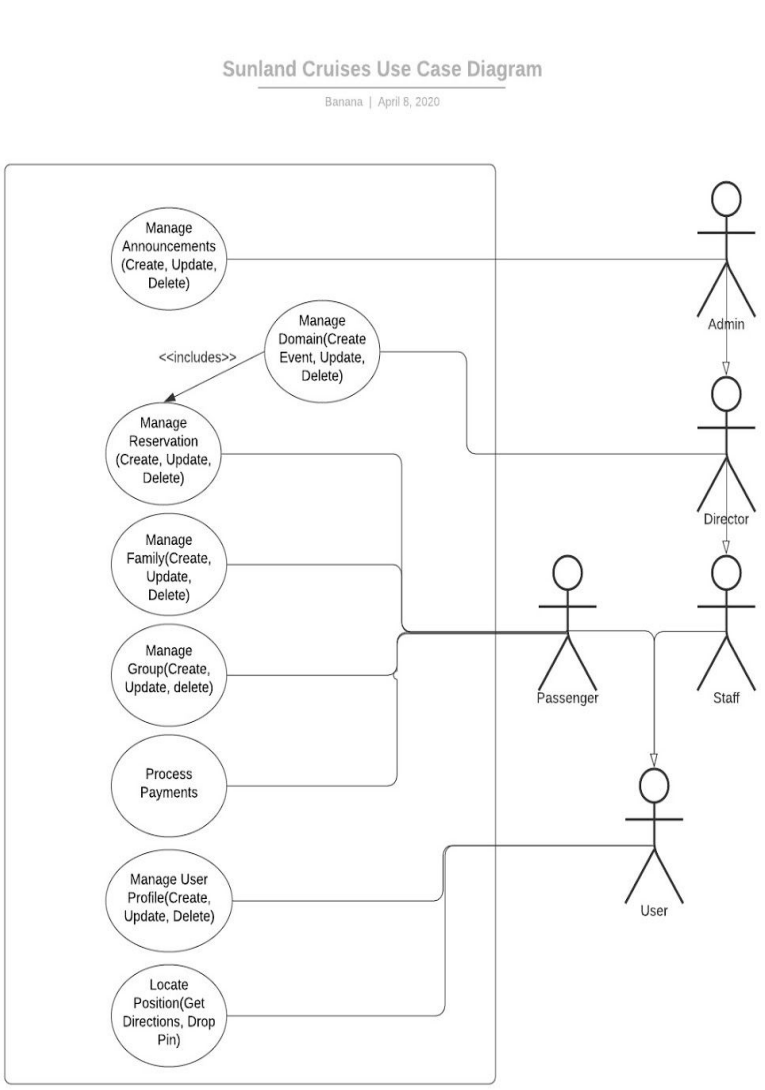
Ship Staff (Participating) - The ship staff will have access to participate in their assigned services within their specific domains. Accessibility will be determined by the staff position and the goal will be to provide the best assistance to passengers with the activities, excursions, and services provided on the ship.

Office Staff (Participating) - The office staff will have full access to recieve clerical and account billing information, keep track of all merchandise and event sales, and advertise any events upcoming on the system. They will be ensuring events are not overbooked.

3.3 Use Cases

Figure 3.3.1 Use Case Diagram

Diagram of the major use cases in the system. The chart on the right shows the different actors that are nested under each other and how they are related



Director - Domain:
Cruise Director - All
Medical Director - Physicians
Activities Director - On board activities
Excursion Director - Off boat trips
Amenities Director - Amenities
Executive Chef - Restauraunts
Assistant Chef - Their Restauraunt
Food/Beverage Manager- All Food and Beverage
Hotel Director - Cabins and Concierge Services
Retail Manager - Retail Sales

Ship Staff:
Excursion Staff
Amenities Staff
Cooks
Tour Guides
Guest Services
Cabin Steward
Housekeeping Floor Supevisor

Admin:
Captain
IT Staff
Corporate Office Staff

3.3.2 Casual Descriptions

Manage Announcements: This use case allows an administrator or a director which inherits from an administrator to create, update, or delete any announcement that they would like to make.

Manage Reservation: This use case allows all of the passengers to access the available reservations, and then the passengers can either create, update, view, or delete their reservations.

Manage Domain: This use case allows for directors to manage and control their specific type of events pertaining to the ship. For example, an activities director can create and update different activities and events on board and then activate them so that the passengers can make reservations for the events.

Manage Family: This use case enables passengers to create a family on the app and add other passengers to their group. They can add or delete new passengers in the family group.

Manage Group: This use case enables individual passengers to create different groups with friends and family so that they can communicate easily amongst themselves. They can add other passengers to groups and delete them from the group as well.

Process Payments: This use case will allow passengers to make payments for amenities and other purchases they would like to make.

Manage User Profile: The manage user profile use case will allow any user of the app or system to create a new profile and update or delete the profile. A profile will be required for all passengers and staff that will utilize the system.

Locate Position: This use case is essential to use to navigation features of the system. Users will be able to get directions to other members of their family/group, as well as to specific locations around the ship. They will also be able to drop a pin for members of their group to meet at.

3.3.3 Use Case Descriptions

Use case name: Manage Reservation	ID:	Importance Level:
Primary actor: Passenger	Use case type:	
Stakeholders and interests: **Passenger:** Creates and manages their own account created to enable access to activities and navigation services **Staff:** Depending on their position they can provide services to the passengers **Directors:** These actors can view the reservations that the Passengers make.		
Brief description: This use case allows all of the passengers to access the available reservations, and then the passengers can either create, update, view, or delete their reservations. Makes the process more accessible and faster for passengers to enjoy even more activities on the ship.		
Trigger: Actor clicks on Reservations		
Relationships: Association: Passenger Include: Extends: Manage Domain Generalization:		

Normal flow of events: 1. Browse upcoming events 2. Select desired event details 3. Select Add to Reservations 4. Submit Information
Subflows: 4. If event has vacancy a. Enter in name b. Select Party Size c. Choose which time if multiple are available d. Submit Information 5. If event is full a. Select add to wailtList() b. Enter in name c. Select Party Size d. Choose time if multiple are available e. Submit Information
Alternate/exceptional flows:

3.3.3 Use Case Descriptions

Use case name: Manage Domain	ID:	Importance Level:
Primary actor: Director	Use case type:	

Stakeholders and interests:

Passenger: The passenger will be able to access the events that the Directors make public. They will then be able to make reservations if the events have vacancies.
Staff: Depending on their position and the event being held they can provide services to the passengers
Directors: The Directors will be able to create and update the events that they will be holding on the ship. This will be the main way that passengers can sign up for events.

Brief description:

This use case allows for directors to manage and control their specific type of events pertaining to the ship. For example, an activities director can create and update different activities and events on board and then activate them so that the passengers can make reservations for the events.

Trigger:

Actor clicks on Events

Relationships:

Association: Director

Include: Manage Reservations

Extend:

Generalization:

Normal flow of events:

1. Select Create, Update, or Delete Event
2. Enter in all event information
3. Save Event Information
4. Publicate Event

Subflows:

Alternate/exceptional flows:

3.4 Activity Diagrams

Figure 3.4.1 Domain Director - Event Update Activity Diagram

This Diagram shows the steps a Domain Director would go through to update an event in the system. The Updates are made, then if it is necessary a Major or last minute update can trigger an escalation that notifies all registered passengers.

