

Software Requirements Specifications

Personalized Travel Activity Manager

Forgotten Bean Org

26/02/2015

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Revision History

Name	Date	Reason for Changes	Version
Forgotten Bean Org	15/01/2015	Initial template	0.1
Forgotten Bean Org	26/01/2015	Initial writing	0.2
Forgotten Bean Org	27/01/2015	Finish writing RS	0.3
Forgotten Bean Org	29/01/2015	Finalize RS 1.0	1.0
Forgotten Bean Org	05/02/2015	Incorporated feedback from 2nd client meeting	1.1
Forgotten Bean Org	08/02/2015	Incorporated feedback from markers	1.2
Forgotten Bean Org	23/02/2015	Initial template for RS 2.0	1.3
Forgotten Bean Org	24/02/2015	Incorporated models for RS 2.0	2.0
Forgotten Bean Org	26/02/2015	Incorporated feedback from 3 rd client meeting	2.0 Final

Changes Made Based on Stakeholder Requests

Change Made	Context	Reason for Change
Stakeholders are now identified	Section 1.2	Stakeholder request
This section now contains product features	Section 2.2	Stakeholder request
Application administrators are no longer listed as the least important user class	Section 2.3.1	Bruce Travel request (client meeting 2)
Credit cards are now mentioned in the operating environment	Section 2.4	Stakeholder request
Requirements have been reworded to better spell out functionality using sentences like “The system must...”	Section 3	Stakeholder request
Added the setting and party size attributes to REQ-5	Section 3.4.3	Missing attributes for requirement (client meeting 2)
Section now clearly defines the business view	Section 4.1.2	Bruce Travel request (client meeting 2)
Rewritten to list the operating systems the application must support	Section 4.1.3	Bruce Travel request (client meeting 2)
The application will now support 200,000 concurrent users	Section 5.1	Scalability request from Bruce Travel (client meeting 2)
The precondition was changed so that the user now requires an account	Section 7.3.1	Bruce Travel request (client meeting 3)
Use case 2 was changed to be only for User accounts as businesses were covered in use case 7	Section 7.3.2	Bruce Travel request (client meeting 3)
	Section 7.3.4	Bruce Travel request (client meeting 3)
Alternative Flow A now tells the user if the activity is full	Section 7.3.5	Bruce Travel request (client meeting 3)
Business was spelt wrong and has been corrected in Main Flow 2	Section 7.3.8	Bruce Travel request (client meeting 3)
UI Model 3 and 5 have more descriptive	Section 8.2	Bruce Travel request (client

captions		meeting 3)
UI Models 2 and 6 have more descriptive captions	Section 8.2	Bruce Travel request (client meeting 3)
Changed UI Model 3 and 5 to include user interests	Section 8.2	Bruce Travel request (client meeting 3)

Forward Traceability Table

Functional Requirement	Use Case	UI Model
REQ 1: The system must support the following information fields (* required): first and last name*, age, location, email*, password*, survey	Use Case 2 - User registers for account	UI Model 1: Login Screen UI Model 2: User Account Information Registration Screen UI Model 3: User Account Activity Preferences Screen
REQ 3: The system must give businesses the ability to submit a join request.	Use Case 7 - Business applies for account	UI Model 10: Business Application Screen
REQ 4: Upon submission of the form, the system must assign the business to a travel agent who will be notified by email of the request.	Use Case 7 - Business applies for account	UI Model 11: Agent Accept/Reject Business Screen UI Model 12: Business Accepted Screen UI Model 13: Business Rejected Screen
REQ 5: The system must allow agents and businesses to create activities with the following attributes: description, price, location, hours, pictures, setting, and party size	Use Case 8 - Business manages activities	UI Model 14: Business Account Screen
REQ 6: The system must include “recommended” activities based on the users’ profile. These recommendations are to be generated using a machine learning algorithm to match the user’s preferred activities.	Use Case 6 - User is recommended activities	UI Model 4: Main Activity Screen
REQ 7: The system must allow the user to: update personal information, guide the system to make smarter recommendations, reset preferences, and view history, activity, and ratings	Use Case 3 - Users manage their accounts	UI Model 5: User Manage Account Screen UI Model 6: User Manage Information Screen
REQ 9: The system must allow the user to book an activity with the business using a valid credit card (VISA, MasterCard, and American	Use Case 4 – User views activities Use Case 5 - User books activities	UI Model 7: Sample Activity Information and Booking Screen UI Model 8: Billing Information Screen

Express).		UI Model 9: Booking Confirmation Screen
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1 Introduction

1.1 Purpose

The Personalized Travel Activity Manager (herein referred to as the application) aims to replace the existing service provided by Bruce Travel in order to expand the functionality and automate many of the tasks currently performed by human agents. The application will include four discrete interfaces, one each for users, businesses, travel agents of Bruce Travel, and administrators.

The user side of the application aims to both provide search listings of nearby activity opportunities and to suggest activities based on previous selection, the user's profile, and user inputted preferences. The application will also provide business owners the ability to manage their business profiles and currently offered activities. The agent side of the application will provide moderation tools for managing activities and bookings as well as a simple customer support system.

1.2 Project Scope

The application will consist of a single website with interfaces for users, business owners, and agents of Bruce Travel.

The user-orientated view of the application provides functionality for users to register user profiles and book new trips or activities. In addition to allowing registration of personalized accounts the user view of the application must facilitate the users providing generalized profile information as well as specifying activity preferences in order to assist with maintaining a high level of relevance of the results returned by the system.

The business view of the application aims to allow businesses to register their business, pending approval by an agent of Bruce Travel. Additionally a system allowing the addition of new activities or the editing/removal of current activities is required.

The travel agent view of the application provides tools to allow Bruce Travel's agents to manage the system, especially the moderation of business accounts and the approval of new business accounts.

The stakeholders of the application include the users of the system, Bruce Travel and its employees (including the travel agents), businesses that will post activities to the application, and the developers of the application, Forgotten Bean Org.

1.3 Glossary of Terms

Term	Definition
Application	The Personalized Travel Activity Manager.
FAQ	Frequently Asked Questions
HTTPS	Hypertext Transfer Protocol Secure - A communications protocol for secure communication over a network.
Personal Interest Rating	The '+' or '-' rating a user gives to recommendations that improve the user's recommendations.
PGP	Pretty Good Privacy, a data encryption and decryption computer program that provides cryptographic privacy and authentication for data communication.
SSL	Secure Sockets Layer - A cryptographic protocol designed to provide communications security over the Internet.
TCP	Transmission Control Protocol - A reliable protocol used when connecting to the World Wide Web.
Transaction	An instance of buying or selling.
User Profile	The record in the system of what type of activity the user might like to participate in.

1.4 References

- [1] Bruce Travel., "Personalized Travel Activity Manager Request for Proposal," 14 January 2015. [Online]. Available: <http://web.uvic.ca/~ehildebr/SENG321/uploads/RFP.pdf>.

1.5 Overview

This document provides a high level description of the requirements for the Personalized Travel Activity Manager as described by Bruce Travel [1]. The Overall Description section below describes the context and origin of the application, as well as the functionality, the users, the system's operating environment, the system's constraints, assumptions, and dependencies. In the System Features section, the functional requirements of the system's features are described. The external interfaces, which include user interfaces, hardware interfaces, software interfaces, and communications interfaces are described in the External Interface Requirements section. The Other Non-Functional Requirements section describes:

performance, safety, security, and quality attributes. All remaining requirements are specified in the Other Requirements section.

2 Overall Description

2.1 Product Perspective

Currently, Bruce Travel hosts a website that offers suggestions to clients based on where they are travelling to. The travel agents also offer suggestions, but both of these methods are impersonal and nonspecific. This often results in poor recommendations to the clients. The application will replace the current system, and will migrate the existing data they have, including user information and activity reviews.

2.2 Product Features

The following list summarizes the major features and functions of the application:

1. User Registration

The system provides the ability for users to register and collects and stores their personal information.

2. Account Management

There will be a system administrator that oversees and manages the application.

3. Managing Business Accounts

The system will allow businesses to register. One registered, travel agents will have to verify and approve the company to maintain integrity.

4. Activity Listing Management

Agents and businesses will be able to create, edit, and delete activity postings on the application.

5. Activity Recommendations

The system will recommend activities to the user based on their profile. These recommendations will be implemented with a machine learning algorithm so that they continue to improve.

6. Account Personalization

Users will be able to manage their accounts, change their personal information, and delete their accounts.

7. Trip Planner

The user will have the option to plan an entire trip by entering information such as start and end dates, and activity types.

8. Activity Booking

The user will be able to book activities based on the recommendations, results of the trip planner, or searching for their own activities.

9. Ratings and Reviews

Users will be able to leave ratings and/or reviews on activities they have completed. These activities will not affect their recommendations.

10. Customer Support

Users and businesses will be able to contact Bruce Travel regarding any problems with the system through a provided phone number and email address.

11. Activity Preferences

The users will have the ability to “+”, “-”, or “pass” on the activities that are recommended to them. This will affect the recommendation system.

12. Browsing for Activities

Users will be able to search for activities and filter them in a variety of ways.

2.3 User Classes and Characteristics

2.3.1 Application Administrators

The application administrator at Bruce Travel will have full control over the app. They must have a high level of technical knowledge, and will be responsible for any management of business and user accounts. The administrators will also be in control of approving businesses that apply to list their provided activities.

