# TrackTravel™

## System Specification

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VISION™
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## Executive Summary

The project sponsor/champion Ms. Weltz of Wanderer's Tools initiated this project on October 8th, 2018. The client Wanderers' Tools hired the developer VISION™ Systems Development, LLC to design and develop a travel journal software application as the initial product of a traveler's toolkit. The application will offer travelers the convenience of easy, quick travel journaling. VISION™ Systems Development, LLC completed the analysis phase of the System Development Life Cycle (SDLC), which is documented in the TrackTravel™ System Proposal.

VISION™ Systems Development, LLC performed an in-depth design of the required classes, architecture, and interfaces of the system. This System Specification details the design of the TrackTravel™ application. The TrackTravel™ development team at VISION™ Systems Development, LLC will begin the implementation phase of the SDLC and will continue collaborating with Wanderer's Tools through monthly meetings as recommended in the TrackTravel™ System Proposal. The TrackTravel™ development team will embrace feedback from Wanderer's Tools and the TrackTravel™ User Focus Group regarding the requirements and GUI design of the system. Once the system has completed implementation and testing, the deployment phase will begin with the launch of TrackTravel™ Standard in the spring of 2019.

This System Specification contains the following primary sections:

1.0.0 Introduction
- A synopsis of the analysis documented in the TrackTravel™ System Proposal

2.0.0 Structural Model
- A model of the major classes of the system with associated descriptions

3.0.0 Architecture Design
- A model of the infrastructure of the system with a security plan

4.0.0 User Interface
- A model of the interfaces and navigation of the system

5.0.0 Appendices
- A glossary, a bibliography, and supplementary documents

# 1.0.0 Introduction

The sections of this System Specification are ordered by a numerical prefix system of the form:

## #.#.# Section Title

The first number designates the primary section, the second number designates the secondary section which is a subsection of the primary section, and the third number designates the tertiary section which is a subsection of the secondary section.

Underlined text in a blue font color corresponds to a hyperlink to a webpage, which may be utilized by either clicking the text of by holding the "Ctrl" key on the computer keyboard and then clicking the text. An example hyperlink is provided here: www.techopedia.com/

Underlined text in a black font color corresponds to a link to a section within this System Specification, which may be utilized by either clicking the text of by holding the "Ctrl" key on the computer keyboard and then clicking the text. This capability is especially useful when cross-referencing to a different section. An example section link is provided here: 2.0.0 Structural Model

Wanderer's Tools (also referred to as "the client" or throughout this System Specification) chose to hire VISION™ Systems Development, LLC (also referred to as "VISION™" throughout this System Specification) to develop the TrackTravel™ app (also referred to as "TT," "the system," "the completed system," "project," "application," "product," or "program software" throughout this System Specification). The TrackTravel™ app will provide end-users (referred to as "end-user(s)," "user(s)," and "traveler(s)" throughout this System Specification) a quick and simple tool for tracking the details of their travels.

Primary section 1.0.0 Introduction of this System Specification includes a synopsis of the analysis of the system, which is documented in the TrackTravel™ System Proposal. This primary section contains following secondary sections: 1.1.0 Problem Statement and Project Vision, 1.2.0 System Services, 1.3.0 Nonfunctional Requirements and Design Constraints, 1.4.0 System Evolution, and 1.5.0 Document Outline.

### 1.1.0 Problem Statement and Project Vision

Current methods of travel journaling require travelers to spend hours sorting through photographs, videos, and printed media, often after the trip. Consequently, travelers either do not attempt or cease attempting to organize travel journals. The proposed system addresses the need for an easier and faster method of tracking the details of a trip.

Wanderer's Tools would like to sell a toolkit of various travel-related applications. The preliminary product of the Wanderer's Tools toolkit will be an integrated travel journal tool called the TrackTravel™ (TT) app. TT will enable travelers to conveniently record the details of their travels.

The stakeholders of the project include travelers, churches, missions-based organizations, travel agents, trip planners, individuals in the travel and tourism industries, Wanderer's Tools, and VISION™ Systems Development, LLC. TT will provide convenience, efficiency, and capability to end-users. TT will generate profit and increase the customer base for both Wanderer's Tools and VISION™.