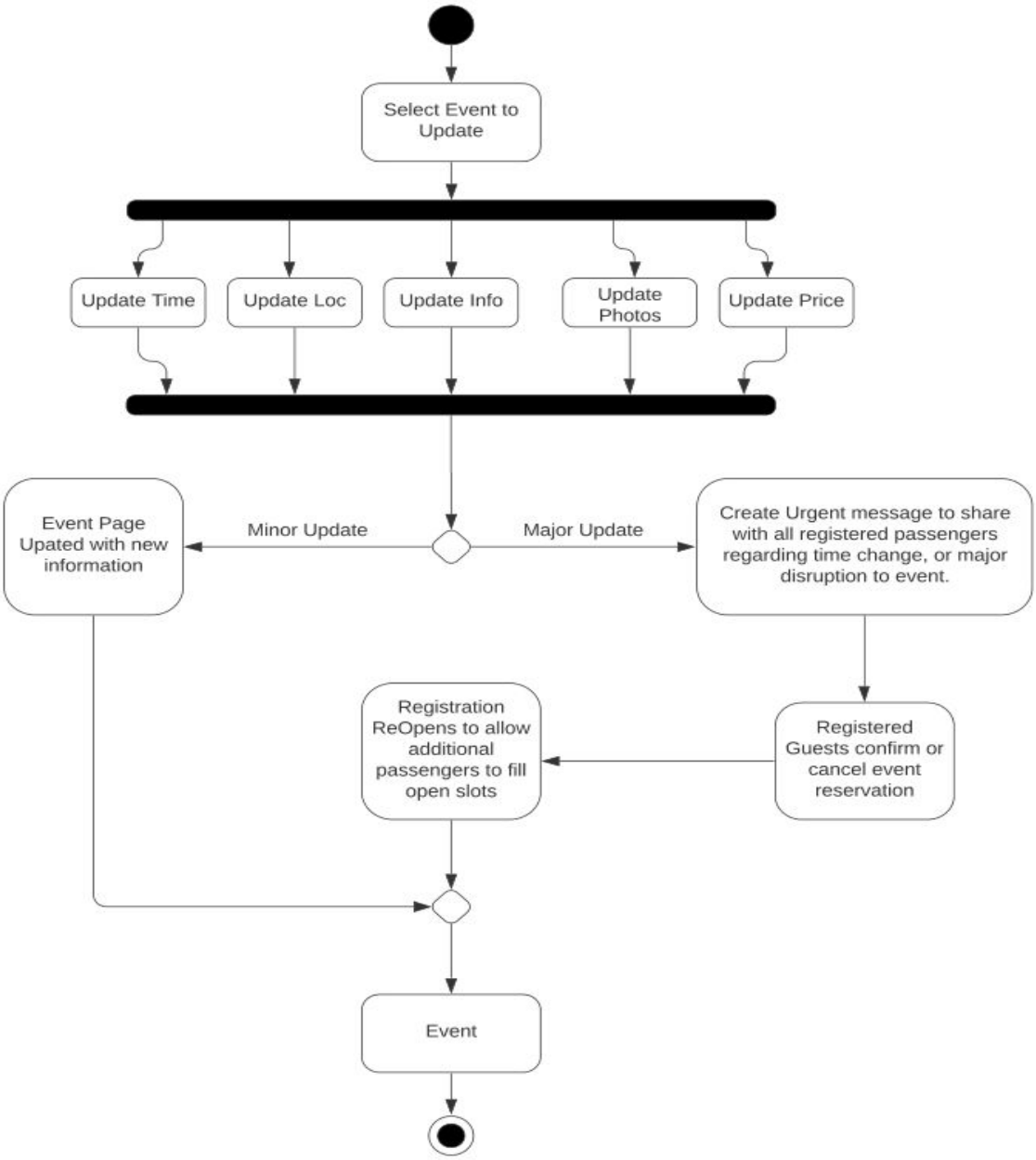
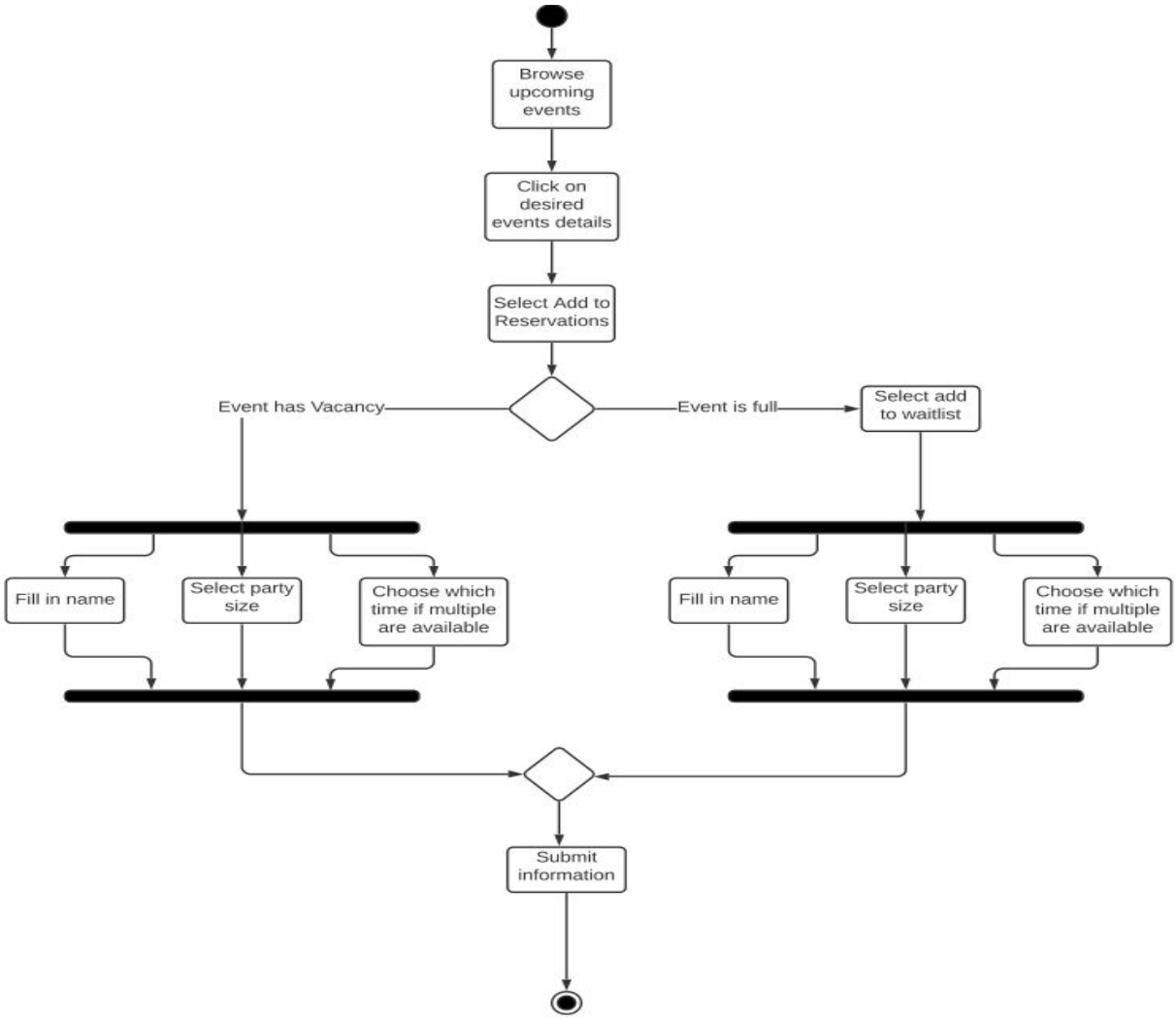


Figure 3.4.2 Passenger Create Reservation

This create reservation diagram is in the perspective of the user. The User will start by browsing upcoming events, selecting an event they are interested in and going to the event description. From there the user can add the event to their reservations by putting in their info and submitting. Alternatively, if the event is full, the user can still try to make a reservation by submitting their info. They will then be placed on a backup list in case someone cancels their reservation.



3.5 Interaction Diagrams

Figure 3.5.1 - Manage Reservation - Sequence Diagram

This diagram is a representation of the order in which the actor and objects communicate with each other when a reservation is being added, updated or deleted.