2.3.2 Travel Agents

Travel agents at Bruce Travel will help with rescheduling bookings for users, as well as troubleshoot any problems the businesses or users have while using the app. They will have access to the user’s (non-confidential) and business’ information. They will also have the ability to approve new businesses. Their usage will depend on how many activities are booked through the app and the amount of problems the businesses and users have. In terms of technical expertise, the travel agents must know how to use all functions within the application confidently. This is the third most important class to satisfy.

2.3.3 Businesses

The businesses who use the application will first need to register with Bruce Travel to list their businesses activities on the app. After registration, they will have access to update their profile with any new information. Their usage will be dependent on how often they choose to make updates. This class is the second most important to satisfy as the businesses are the main revenue source.

2.3.4 Users/guests

The registered users and guests will be the most common and most important class for the application. They must have an internet connection to use the application, and their usage will be based on how often they travel or want to plan a desired activity. Initially, the registered users will create a profile that

allows them to specify their preferences. The registered users and guests will have access to all the information of the businesses and their offered activities. Additionally, registered users will have the ability to book activities.

2.4 Operating Environment

The application is a web application, and must be usable from all of Blackberry OS 10+, iOS 7+, Android OS 4.4+, Windows 7+ and Mac OS X 10.8+ in Chrome, Firefox, Safari, Internet Explorer, and Opera browsers.

The application will accept credit card payments through MasterCard, VISA, and American Express. It will interface with all three companies to provide a fast and efficient payment method.

2.5 Design and Implementation Constraints

The application will be built in exchange for \$500,000(CAD), and the date deliverable is six (6) weeks from time of acceptance.

2.6 Assumptions and dependencies

The assumption is made that Bruce Travel's existing systems for propagating bookings to the individual businesses will be usable and sufficiently automated for use within this application.

3 System Features

3.1 User Registration

3.1.1 Description and Priority

The system must collect and store information from the users to create profiles. Very high priority.

3.1.2 Stimulus/Response Sequences

Enter Application	System Prompts User to Create Account User enters their information System acknowledges account creation User Logs in
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3.1.3 Functional Requirements

REQ 1: The system must support the following information fields (* required):

1-A: *First and last name

1-B: Age

1-C: Location

1-D: *Email

1-E: *Password

1-F: *Password Confirmation

1-G: Survey (Price, Activity Level, Urban vs Rural, Duration)

3.2 Account Management

3.2.1 Description and Priority

The system administrator must be able to edit and delete user and business accounts. Medium priority.

3.2.2 Stimulus/Response Sequences

Administrator enters system	Administrator searches for user or business Administrator selects account from list Administrator given access to a suit of edit fields to manage the selected account Administrator changes information/preferences and clicks save Changes made by Administrator displayed in system
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An administrator will be able to log into the application and search for users and businesses using a search filter. They will then be given activities they can perform on the selected account such as editing information and preferences or adding/removing account restrictions.

3.2.3 Functional Requirements

Application administrators must have ability to manage any other level of account. Travel agents will be able to manage business accounts and user accounts. High priority.

REQ 2: The system must support the following account types:

2-A: Application Administrator

2-B: Travel Agent

2-C: Business

2-D: User

3.3 Managing Business Accounts

3.3.1 Description and Priority

The system must allow new businesses to submit applications to be included in the application. High priority.

3.3.2 Stimulus/Response Sequences

Business owner enters system	System prompts business owner to Create Account Business owner enters their information System acknowledges account creation
Travel agents enters system	Travel agent is prompted about new business Travel agent is given the businesses information and given option to "Reject", "Accept", or "Request Additional Information" from the business Email/Notification is sent to business owner
Business owner receives email	Case "Rejected": The business owner was not accepted into the system Case "Accepted": The business owner's account is unlocked and they are free to create activities as long as they pay their monthly subscription to Bruce Travel. Case "Need Additional Information": business owner refines application information and the previous steps repeat

The administrators will be given a notification that a new business has registered. They will be given the information entered by the business and options to "Reject", "Accept", or "Request Additional Information" from the business. This result will then be sent back to the business.

3.3.3 Functional Requirements

REQ 3: The system must give businesses the ability to submit a join request.

Information Fields (* required)

3-A: *Business Name

3-B: Public Phone Number

3-C: *Public Email Address

3-D: City

3-E: Business segment

3-F: *Contact Name

3-G: *Contact Phone Number

3-H: *Contact Email address

REQ 4: Upon submission of the form, the system must assign the business to a travel agent who will be notified by email of the request.

3.4 Activity Listing Management

3.4.1 Description and Priority

The system must allow agents and businesses to create, edit, and delete activity listings which appear on the application, this includes the ability to view reviews and tendencies of users.

3.4.2 Stimulus/Response Sequences

Business owner or travel agent enter system	<p>Business Owners: System Prompts them to log in</p> <p>After login they are redirected to their own page where they are able to view and edit activities</p> <p>Travel Agents: System Prompts them to log in</p> <p>After login they may navigate to the targeted business owner's page where they are able to view and edit activities.</p>
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3.4.3 Functional Requirements

REQ 5: The system must allow agents and businesses to create activities with the following attributes:

5-A: Description

5-B: Price

5-C: Location

5-D: Hours

5-E: Pictures

5-F Setting eg. outdoor, indoor, water, etc.

5-G Party Size

3.5 Activity Recommendations

3.5.1 Description and Priority

The process where the system calculates the probability of the user enjoying each event based on their preferences and ratings. High Priority.

3.5.2 Stimulus/Response Sequences

The users will be able to view a list of the “Top” activities for them sorted as per their priorities and preferences. They will also be able to enter modifiers such as group size and location to make more relevant suggestions.

3.5.3 Functional Requirements

REQ 6: The system must include “recommended” activities based on the users’ profile. These recommendations are to be generated using a machine learning algorithm to match the user’s preferred activities.

3.6 Account Personalization

3.6.1 Description and Priority

Allow the user to manage their account. Management tasks include editing personal information as well as deleting their account. High Priority.

3.6.2 Stimulus/Response Sequences

The user will be able to view and edit their own information as well as delete their account. They also have the option to “Reset Preferences” or view their history of reviews or ratings.

3.6.3 Functional Requirements

REQ 7: The system must allow the user to:

- 7-A: Update personal information

- 7-B: Guide the system to creating smarter recommendations

- 7-C: Reset preferences

- 7-D: View activity history, reviews, and ratings

3.7 Trip Planner

3.7.1 Description and Priority

The process in which the system generates a set of activities and locations based on the users preferences to create their trip. Medium Priority

3.7.2 Stimulus/Response Sequences

The user will be able to select a “Current Location” as well as a “Destination”, “Party Size”, “Trip Duration”, and “Budget” and they will be presented with a set of options for trips based on those constraints.

3.7.3 Functional Requirements

REQ 8: The system must provide a service that allows a user to fill in a web form stating a start date, end date, and location, and they shall be supplied with a recommended set of activities that the user could do while on that trip.

3.8 Activity Booking

3.8.1 Description and Priority

Allows the user to book a trip based upon the suggestions from the Trip Planner or created by the user themselves. High Priority

3.8.2 Stimulus/Response Sequences

On each page containing activities (Trip Planner, Activity Recommendations), the user will be given the option to “Book” which will then direct them to a form with billing and contact information. The user will then receive a notification regarding the success of the activity booking.

3.8.3 Functional Requirements

REQ 9: The system must allow the user to book an activity with the business using a valid credit card (VISA, MasterCard, and American Express).

3.9 Ratings and Reviews

3.9.1 Description and Priority

Allows the user to leave ratings and/or reviews on an activity that they have participated in. This will have no effect on their preferences. Medium Priority.

3.9.2 Stimulus/Response Sequences

On activities the user has participated in they will be given an option to “Review” which will give them a text field to enter comments as well as a rating out of 5 stars. This review will be visible to anyone viewing the activity. It will have no impact on the users’ preferences, although it will change how often the activity is recommended to other users.

3.9.3 Functional Requirements

REQ 10: The system must allow users who have participated in a specific activity to have the ability to rate an event out of 5 stars, and write a short description of their experience. This process will not affect the user’s profile.

3.10 Customer Support

3.10.1 Description and Priority

The process that allows users and businesses to contact Bruce Travel about issues with the application.

3.10.2 Stimulus/Response Sequences

On every page there will be a “(!)” or a help button which will refer the user to frequently asked questions or documentation about the application.

3.10.3 Functional Requirements

REQ 11: The system must require that Bruce Travel includes a phone number and email address for customer support.

3.11 Activity Preferences

3.11.1 Description and Priority

The process in which activities are suggested to a user. They can then “+”, “-”, or “Pass” on the activity to indicate their level of interest in the activity. This input will affect their preferences and the subsequent suggested trips. High Priority.

3.11.2 Stimulus/Response Sequences

On a “Discover” view the user will be given a large photo and a brief description of an activity. They can then indicate whether they think they would enjoy the activity or not. This feedback is sent to the system and used to determine the type of activities the user Likes/Dislikes.

3.11.3 Functional Requirements

REQ 12: The system must allow the user to influence their user profile by clicking on a set of buttons to tell the system to adjust their profile to show similar activities more likely or less likely.

3.12 Browsing for Activities

3.12.1 Description and Priority

The screen and actions a user can do to effectively search for potential activities. High Priority.

3.12.2 Stimulus/Response Sequences

Users can select from a number of filters to adjust the search criteria which will influence the results appropriately. Users may also sort the returned results by a variety of fields.