*Refer to primary section 1.0.0 Introduction and Overview of the TrackTravel™ System Proposal for additional details.*

### 1.2.0 System Services

- **Add New Trip**: *Use-Case 4. Select Trip – S2-a*
  - TT must allow the user to create and load a new trip.
- **View Existing Trip**: *Use-Case 4. Select Trip – S2-b*
  - TT must allow the user to load and view existing trip.
- **Enhance Existing Trip**: *Use-Case 4. Select Trip*
  - TT must allow the user to edit, backup, or delete an existing trip.
- **Add New Entry**: *Use-Case 1. Add Entry*
  - TT must allow the user to create a new entry in the currently loaded trip.
- **View Existing Entry**: *Use-Case 1. Add Entry – 3* & *Use-Case 3. Edit Entry – 4*
  - TT must display each existing entry with a preview image or journal note.
- **Enhance Existing Entries**: *Use-Case 2. Select Entry* & *Use-Case 3. Edit Entry*
  - TT must allow the user to edit, backup, or delete an existing entry.
- **Backup Existing Entries**: *Use-Case 6. Backup Data*
  - TT should allow the user to backup existing entries and existing trips.
- **Customize System Settings**: *Use-Case 5. Change Setting*
  - TT should allow the user to change the settings of the system.
- **Track User Location**: *Use-Case 7. Track Location* & *Use-Case 1. Add Entry – S2-2*
  - TT should automatically determine the location of the user.

*Refer to primary sections 4.0.0 Requirements Definition and 5.0.0 Requirements Model of the TrackTravel™ System Proposal for additional details.*

### 1.3.0 Nonfunctional Requirements and Design Constraints

- TT must support Windows and Mac desktops, laptops and tablets.
- TT will not require Internet connection, cloud server connection, or GPS connection, except for specific tasks.
- TT should provide the ability to backup user entries and trips into a Microsoft Azure SQL Database cloud storage server.
- TT source code should be implemented and maintained using C# in Visual Studio Enterprise 2017.
- TT should be implemented and maintained using an eXtreme Programming (XP) methodology.
- TT must use standard icons in all Graphical User Interfaces (GUIs).
- TT must provide tool tips and help documentation to the users.
- TT should display a progress bar when loading or enhancing user data, especially since each trip may contain many entries with many uploaded files.
- TT must perform all necessary error checking and display confirmation messages or error messages as needed.
- TT will not continuously run any background processes, except for automatic backup if enabled and other critical processes.
- TT must be available in English and should be available in other languages including Spanish, French, German, Russian, Italian, Chinese, Japanese, Korean, Arabic, and more, especially since the users of TT will likely include travelers from across the globe.
- Authorized personnel within Wanderer's Tools should have access to user data in the cloud storage server in order to contact users by email and to observe travel trends.

*Refer to secondary sections 1.6.0 Constraints and 4.4.0 Nonfunctional Requirements of the TrackTravel™ System Proposal for additional details.*

## 1.4.0 System Evolution

The initial edition of the completed system will be called **TrackTravel™ Standard** and will be launched by June 1st, 2019. Each new edition of the completed system will be defined by an edition name and a projected release date. Wanderer's Tools will distribute licenses for each edition on the Internet.

**TrackTravel™ Trial – August 1st, 2019**

- VISION™ will develop a trial edition that will allow the user full functionality of the initial edition (**TrackTravel™ Standard**) for a total of 90 days.
- This edition will allow users to try out the system for a generous time period of three months and will persuade them to purchase the initial edition.
- This edition will be removed from the user's device once the trial period ends.
- This edition will run if the user has not installed **TrackTravel™ Free**, has not purchased **TrackTravel™ Standard**, and does not have a current subscription to **TrackTravel™ Premium**.

**TrackTravel™ Free – December 1st, 2019**

- VISION™ will develop a free edition that will allow the user limited functionality of the initial edition (**TrackTravel™ Standard**).
- This edition will allow the user to try out basic features of the system and will persuade the user to upgrade by purchasing the initial edition.
- This edition will be removed from the user's device when the user purchases the initial edition.
- This edition will run if the user has not purchased **TrackTravel™ Standard**, does not have currently have **TrackTravel™ Trial**, and does not have a current subscription to **TrackTravel™ Premium**.

**TrackTravel™ Premium – June 1st, 2020**

- VISION™ will develop an advanced edition of the initial edition (**TrackTravel™ Standard**) that will allow the user to directly interface with third-party programs, smart-phones, and digital cameras.
- Wanderer's Tools will distribute this edition using an annual subscription-based pricing model on the Internet.
- This edition will not run if the user's subscription period of 365 days expires and has not been renewed.
- The user may renew the subscription at any time and will add an additional 365 days to the subscription period each time the user purchases a renewal.