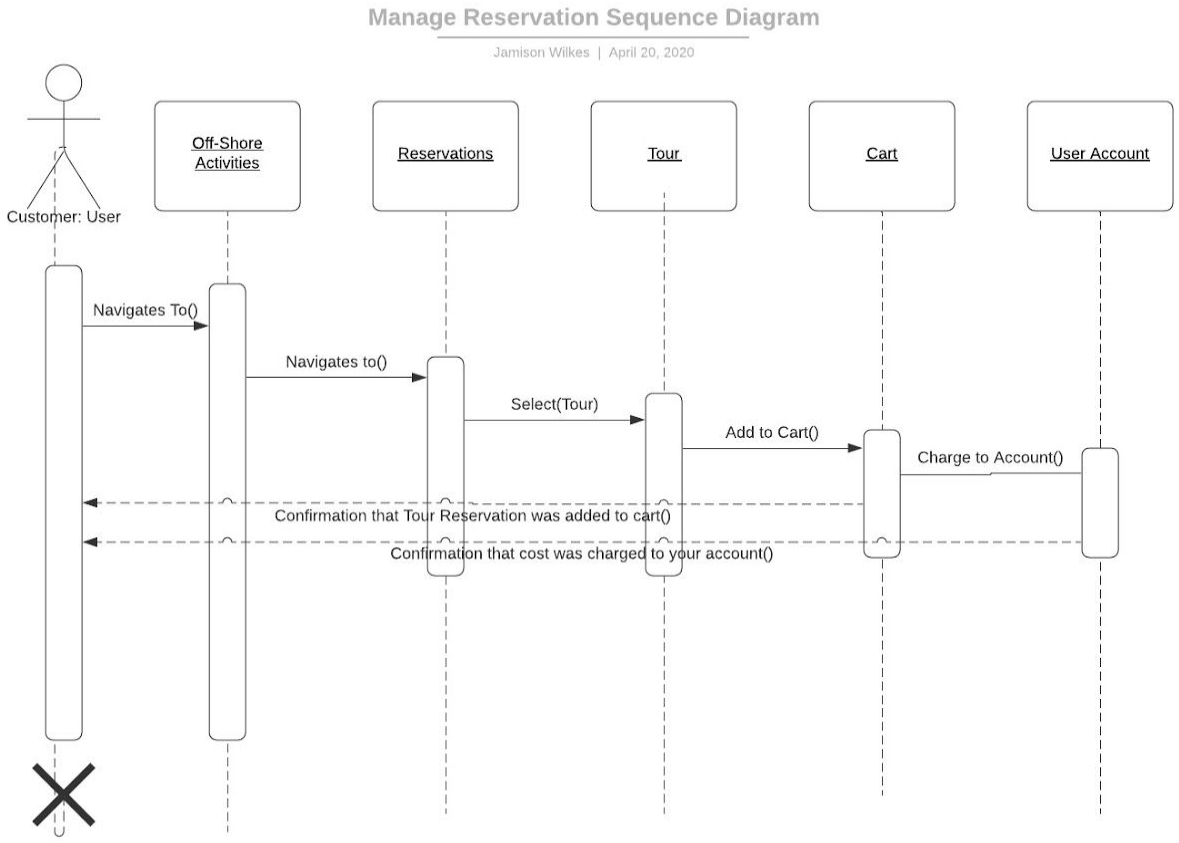


Figure 3.5.2 Update Domain - Sequence Diagram

This diagram is a representation of the order in which the actor and objects communicate with each other when a domain is being added, updated or deleted.

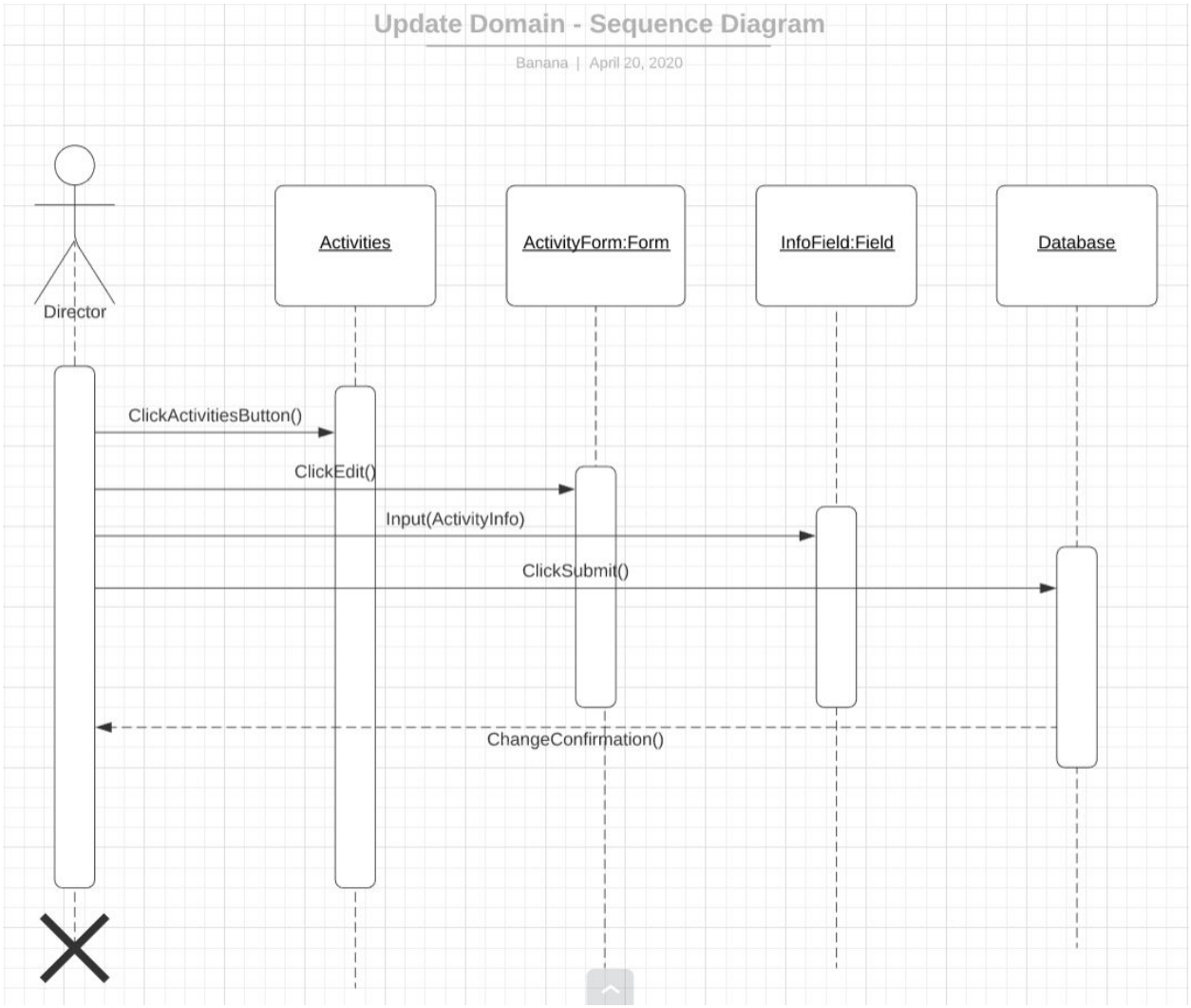


Figure 3.5.3 Manage Domain - Communication Diagram

- This diagram shows the communication between the Directors and the system when they create, update, or delete activities or events within the system.