3.12.3 Functional Requirements

REQ 13: The system must be able to filter search results by the following attributes:

13-A: Date

13-B: Activity Level

13-C: Duration

13-D: Price

13-E: Rating

13-F: Number of people

REQ 14: The system must provide options to sort search results by the attributes below:

14-A: Distance

14-B: Price

14-C: Rating

14-D: Duration

4 External Interface Requirements

4.1 User Interfaces

4.1.1 User View

Users will be able to give a “personal interest rating” to activities. The user view will list activities based on their location configurable up to 250km away. The user view will have a search bar which will display activities based on the user’s input.

4.1.2 Business View

The business view will permit businesses to create, post, and edit activities. The businesses will be able to explore their activities and check user reviews and ratings and leave short replies.

4.1.3 Agent View

Agents will have be able to add data, read data, but only delete data which they have previously created.

4.1.4 Personalized Activity Manager System

All error messages will be displayed in a pop up in the middle of the screen with a clear heading and a two sentence maximum. The application shall provide a help link from each displayed page that provides an explanation on how to use that page as well as the customer support phone number. The application will provide complete navigation using touch or keyboard and mouse.

4.2 Hardware Interfaces

Data and account transactions are sent to Bruce Travel’s servers using TCP and HTTPS protocols. All data transfers with Bruce Travel’s internal servers will be PGP signed to ensure authenticity and prevent man-in-the-middle attacks.

4.3 Software Interfaces

4.3.1 Incoming and Outgoing Items

Outgoing data for users consist of transactions, billing information, user account preferences, ratings, and location based information. Outgoing data for businesses also includes activity posting information.

Incoming data consists of activities and listings stored in the database, confirmations from the server, receipts, and any other notifications deemed necessary.

4.3.2 Services and Communications

Communication will require short push and pull protocols between the application and the server in the following situations:

- Whenever a user requests or confirms a transaction or activity update
- Whenever the server finishes processing updates

4.3.3 Database

A database will store all user, business, and activity information which will help streamline concurrent access to activities.

4.3.4 Operating Systems

The application must support Windows Phone, Blackberry OS 10+, iOS 7+, Android OS 4.4+, Windows 7+ and Mac OS X 10.8+.

4.4 Communications Interfaces

All transfers of payment information will be done through a secure server using the Secure Sockets Layer (SSL) protocol.

The application will send an email to the customer to confirm the completion of a transaction.

5 Other Non-Functional Requirements

5.1 Performance Requirements

The application must be able to handle up to 200,000 concurrent users with a maximum response time of 2 seconds. The system must have a mean time between failures of 250,000 hours. When a user decides to make a booking, they will have a temporary reservation while payments are confirmed to ensure the tour and/or event does not sell out in the meantime. If two users try to book the same spot on an event or tour at the exact same time, the application must have the ability to handle these two requests and send one user an error message to prevent double booking.

5.2 Safety Requirements

When using the application, user and business sensitive information is potentially at risk of information theft, damage, or loss. This information could cause a number of safety issues for users if acquired by

malicious individuals. However, safeguards will be taken to prevent information leakage. Each interface of the application will require username and password authentication to ensure user's security, with the exception of guest users. In addition, all data collected from users will be stored in a secure database.

All stored data which is business critical (ex. user or business information) must be replicated to at minimum one redundant backup data store. Preferably additional backups to a separate storage medium should be taken periodically and maintained for a fixed period.

5.3 Security Requirements

The application will require high security measures due to sensitive information from users, businesses, and travel agents. All feedback received from users and businesses will be encrypted to ensure that the data is kept securely. All sensitive information sent via a network must be PGP signed with both the private key of the source and the public key of the receiver in order to ensure confidentiality and authenticity during transfer.

New users will fill out a form containing their personal information. This form will also collect less sensitive information such as user preferences or interests, and users will also be required to agree to Bruce Travel's privacy policy. User accounts will be based on an email address and will require a password for verification upon login. Passwords will need to be at least eight characters long and contain at least two numbers.

New businesses will be required to fill out a registration form containing contact information and services offered. This form will be received by Bruce Travel's agents who will approve account creation for the new businesses. It is extremely important for businesses to be investigated before approval to prevent fraudulent organizations from having access to user data. Once approved, businesses utilize the same form of authentication as the users. The interface for Bruce Travel's agents will also require a username and password to log in.

5.4 Software Quality Attributes

The application's front end will be designed with a focus on less experienced users. The user interface should be intuitive and elegant, allowing users to navigate easily without issues or confusion. The application should make appropriate and up-to-date recommendations according to users' personal interest rating preferences and their current or chosen location. The location based services should give recommendations adjustable between 1 and 250km with a default of 25km. Activity booking should be streamlined with the user filling out their credit card information or using information already on file.

The interface for businesses should be relatively straightforward. The initial registration form for businesses should request only necessary information for verification, such as company name, contact information, and link to their website (if applicable). Once verified, businesses should have the ability to customize their profiles. Businesses may need to update their information regularly so a profile edit page is necessary.

The interface for Bruce Travel's agents should be easy to use and understand. An event list is required for all incoming business registration submissions. This list should be easily updated and modifiable.

Availability and correctness are vital to the application's success. Users need to have access to the application at any time or place. The system should be extremely reliable because transactions will be processed in near real-time. Correctness plays a significant role in supplying users with current booking information about businesses.

6 Other Requirements

All public web pages should have localization settings to allow changing to supported primary languages.

7 Use Cases

Each use case outlines from a user's point of view, the interactions required to complete a specific task or goal. The use cases defined in this section describe all the tasks that can be completed through the application.

7.1 List of Use Cases

The following is a complete list of tasks that the users can complete through the application:

1. Log in to the system
2. User registers for account
3. Users manage their accounts
4. User views activities
5. User books activities
6. User is recommended activities
7. Business applies for account
8. Business manages activities

7.2 Use Case Diagram

The following use case diagram shows an overview of the interaction between various users of the application.

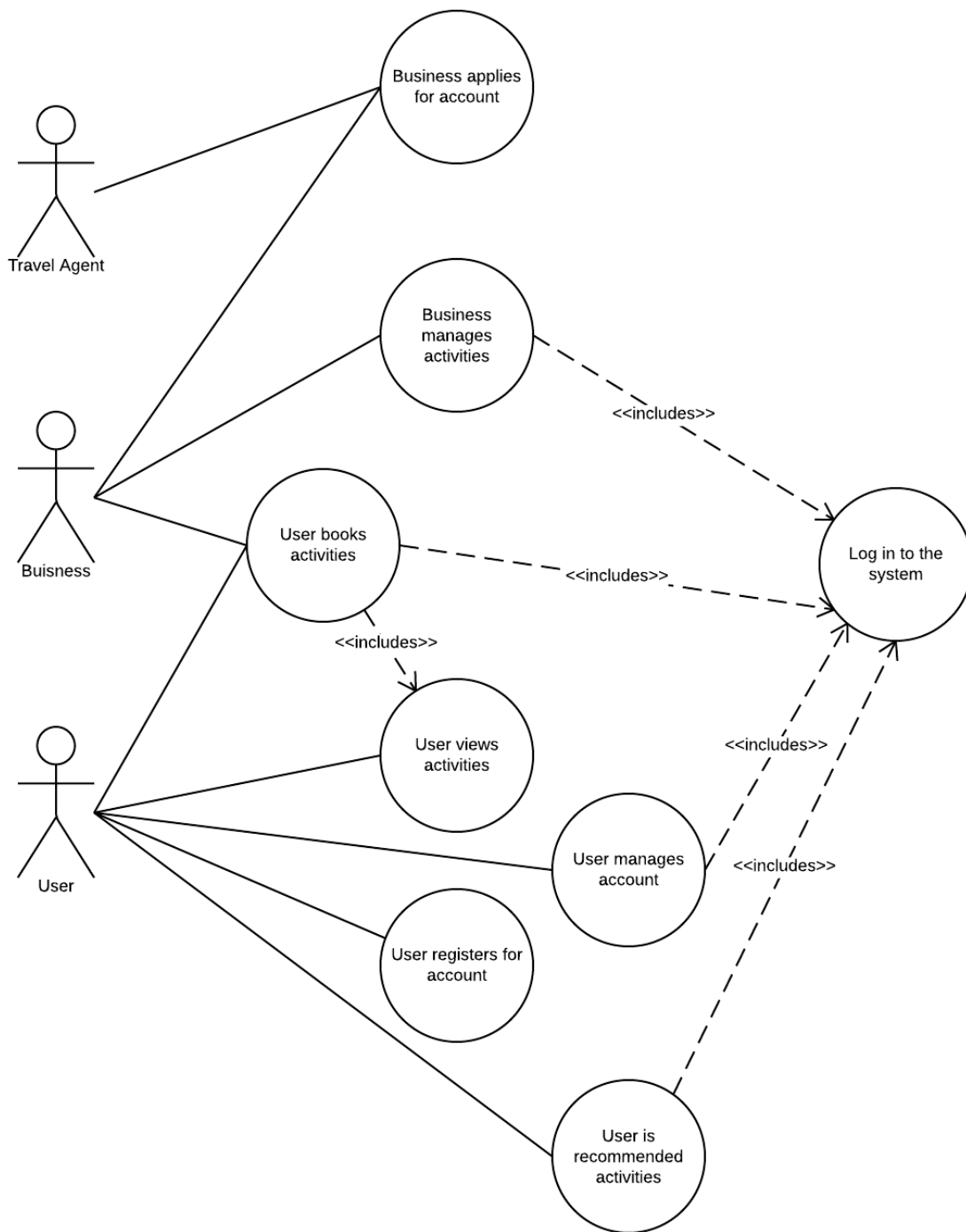


Figure 1: Use Case Diagram

7.3 Use Cases

This section describes each of the use cases in detail. The related screens for the use cases can be found in section 8.2.