**TrackTravel™ Mobile – June 1st, 2021**

- VISION™ will develop a mobile app edition that will allow the user full functionality of the initial edition (**TrackTravel™ Standard**) on a smart-phone.
- This edition will directly interface and synchronize with any edition installed on the user's laptop(s) and/or tablet(s) device(s).
- This edition will be a one-time fixed-cost downloadable mobile app available on all major app stores including Google Play, App Store, GetJar, Aptoide, Amazon AppStore, Opera Mobile Store, and Appland.
- This edition will likely support smart-phones with Android 4.4 KitKat and up and smart-phones with Apple iOS 10 and up.

*Refer to primary section 6.0.0 System Evolution of the TrackTravel™ System Proposal for additional details.*

## 1.5.0 Document Outline

This System Specification will proceed with the following primary sections:

2.0.0 Structural Model

- A class diagram and the accompanying metadata descriptions

3.0.0 Architecture Design

- Deployment diagrams, hardware and software requirements, and a security plan

4.0.0 User Interface

- Constraints, a window navigation diagram, and form diagrams

5.0.0 Appendices

- A glossary, a bibliography, and supporting documentation

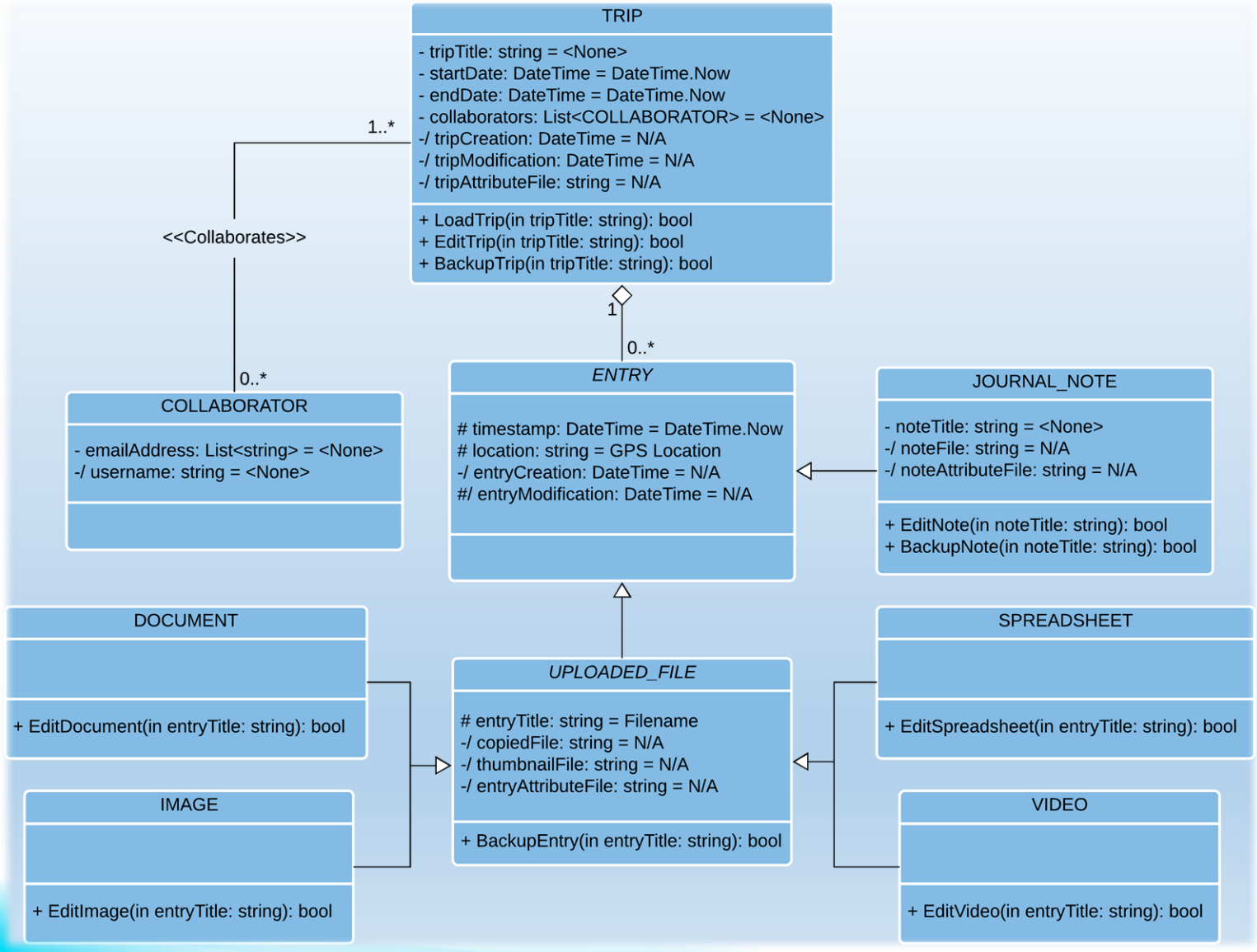
# 2.0.0 Structural Model

## 2.1.0 Introduction

Primary section 2.0.0 Structural Model of this System Specification describes the major classes of the TrackTravel™ application. Secondary section 2.2.0 Class Diagram provides a UML Class Diagram, which shows the relationship between the classes of the system. Secondary section 2.3.0 Metadata details additional information about the attributes and operations of each class.

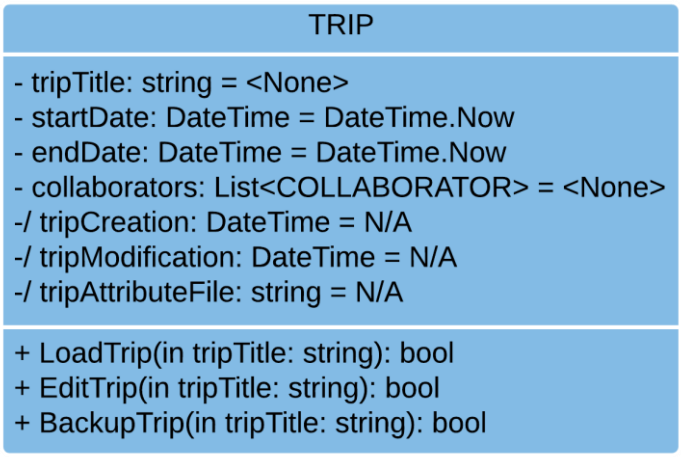