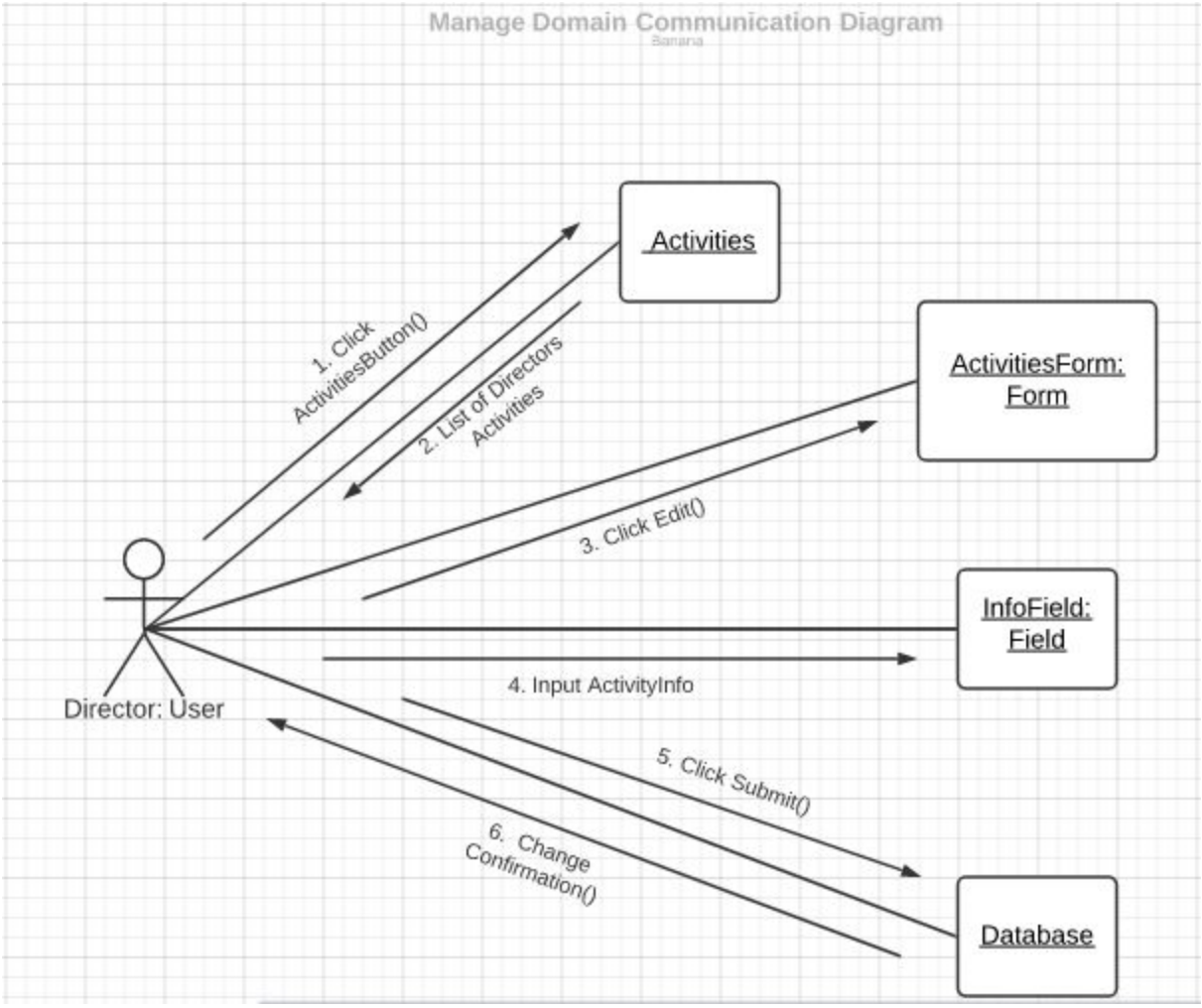
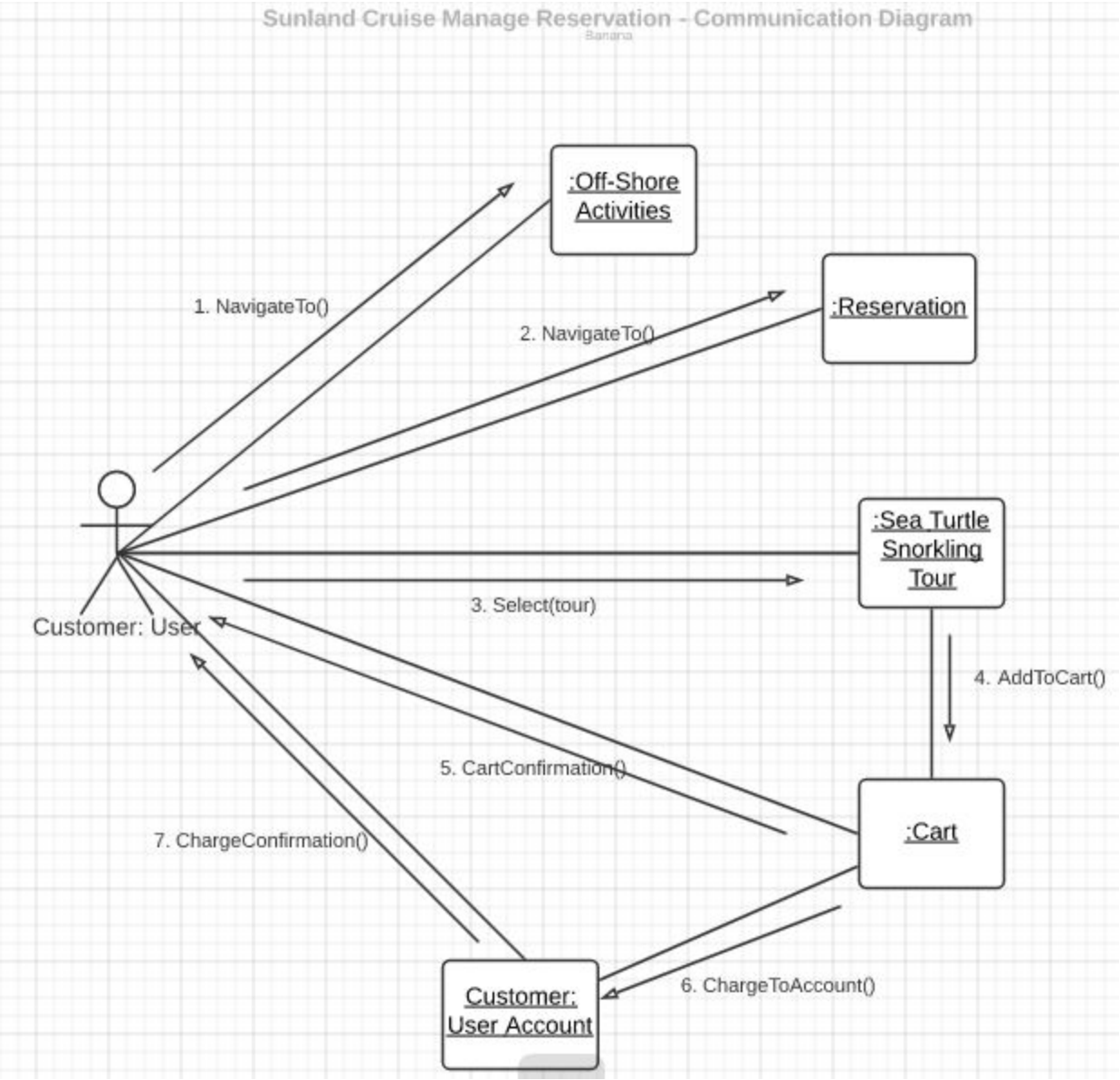


Figure 3.5.4 Manage Reservation - Communication Diagram

- This communication diagram represents the communication between the passenger and the objects in the system that he has to communicate with in order to make a reservation.