7.3.1 Use Case 1 - Login to the System

Description

This use case describes how you log into the system

Actors

User, Business, Travel Agent

Preconditions

The user has an account

Main Flow

1. The use case begins with the user accessing the product
2. The system prompts for a username and password
3. The user provides their email address and password which will appear as * symbols
4. The user clicks the login button or the business login button if they have a business account
5. **<Log In>** The system logs the user in and takes them to the appropriate page based on account type

Postconditions

The user is now logged into the system

Alternative flows

A. At **<Log In>** If the user enters an incorrect username/password combination, the password box is cleared and a message that displays "incorrect username or password" is shown on the screen

7.3.2 Use Case 2 - User Registers for Account

Description

This use case describes how a User applies for an account

Actors

User

Preconditions

The user has an email address

Main Flow

1. The use case begins with the User accessing the product and clicking on "Register Now"
2. The system displays the User Registration form
3. **<Fill Form>** The User fills out the form with their information and clicks "submit"
4. The system confirms the information and sends the user a confirmation email
5. **<Check Email>** The User views the registration email and clicks the "Complete Registration" Link
6. The system creates the account and logs the User in

Postconditions

The user is logged in with a new account

Alternative flows

A. At **<Fill Form>**, if fields are invalid

1. The fields in question are highlighted red
2. The User receives a notification that they have invalid fields

Return to **<Fill Form>**

B. At **<Check Email>** If the user does not click the link

1. The account will not be created

Return to **<Fill Form>**

C. At **<Check Email>** If the user does not receive the email

1. System will resend email or attempt to use a different email service provider

Return to **<Check Email>**

7.3.3 Use Case 3 - Users Manage their Accounts

Description

This use case describes how a user can edit their account

Actors

User

Preconditions

The user is logged in

Main Flow

1. The user clicks the "Account Button"
2. The system displays a form with options to modify their account information
3. **<Fill Form>** The user fills out all the information they wish to change and presses "Submit"
4. The System Modifies the account

Postconditions

The user's account has been changed

Alternative flows

A. At **<Fill Form>**, if fields are invalid

1. The fields in question are highlighted red
2. The User receives a notification that they have invalid fields
Return to **<Fill Form>**

B. At **<Fill Form>**, if the user presses "delete account"

1. The user is sent a Confirmation Email
 - 1.A, if the user clicks "Confirm Action" on the email
Their account is deleted
 - 1.B, if the user does not click "Confirm Action"
Their account is not modified

7.3.4 Use Case 4 - User Views Activities

Description

The steps taken to view activities listed by businesses

Actors

User

Preconditions

None

Main Flow

1. The user will select the “Activities” link in the header bar where they are redirected to the search page.
2. **<Search Details>** The user will then input information, like dates of activities and location.
3. **<Search>** The user will hit the ‘search’ button where the system will query activities to build appropriate search results.
4. **<Listings>** A list of bookings meeting their criteria will be provided to the user.

Postconditions

None

Alternative flows

A. At **<Search Details>**, If the user clicks “Advanced Search”

1. They will be able to populate fields to filter by average rating, activity level, and duration.

Return to **<Search>**

B. At **<Listings>**, if the user selects

1. Clicking on a search result will send the user to the activities details page where they will be given more detail about the activity

User may choose to return to the list results by clicking the back button.

7.3.5 Use Case 5 - User Books Activities

Description

This use case describes how a user books an activity

Actors

User, Business

Preconditions

The user is logged in, The Business Representative has an activity in the system

Main Flow

1. The use case begins with a user being logged in and **<Viewing>** an activity
2. The user clicks on "Book Activity"
3. **<Booking>** The system queries the business for booking process
4. **<Billing>** The user fills out the billing information
5. The system confirms the booking information and sends the user a confirmation email
6. **<Check Email>** The User views the email and clicks the "Confirm Booking" Link
7. The system confirms the booking and sends the information to the Business

Postconditions

The user has booked the activity

Alternative flows

A. At **<Booking>** If there is no space in the activity,

1. The user will receive a notification telling them the activity "Has been fully booked"

Return to **<Viewing>**

B. At **<Check Email>** If the user does not click the link

1. The booking will not be created

Return to **<Booking>**

C. At **<Check Email>** If the user does not receive the email

1. System will resend email or attempt to use a different email service provider

Return to **<Check Email>**

7.3.6 Use Case 6 - User is Recommended Activities

Description

This use case describes how a user is recommended activities

Actors

User

Preconditions

The user is logged in

Main Flow

1. The use case begins with a user being logged
2. The system displays a list of recommended activities
3. **<Like>**
 - A. The user swipes right if they like the activity
 - B. The system increases recommendations for activities with the same keywords
4. **<Dislike>**
 - A. The user swipes left if they dislike the activity
 - B. The system decreases recommendations for activities with the same keywords
5. The user clicks on an activity
6. The system displays the activity

Postconditions

The user is viewing activity

Alternative flows

7.3.7 Use Case 7 - Business Applies for Account

Description

This use case describes how a Business applies for an account

Actors

Business, Travel Agent

Preconditions

None

Main Flow

1. The use case begins with the business accessing the product and clicking on "Register Business"
2. The system displays a Business Registration form
3. **<Fill Form>**The Business Representative fills out the form with their business's information and clicks "submit"
4. The system sends the form to the agent
5. **<Business Review>**The agent reviews the business
6. The system creates the business's account

Postconditions

The Business has an account in the system

Alternative flows

A. At **<Fill Form>**, if fields are invalid

1. The fields in question are highlighted red
2. The Business receives a notification that they have invalid fields

Return to **<Fill Form>**

B. At **<Business Review>**, if the agent denies the account then

1. The Business receives a notification that they were denied

Return to **<Fill Form>**

7.3.8 Use Case 8 - Business Manages Activities

Description

This use case describes how a Business can add and manage activities

Actors

Business

Preconditions

The Business Representative is logged in

Main Flow

1. The use case begins with the Business Representative being logged in and clicking the “Manage Activities”
2. The system displays the Manage Activities page for the Business
3. **<Select Activity>** The Business Representative clicks on an existing activity or the “+” icon
4. The system returns a form page to the Business Representative
5. **<Fill Form>** The Business Representative Fills the form and presses “Submit”
6. The system verifies the changes

Postconditions

The Business’s activity has been changed

Alternative flows

A. At **<Select Activity>** if the Business Representative clicks on an existing activity

1. On the **<Fill Form>** page the form fields are populated with the information from the existing activity

return to **<Fill Form>**

B. At **<Select Activity>** if the Business Representative clicks “+”

2. On the **<Fill Form>** page the form fields are empty

return to **<Fill Form>**

C. At **<Fill Form>**, if fields are invalid

1. The fields in question are highlighted red
2. The Business Representative receives a notification that they have invalid fields

Return to **<Fill Form>**

8 Models

These models ensure all stakeholders agree on the scope and meaning of concepts within the problem domain. These models are broken into two categories the first of which is Domain Models. Domain models show what data is involved, the relationships between pieces of data, and the flow of data through the application. The second category, UI Models, show how the user interface of the application will be laid out.