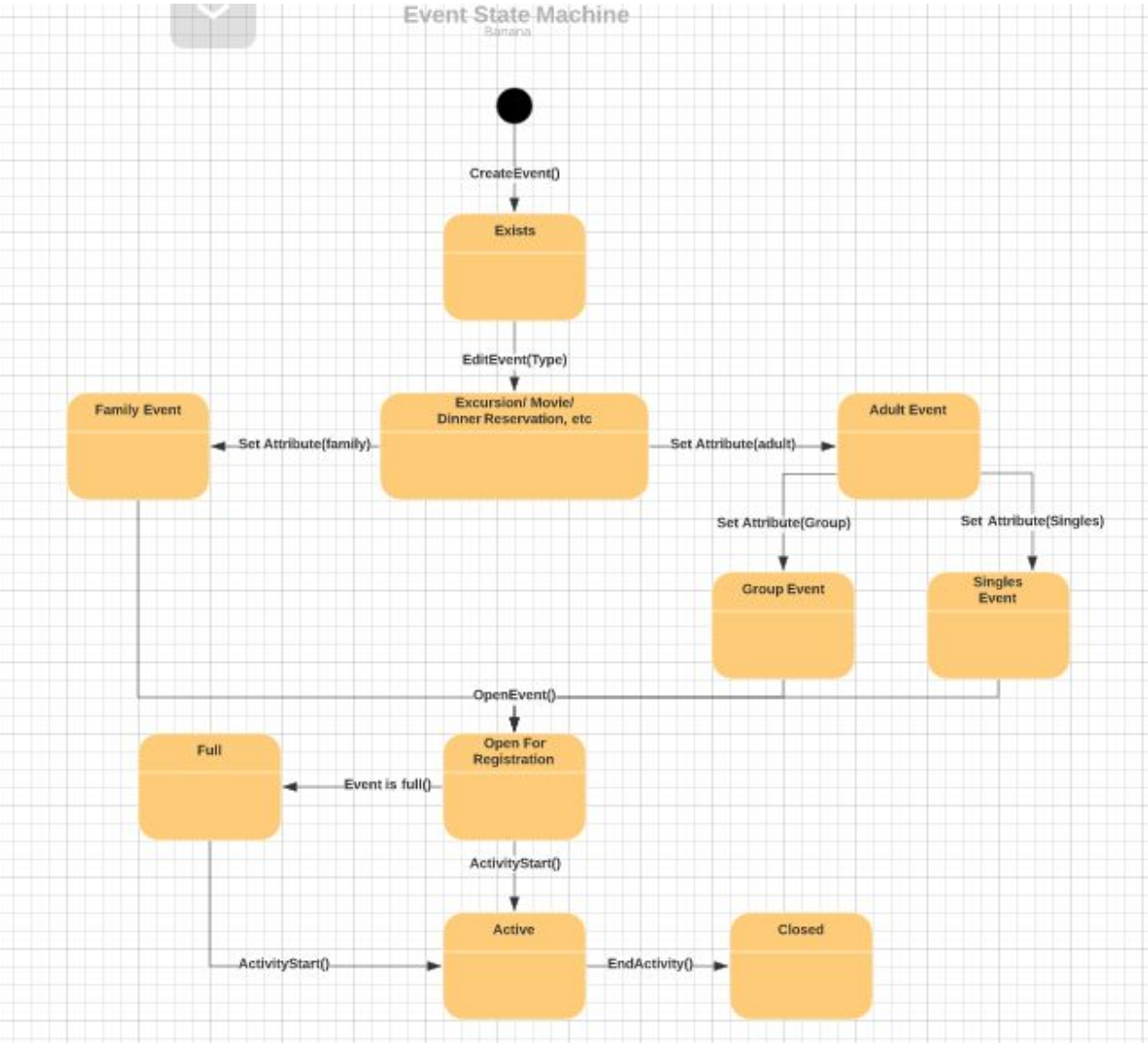


Other objects that change state

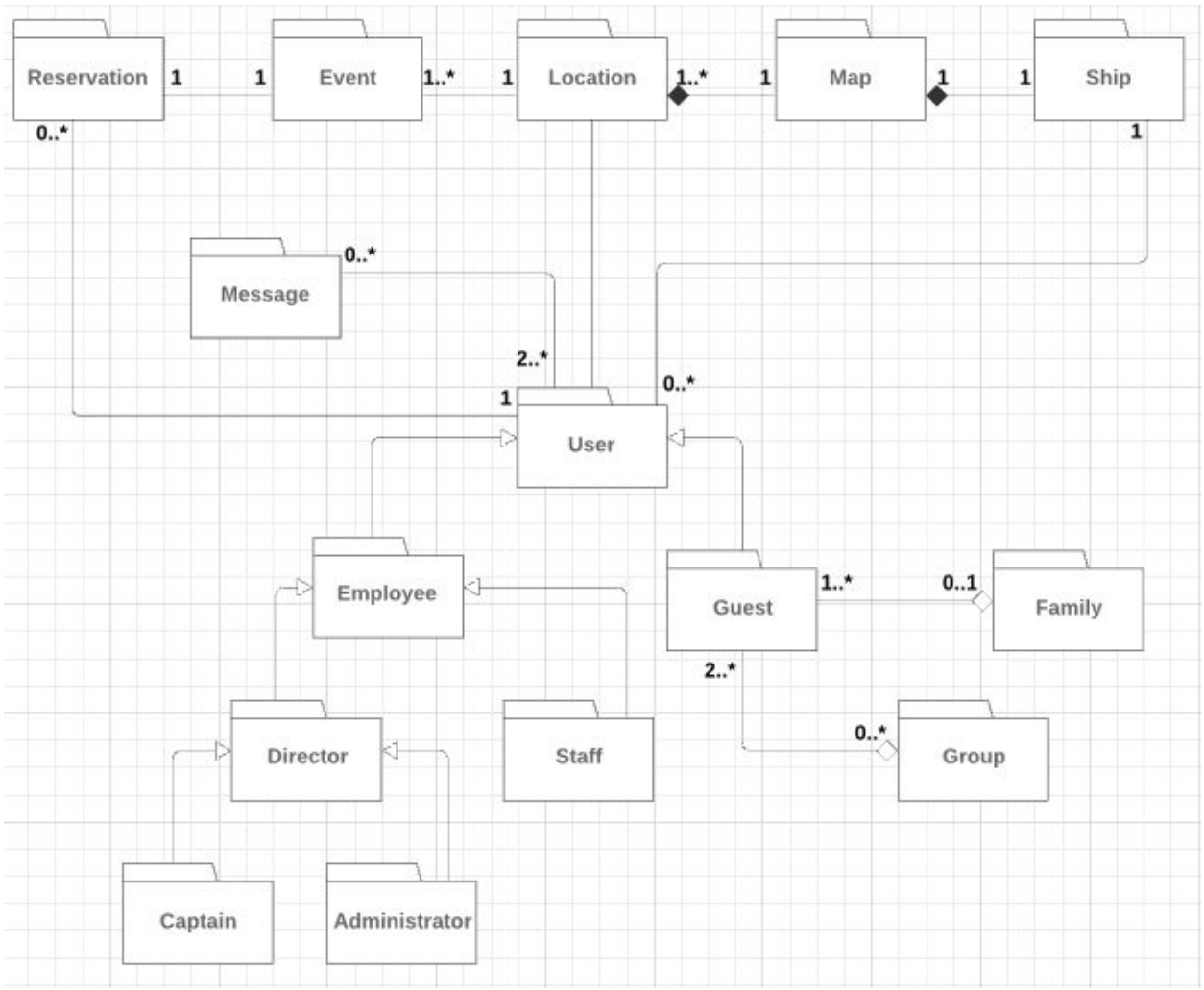
- User
- User Location
- Reservations

Figure 3.5.5 Behavioral State Machine - Event object

This diagram shows the different states that an event could possibly have within the system. It goes through each state and shows the flow and possible attributes an event could have.



3.6 Class Overview Diagram



3.6.1 Potential Domains

User domain

Event domain

Ship Domain

4. Non-Functional Requirements

Operational:

It is important that the system be able to accurately navigate the map in the most optimal pathing possible as well as track a user position within a 5 foot radius of their actual position. The layout of the application will also need to be easy to navigate with buttons large enough to press on a touchscreen. The ship wifi will need to be able to handle all the users at once and not crash as well as do so constantly so that the tracking features will work.

Performance:

The system is required to load information and map data in less than one second. (Internet connection set aside) and save information updates in less than one second as well. It will need to update location information once every second as well for the navigation to run smoothly.

Security:

It is imperative that the system be secure and that only authorized parties have access to the information they are allotted. This is because there is sensitive customer information and location data stored in the database and if it is compromised, there could be large problems.

Cultural/Political:

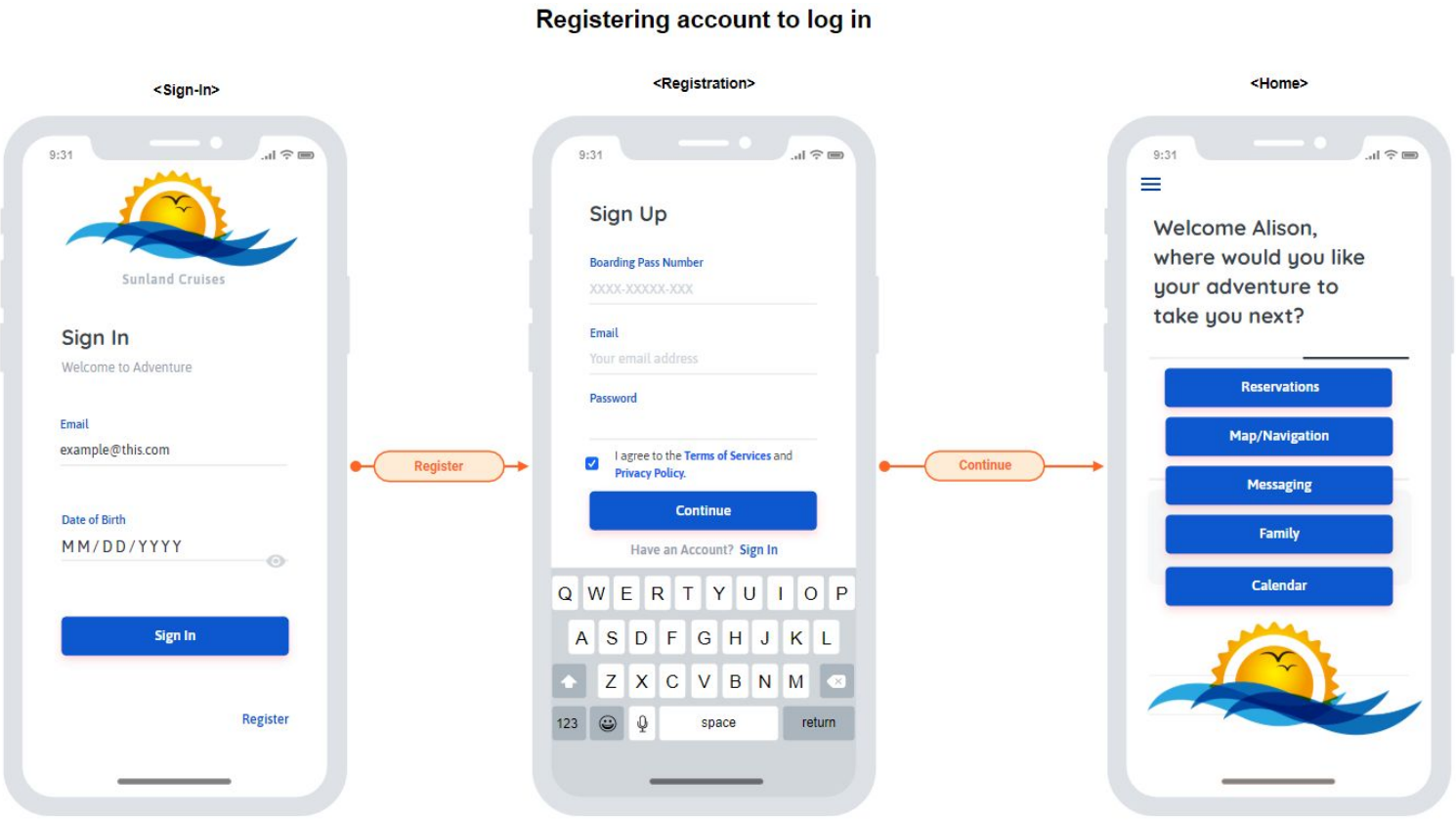
The interface will need to be in multiple languages so that it can be easily understood and used by all people. It will also need to be family friendly and filter events so that those that are underage or have restricted access may not view them or register for them.

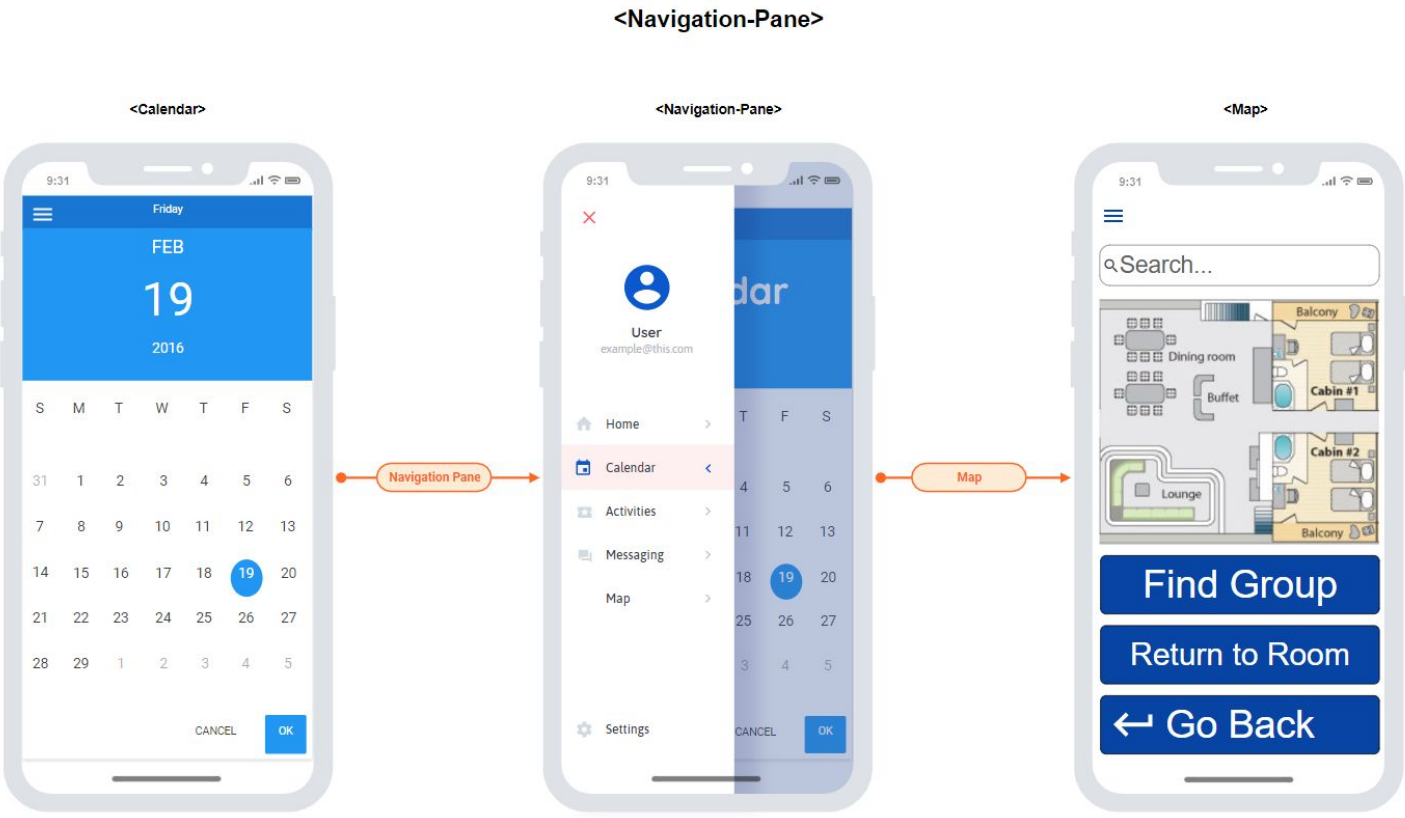
5. References

Map Ideas and Images: https://www.cruisedeckplans.com/DP/deckplans/index.php, http://www.luxurycruisesgalapagos.com/luxury-cruises/petrel-galapagos-yacht/petrel-deckplans.html

Sun placeholder Logo: https://www.pngguru.com/free-transparent-background-png-clipart-bcafy