8.1 Domain Models

8.1.1 Entity-Relationship Diagram

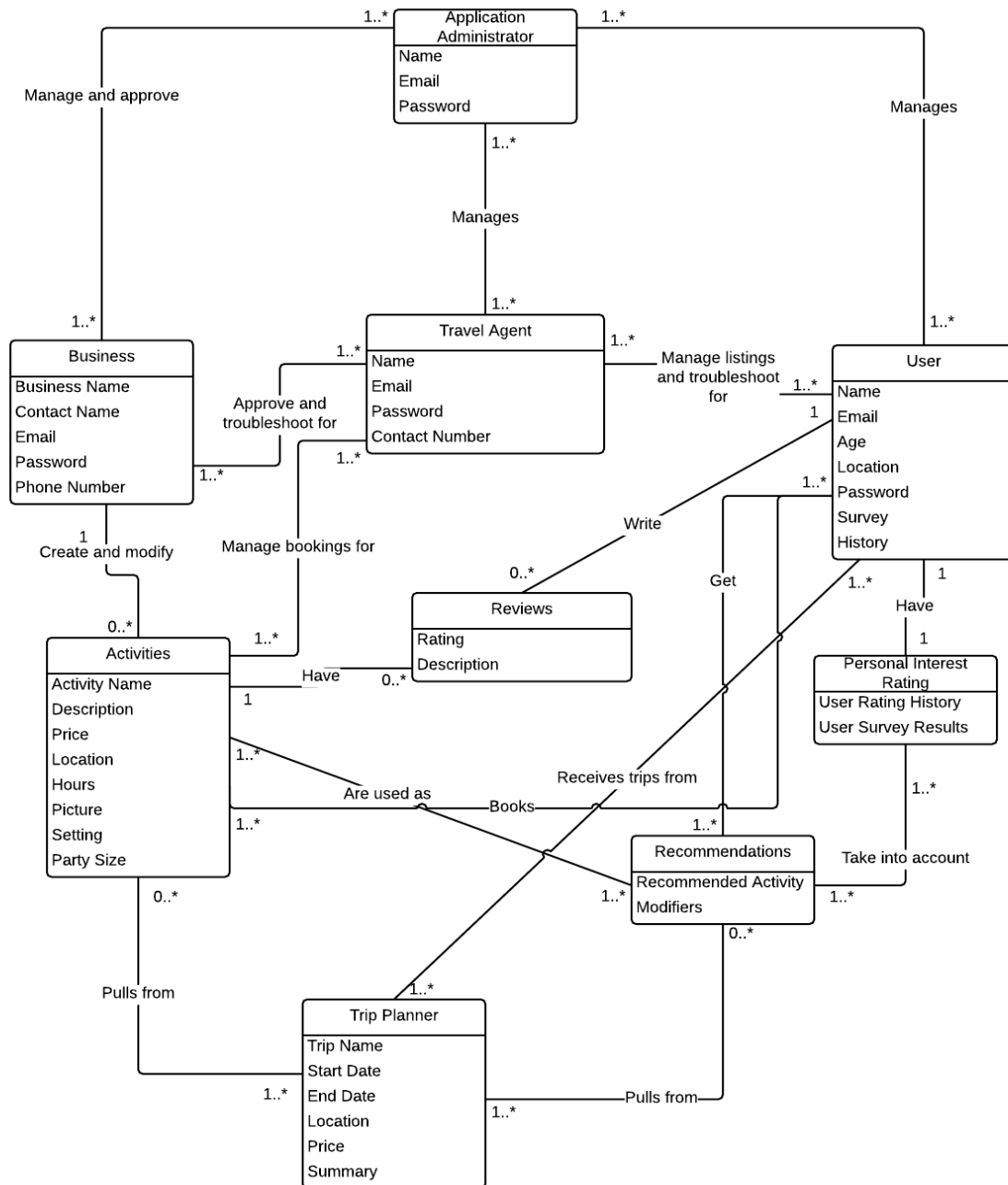


Figure 2: ER Diagram

The ER diagram located above in Figure 2 describes the structure of the system by showing the main entities, their attributes, and the relationships between them.

8.1.2 Data Dictionary

Entity	Data	Description
Application Administrator	Name	The name of the administrator
	Email	The administrator's email and username
	Password	The administrators login password
Travel Agent	Name	The name of the travel agent
	Email	The travel agent's email and username
	Password	The travel agent's login password
	Contact Number	The number the travel agent can be reached at
Business	Business Name	The name of the business organization
	Contact Name	The name of the contact person for that business
	Email	The business email account and username
	Password	The login password of the business
	Phone Number	The phone number of a contact at the business
User	Name	The name of the user
	Email	The user's email and username
	Age	The age of the user
	Location	The user's location
	Password	The user's login password
	Survey	The survey results used in part for the Personal Interest

		Rating
	History	The account history of the user eg. past activities and ratings
Activities	Activity Name	The name of the activity
	Description	A description of what the activity entails
	Price	The exact cost of booking the activity
	Location	Where the activity takes place
	Hours	The date and duration of the activity
	Picture	One or more pictures of the activity
	Setting	The setting in which the activity takes place eg. outdoors, water, sky, etc.
	Party Size	The number of people you'd like to book the activity for
Reviews	Rating	A 5 star rating of the activity
	Description	A max one paragraph description written by the user
Recommendations	Recommended Activity	The activity being recommended to the user
	Modifiers	Modifiers include filters the user can place on the activity eg. location, setting, price, etc.
Trip Planner	Trip Name	The name of the trip chosen by the user
	Start Date	The day the trip begins
	End Date	The day the trip ends
	Location	Where the trip takes place
	Price	The cost of the entire trip

	Summary	A summary of the details of the trip
Personal Interest Rating	User Rating History	A history of the user's '+' or '-' ratings on recommended activities
	User Survey Results	The results of the user's survey that are incorporated into the Personal Interest Rating

8.1.3 Data Flow Diagrams

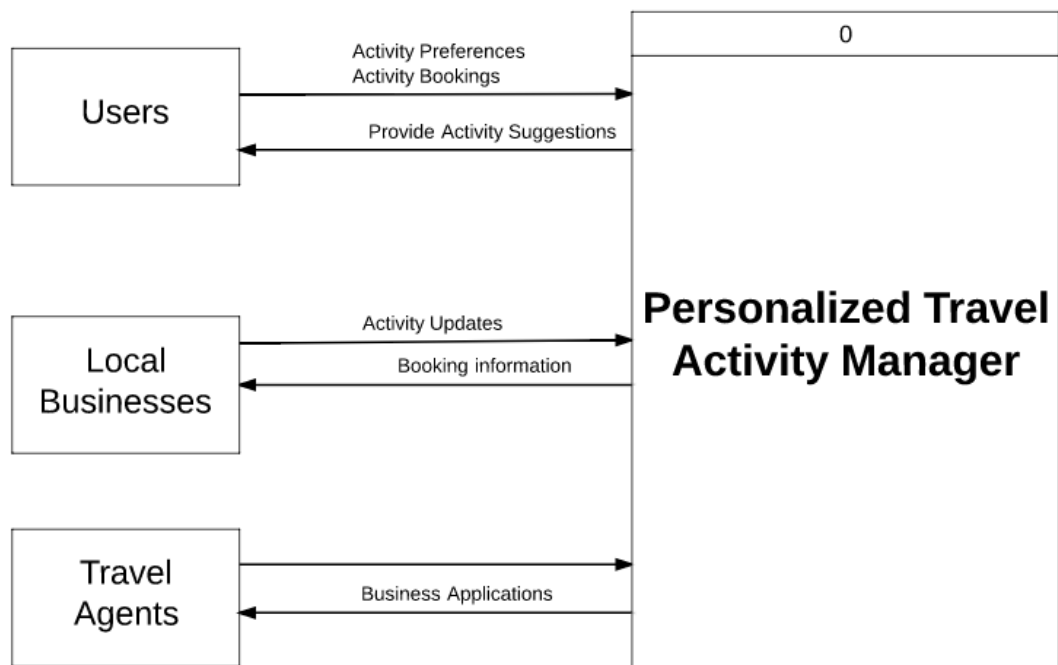


Figure 3: DFD-0 Diagram

The DFD level 0 located above in Figure 3 shows how data enters and leaves the application.

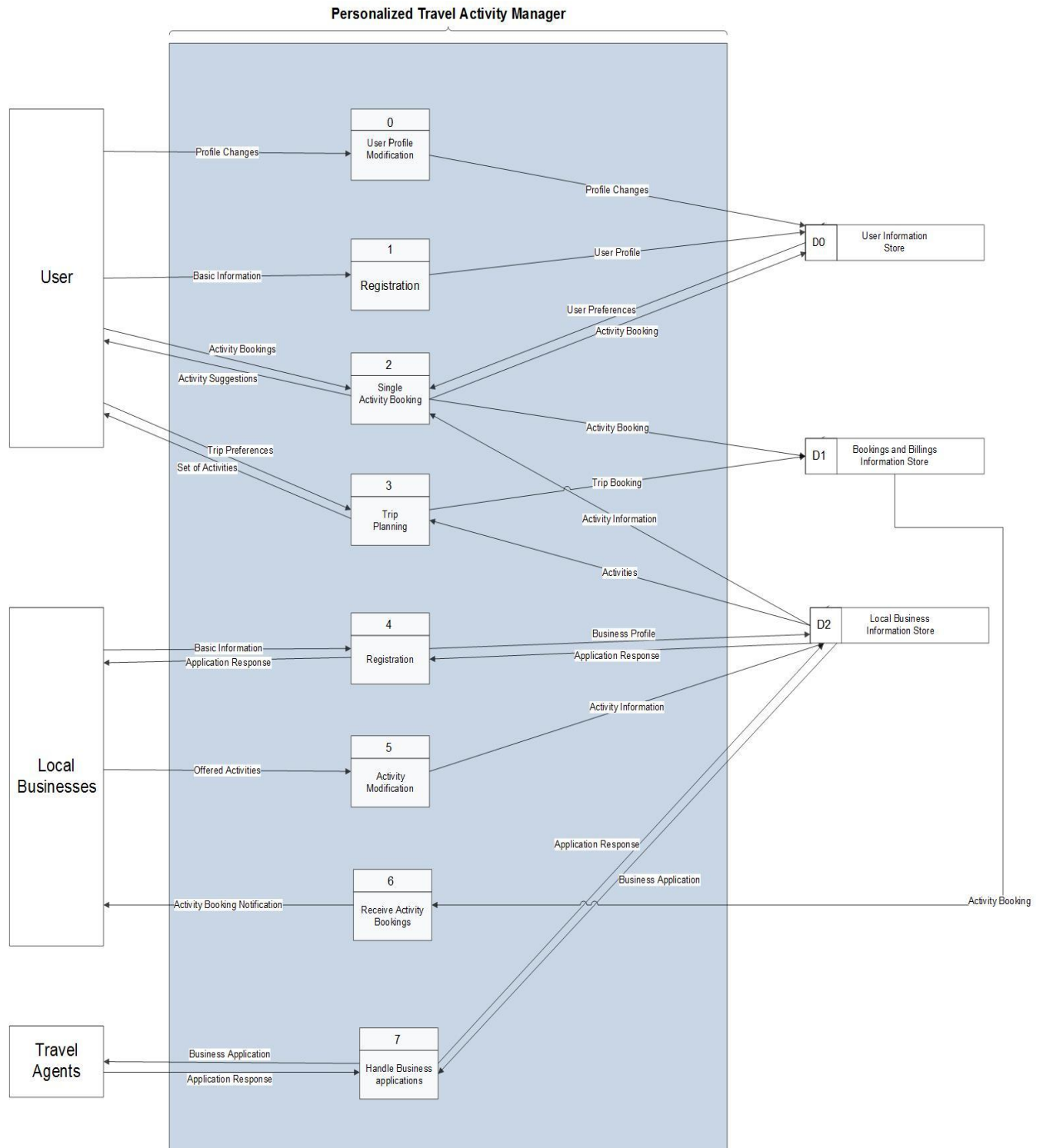


Figure 4: DFD-1 Diagram

The DFD level 1 located above in Figure 4 shows the system in more detail by including how data is used and stored.