6. User Interface





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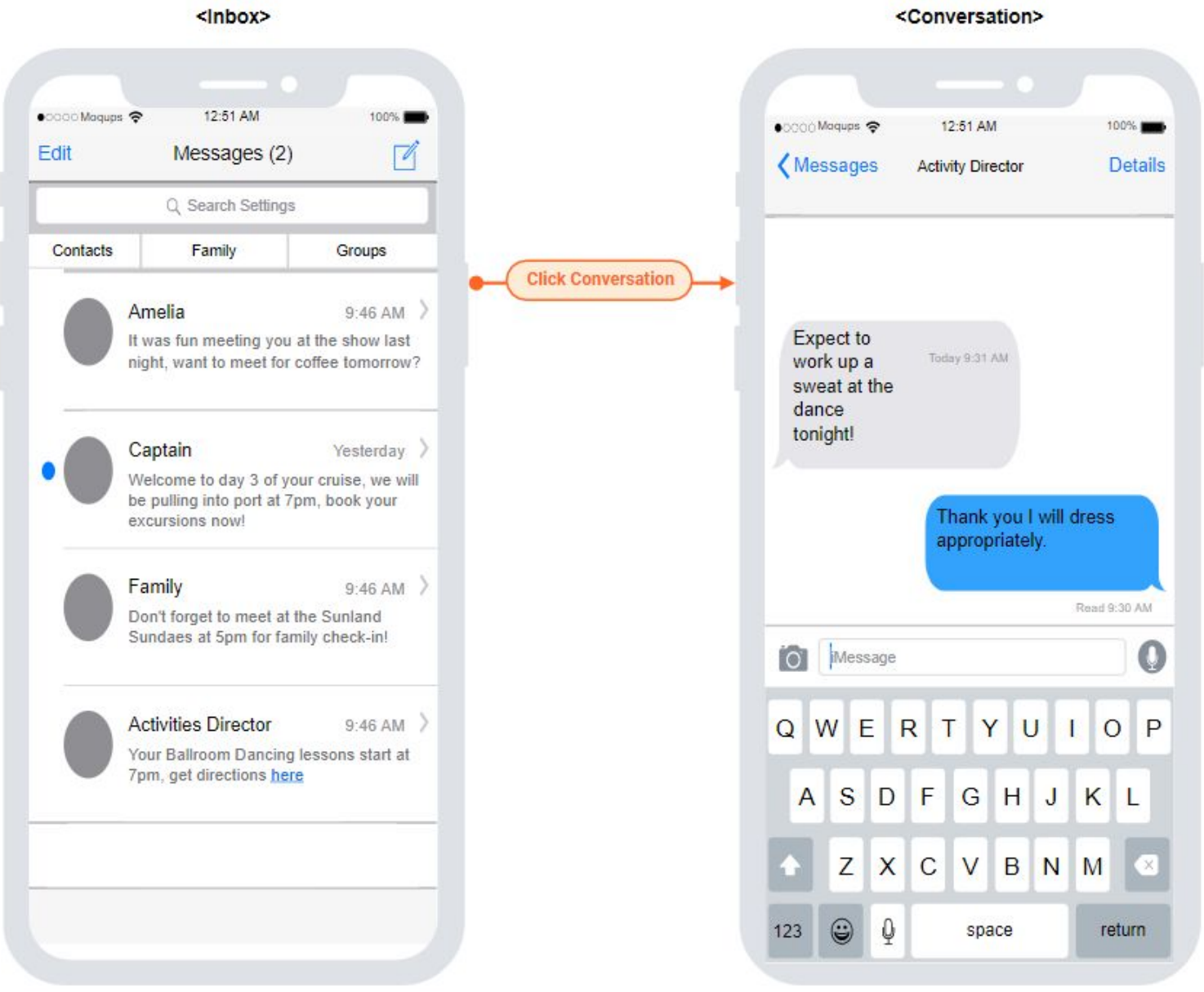
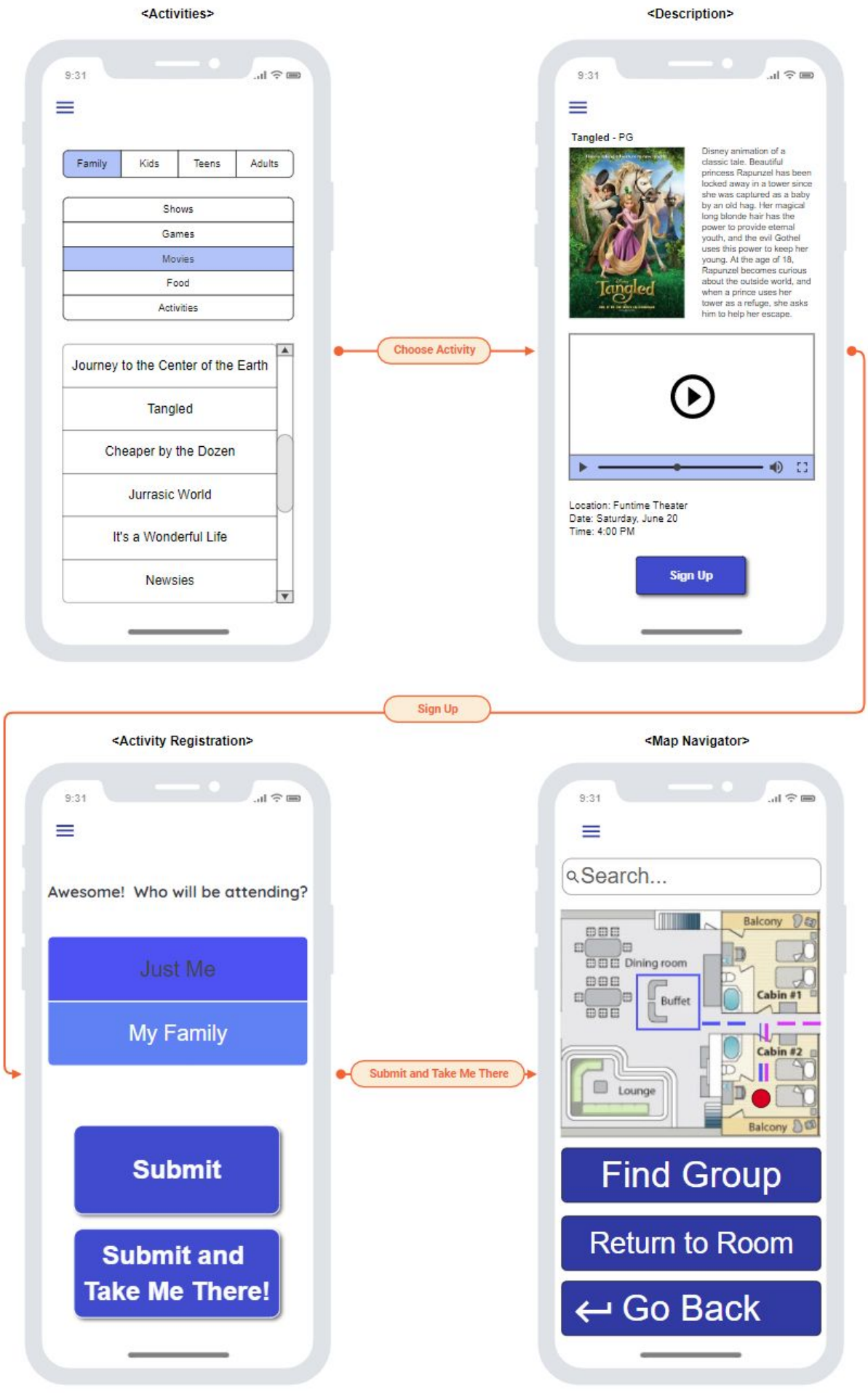

<Inbox>
<Conversation>
Maqups 12:51 AM 100%
Edit
Messages (2)
Search Settings
Contacts
Family
Groups
Amelia
9:46 AM
It was fun meeting you at the show last night, want to meet for coffee tomorrow?
Captain
Yesterday
Welcome to day 3 of your cruise, we will be pulling into port at 7pm, book your excursions now!
Family
9:46 AM
Don't forget to meet at the Sunland Sundaes at 5pm for family check-in!
Activities Director
9:46 AM
Your Ballroom Dancing lessons start at 7pm, get directions here
Click Conversation
Maqups 12:51 AM 100%
Messages
Activity Director
Details
Expect to work up a sweat at the dance tonight!
Today 9:31 AM
Thank you I will dress appropriately.
Read 9:30 AM
iMessage
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123
space
return

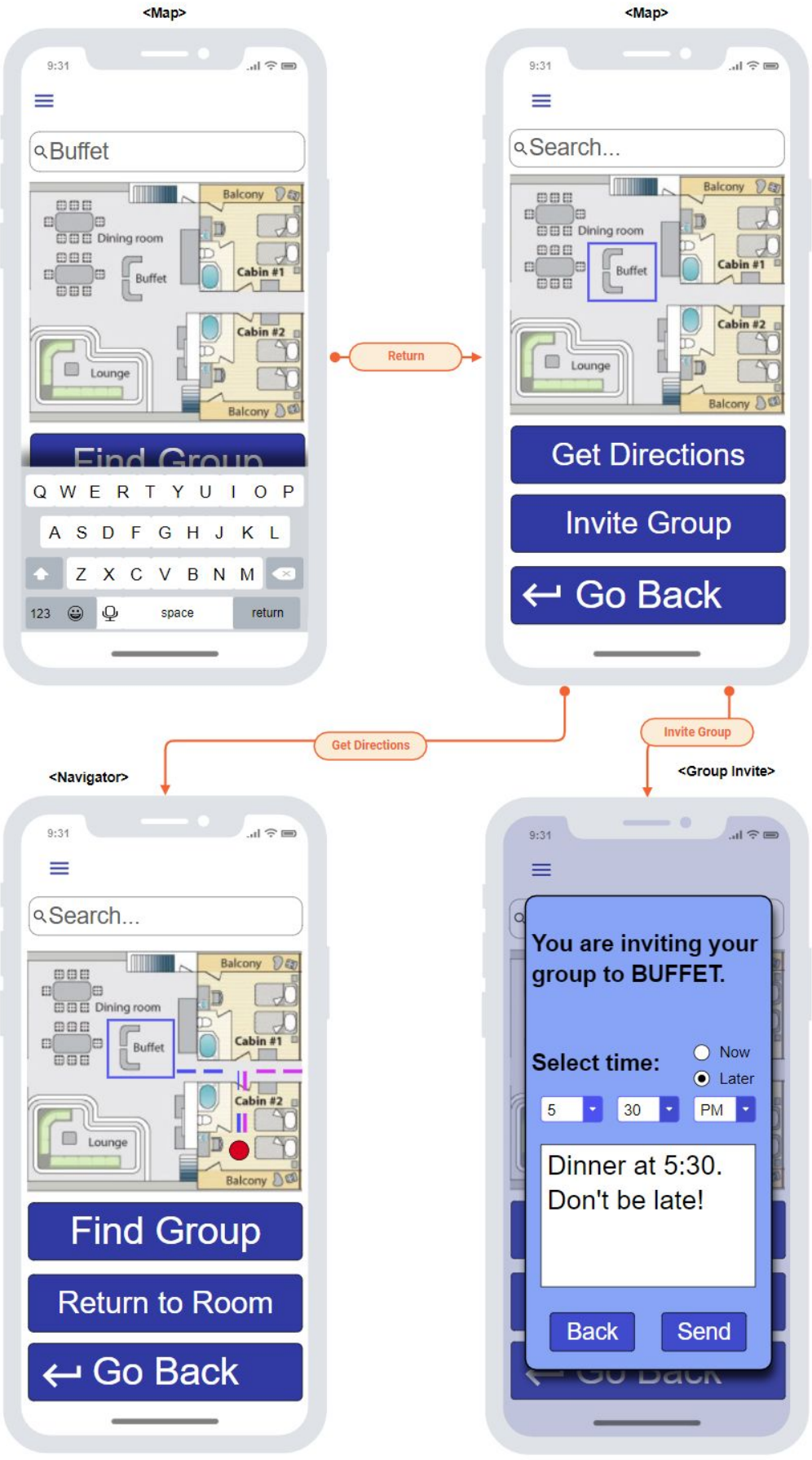
<Activity Sign up and Navigate>



<Find Group>


<Map>
<Person Selection Pane>
Search...
Balcony
Dining room
Buffet
Cabin #1
Cabin #2
Lounge
Balcony
Find Group
Return to Room
Go Back
Find Group
Please select a member from your group
Brad
Sara
Evan
Crystal
Back
Next
Next
<Person Frinder>
<Map Navigator>
Search...
Cabin #5
Cabin #7
Cabin #6
Cabin #8
Get Directions
Send Message
Go Back
Get Directions
Search...
Dining room
Buffet
Cabin #1
Cabin #2
Lounge
Balcony
Find Group
Return to Room
Go Back

<Search and Invite>



7. Appendix

7.1. Staff Positions with Access

All staff can see daily schedule and use social media, and location services

- Captain in charge of the ship and everyone on it
    - Full access
    - Deck Staff
    - Engineering Staff
- Cruise director in charge of all guests
    - Full access
- Activities Director in charge of onboard activities
    - Full access to onboard activities
    - Activities coordinators
        - Full access to their activities
    - Entertainers
- Excursion Director in charge of shore activities.
    - Full access to excursions
    - Excursion staff
        - Full access to excursions
    - Tour guides
        - Full access to their excursions
- Amenities Director in charge of onboard amenities
    - Full access to amenities
    - Amenities staff
        - Full access to their amenity
- Executive chef in charge of all kitchens/cuisine
    - Full access to all food service
    - Asst chefs
        - Full access to all food service
    - Cooks / trainees
    - Kitchen cleaners
- Food and beverage managers in all restaurants, cafes, clubs, and bars
    - Full access to their establishment
    - Wait staff in restaurants and cafes
    - Dining room maître d’
    - Bar tenders
- Hotel Director in charge of all cabins and concierge services

        - Full access
    - IT Staff
        - Full access
    - Guest services
        - Full access to all hotel/concierge services
    - Housekeeping floor supervisor
        - Full access to floor hotel/concierge services
    - Cabin steward
        - Full access to assigned cabins' hotel/concierge services
    - Laundry staff
- Medical Director in charge of medical staff
        - Full access
    - Physician
    - Nurse
- Retail Manager in charge of all shops
        - Full access to retail shops
    - Retail staff
- Corporate Office staff <headquarters in Salt Lake City, UT>
        - Full access
    - Accountant
    - Administrative/Clerical
    - Air Operations
    - Marketing / PR
    - Reservations / Sale

7.2. Expenses and Operating Costs

Expenses / Operating Costs

We currently make an average of $1,560 revenue per passenger. 80.9% of that revenue is spent on operating costs, 19.1% is profit.

We have 10 ships and average 3600 guests per ship. Each ship averages 1 cruise a week.

We are hoping to increase our average revenue by roughly 16% to $1,860 per passenger over the next several years with this app.

Operating Costs breakdown

We make on average $1,560 in revenue per passenger

15.1% of that revenue is spent on commissions, transportation, and other **<$236>**

13.7% is spent on Marketing, selling and admin costs **<$214>**

5.7% is onboard and other expenses **<$89>**

9.7% is payroll **<$151>**

5.5% is food **<$117>**

7.5% is fuel **<$117>**

12% is other operating expenses**<$117>**

10.9% is depreciation and amortization**<$117>**

0.8% is other expenses **<$117>**

19.1% of that revenue is profit **<$298>**

8. Effort Breakdown

	total points	Joseph Bradford		Braden Otto		Travis Mickelsen		Jamison Wilkes		Total (1)
SR	60	25%	15	25%	15	25%	15	25%	15	1
CBA	60	25%	15	25%	15	25%	15	25%	15	1
Presentation	60	25%	15	25%	15	25%	15	25%	15	1
brochure	60	25%	15	25%	15	25%	15	25%	15	1
CSoR	30	25%	7.5	25%	7.5	25%	7.5	25%	8	1
Glossary	5	25%	1.25	25%	1.25	25%	1.25	25%	1	1
Requirements	145	25%	36.3	25%	36.3	25%	36.3	25%	36	1
Non fun. Req	15	25%	3.75	25%	3.75	25%	3.75	25%	4	1
References	5	25%	1.25	25%	1.25	25%	1.25	25%	1	1
UI	50	25%	12.5	25%	12.5	25%	12.5	25%	13	1
	490	122.5		122.5		122.5		122.5		