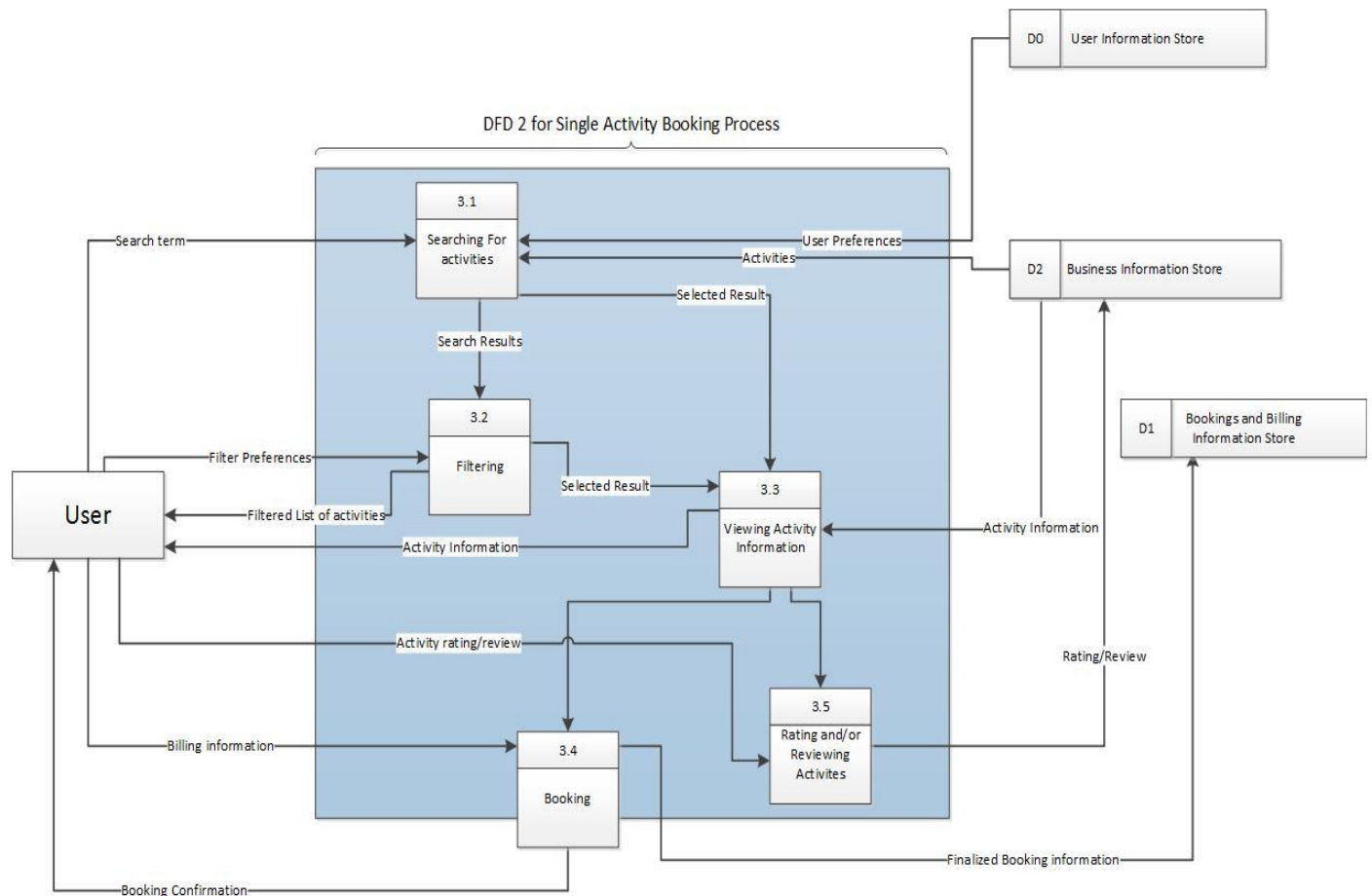
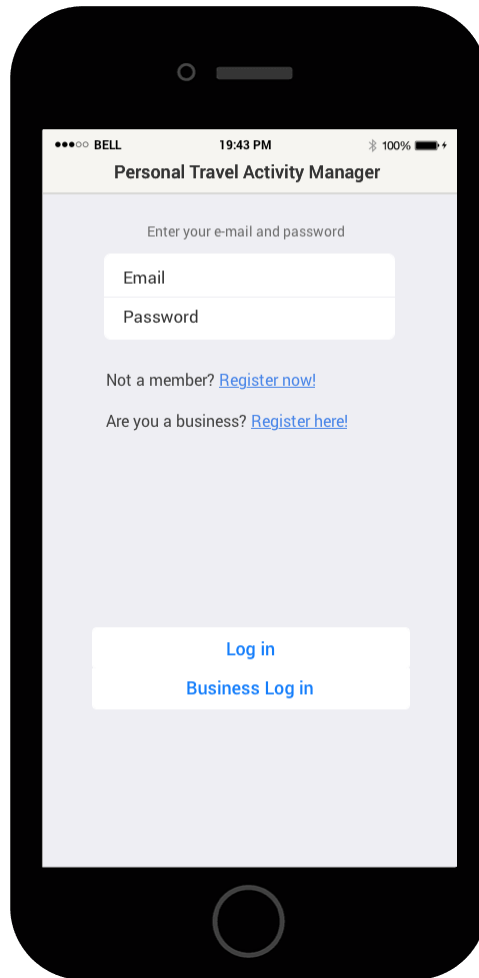


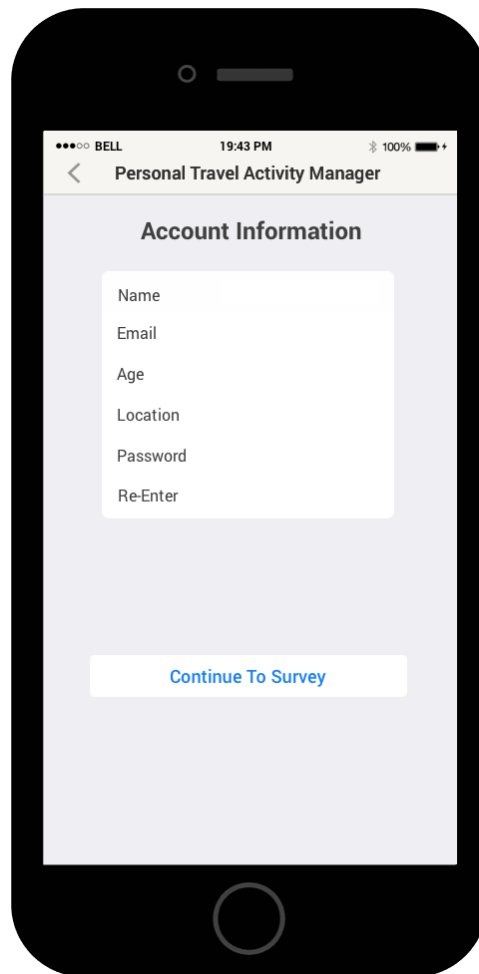
Figure 5: DFD-2 Diagram

The DFD level 2 located above in Figure 5 describes the flow of data in greater detail for the activity booking process.

8.2 UI Models



UI Model 1: Login Screen



UI Model 2: User Registration: Account Information Screen

Personal Travel Activity Manager

Account Activity Preferences

Preferred Price

\$0 ————— \$200

\$90

Not Active ————— Very Active

Not Rural ————— Very Rural

Duration (in minutes)

20 ————— 300

180

Please Specify 3 Interests

Interest 1:

Interest 2:

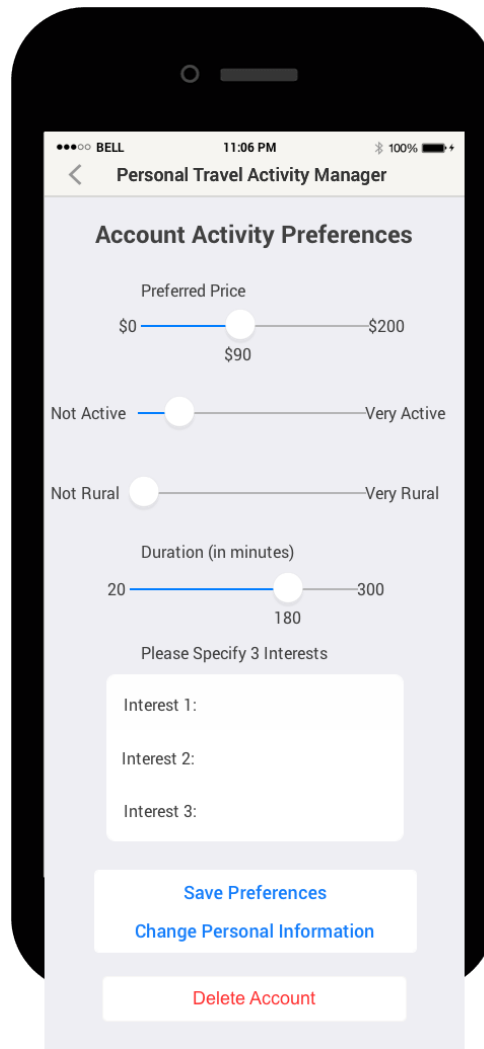
Interest 3:

Complete Preferences

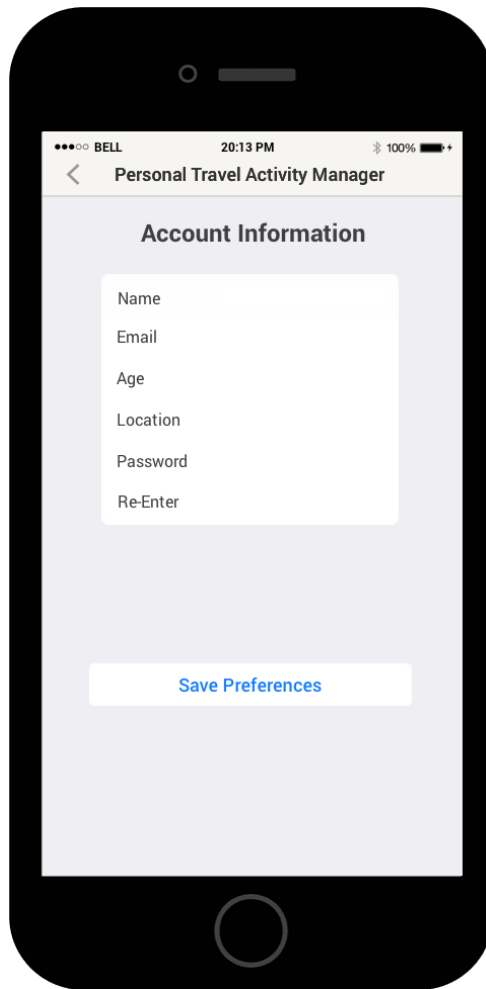
UI Model 3: User Registration: Activity Preferences Screen



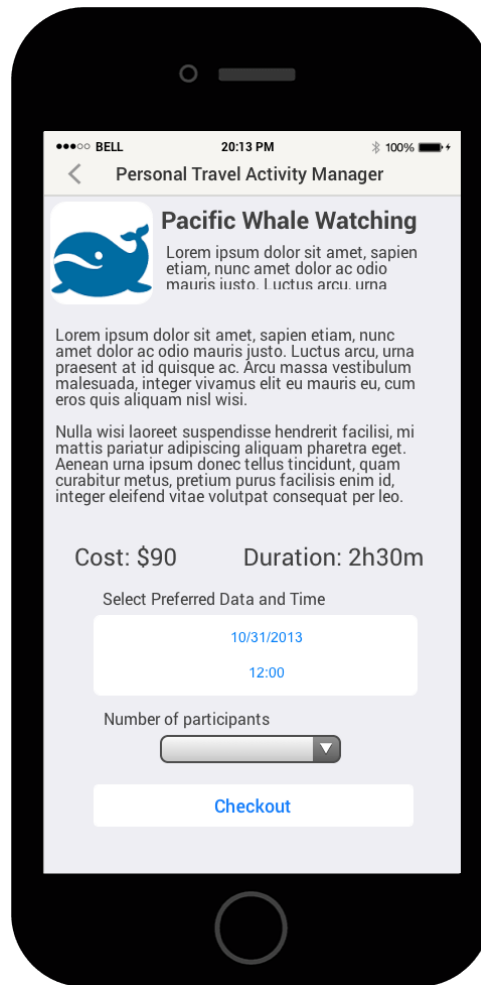
UI Model 4: Main Activity Screen



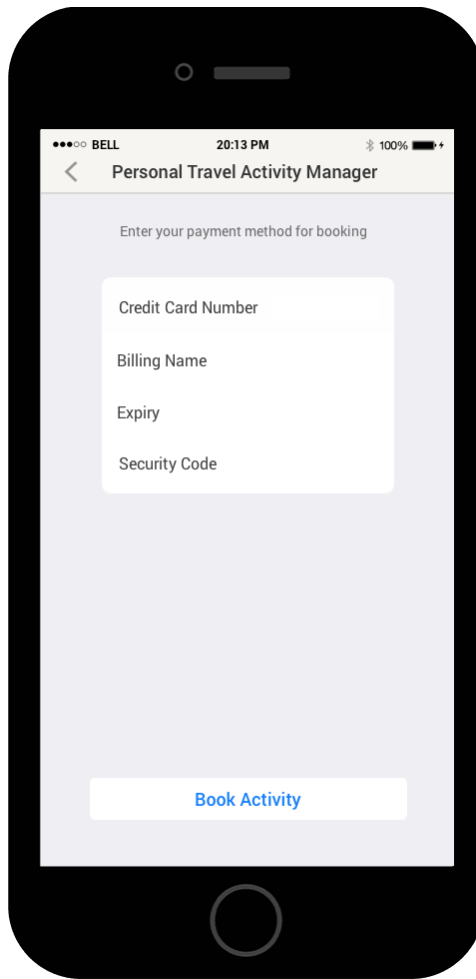
UI Model 5: User Account Management Screen



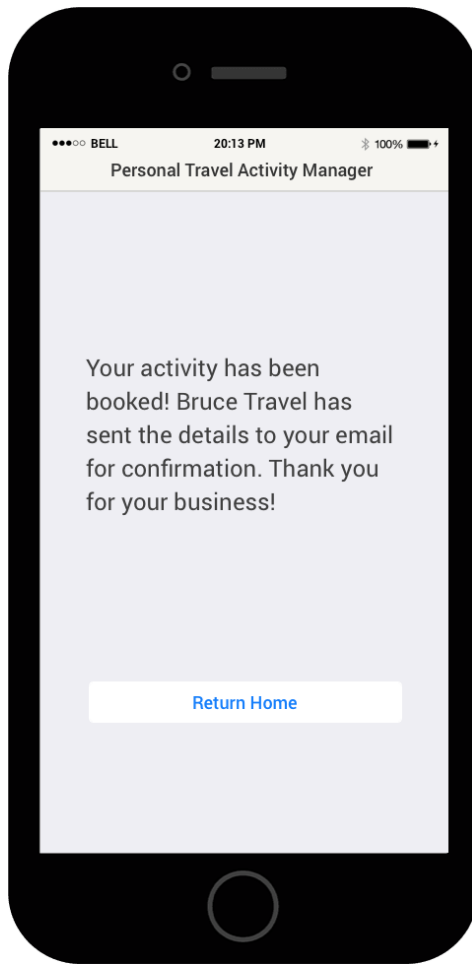
UI Model 6: User Account Management: Information Screen



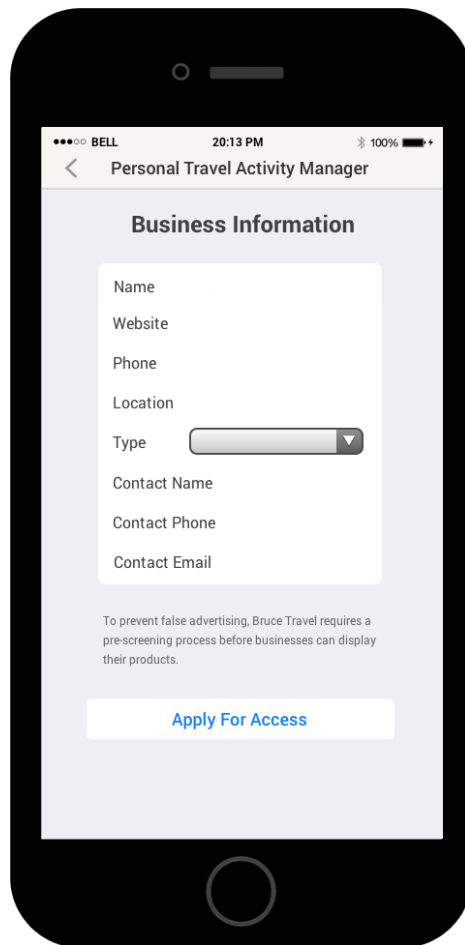
UI Model 7: Sample Activity Information and Booking Screen



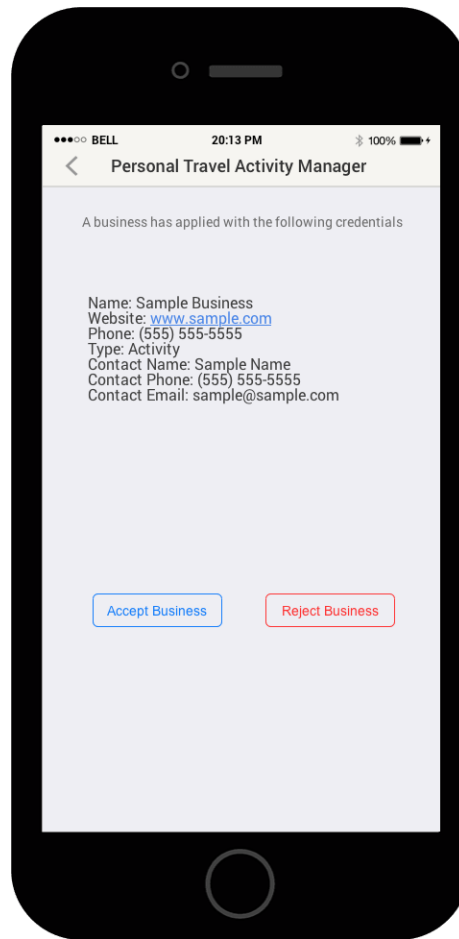
UI Model 8: Billing Information Screen



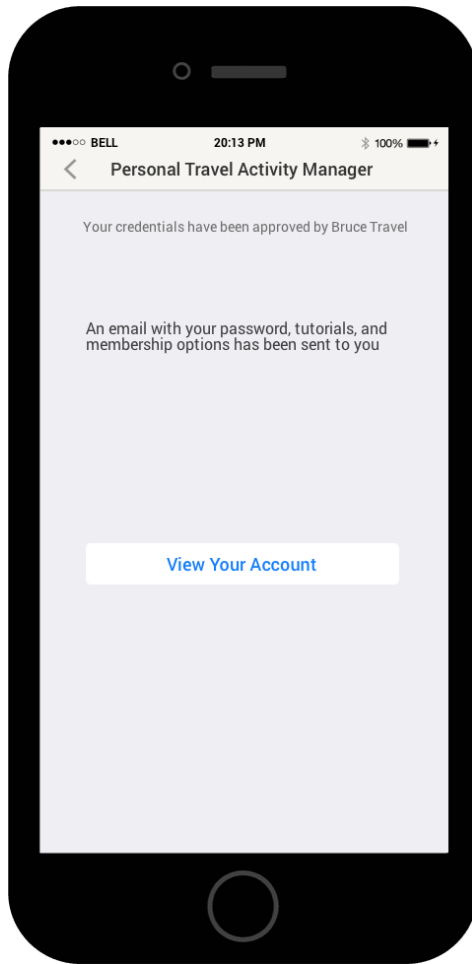
UI Model 9: Booking Confirmation Screen



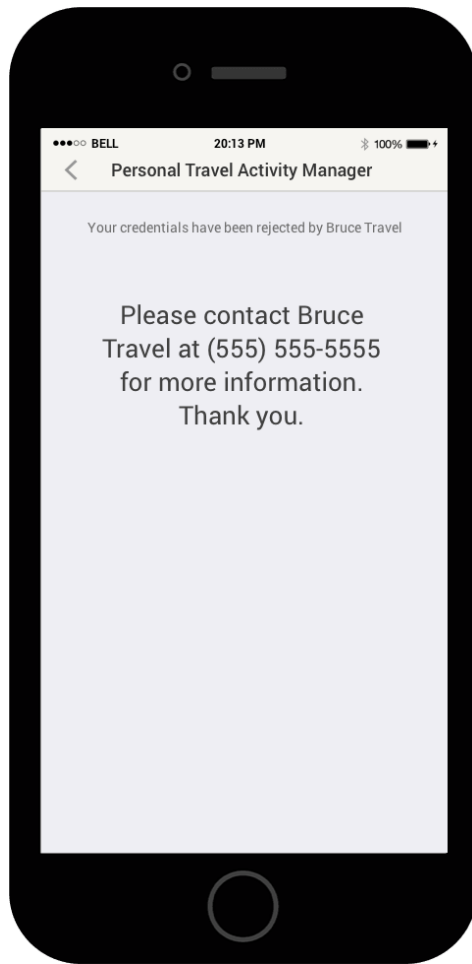
UI Model 10: Business Application Screen



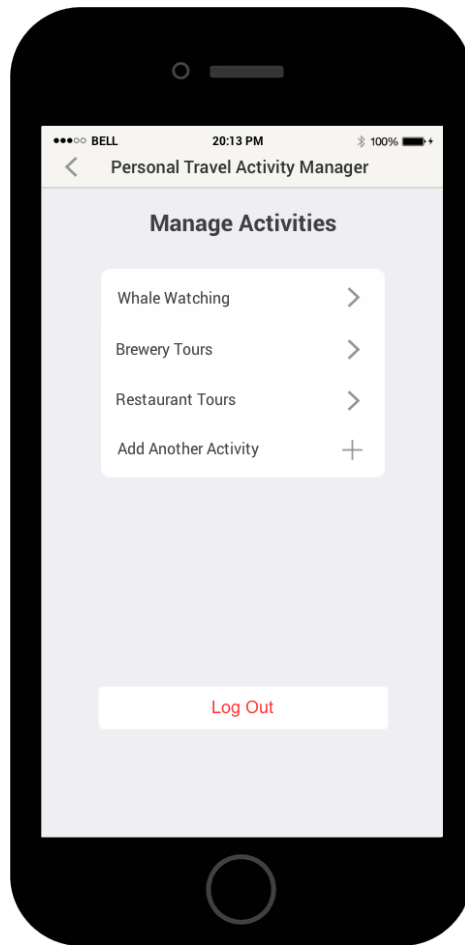
UI Model 11: Agent Accept/Reject Business Screen



UI Model 12: Business Accepted Screen



UI Model 13: Business Rejected Screen



UI Model 14: Business Account Screen

Appendix A: Elicitation Transcript

Introductions:

Introduce yourselves and explain that notes will be taken for the duration of the interview

Purpose:

The purpose of this interview is to clarify aspects of the RFP and learn more about Bruce Travel's requirements for the application
"Tinder for travel"

General Areas to be Covered:

- Current system
- Type of application
- Target audience
- Interface requirements
- Discovery vs. Booking
- Google
- Recommendations

Time required:

50 minutes

Questions:

Describe to us the major limitations of your current software solution that you would like improved.

- Currently it is mostly in person where the customers go to the travel agents and the agents provide recommendations and information to the customers through the current website and pamphlets. This is inconvenient to the customers.
- Want to enable customers to be able to search for themselves, even if it's not.
- Current system doesn't implement both pre-planned and spontaneous activities.

Is the Personalized Travel Activity Manager being designed to replace the current system?

- It is designed to replace the old system, but Bruce Travel wants to migrate any old data that is still relevant such as users and listings.

Do you want the Personalized Travel Activity Manager to be a mobile or web application? ext. On what hardware will it run?

- Mobile and desktop compatible web application. So built for desktop, but scalable to tablet and mobile.

What rating system is used by the current website?

- Users write small reviews and rate activities that they have done, this data should be migrated as well.

What sort of budget is set aside for the application?

- \$500,000
- 6 weeks

When you say businesses, do you strictly mean tourism businesses?

- No restrictions
- For anyone that offers a service focused for tourists
- Businesses verified by Bruce Travel.

Will the application be targeting revenue generating businesses only? Or will there be suggestions for free activities or “sights to see” in a city?

- Businesses pay Bruce Travel to be on the website
- Subscription based, anyone that is willing to pay.
- Registration of new businesses must be supported by the new website, for review.

Are accounts required to view listings?

- Browsing: account not required, but strongly recommended.
- Booking: account required.

How many accounts levels do we need to support?

- Guest
- User
- Agents
- Businesses
- Root

As the travel agency, what is your participation in the system?
ext. what are functional requirement needed for the travel agents?

Users

- Report misleading posts
- Thumbs down thumbs up listings to build preferences and filter listings.

Agents

- Approve new businesses, approve more than the default number of listings.
- Change bookings on behalf of the users.

Businesses

- Subscription based (see below)
- Approved by Bruce Travel

How do businesses go about listing their products, experiences, and excursions?

Businesses

- A business goes through an approval process by Bruce Travel and then gets the ability to add a limited number of activities (default 5).

Describe to us what you would like the first time user experience to be. (walkthrough)

- User navigates to website.

- User is prompted to create account but it is not required to continue and view listings (Create account button should be big and pronounced and the skip button smaller and less pronounced).
- If they create an account they fill out personal information, interests, things for recommendations and credit card.
- Can now view/book listings.

“create a trip”

- start date, end date, locations, price, survey of interests on this specific trips.

ext. List of filter options? (rating, price, duration, activity level, popular, smart recommendation?)

- rating
- price
- duration
- time of day (night or day)
- capacity..
- activity level
- “indoor vs outdoor”

Support PROMO CODE discounts

Payment Options

- Credit Cards ONLY (Visa, MasterCard, and American Express)

Payment scheme:

- Agency takes a percentage of sales through the website
- Customers pay at time of booking

What kind of activity data do you want to pull from municipal tourism board systems? Because pulling the data for users to see is one thing, but that wouldn't allow customers to book those events through the app. (If Bruce Travel accepts payments and bookings, see above question) (how would the municipal tourism options appear to the user?)

- Do not pull any data from the municipal tourism boards.

Google directory information (why, how, what)??? (expand)

- No information from Google is required.

Do you allow users to rate activities so that you can gain information and make recommendations? And do you currently store this data?

- Users can review the recommendations they have been given so the system can provide better ones.

Can you describe the information on your current database?

- Both sides (users and businesses) need to add more after the migration because the current system only has basic info.

- Current system has nothing on recommendations.

What actions should change the user's perceived preferences?

- Preference survey
- Booking
- Thumbs up thumbs down
- Not 'star ratings' or reviews

Summary and Closing:

Summarize areas covered.

Highlight facts and our new understanding of them.

Thank Bruce Travel.

More questions to ask:

What browsers does the web app have to be compatible with?

Design and implementation constraints?