## 2.2.0 Class Diagram

Each rectangular class symbol has a tertiary section link that will link to the respective metadata description for that particular class. This interactive capability may be utilized by either clicking anywhere within the rectangular class symbol or by holding the “Ctrl” key on the computer keyboard and then clicking anywhere within the rectangular class symbol.



## 2.3.0 Metadata

### 2.3.1 Trip




**Description:** Represents a travel journal trip
**Visibility:** Public
**Is Abstract:** No

**Additional Information:**

## Attributes Table

| Name | Description | Read Only? | Multiplicity |
|---|---|---|---|
| **tripTitle** | Unique name to identify the trip | No | 1 |
| **startDate** | Date and time at which the trip began | No | 1 |
| **endDate** | Date and time at which the trip ended | No | 1 |
| **collaborators** | List of collaborators of the trip | No | 1 [0..*] |
| **tripCreation** | Date and Time at which the trip was created | Yes | 1 |
| **tripModification** | Date and Time at which the trip was last edited | No | 1 |
| **tripAttributeFile** | Unique filename of the generated trip attribute file | No | 1 |

## Operations Table

| Name | Description | Is Query? | Is Polymorphic? |
|---|---|---|---|
| **LoadTrip** | Load the trip into the main window | Yes | No |
| **EditTrip** | Edit the attributes of the trip | No | No |
| **BackupTrip** | Store the trip entries in the cloud storage server | Yes | No |

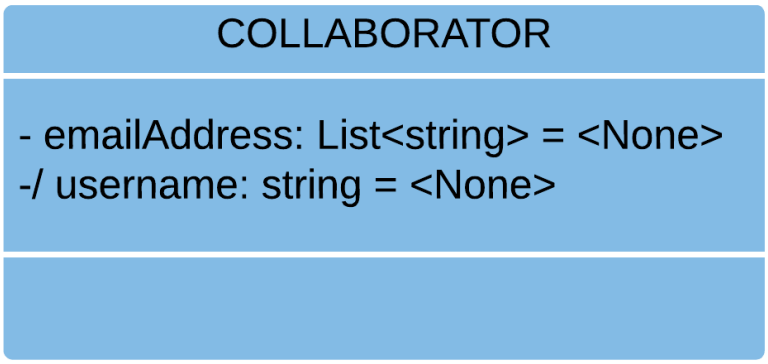
**Processing Outlines:**

LoadTrip(in tripTitle: string): bool
    IF the attribute file of the selected trip is successfully located:
        Display all the entries of the selected trip in the main window
        Return True for successful load of trip
    ELSE:
        Display error message that the trip could not be found
        Return False for failed load of trip

EditTrip(in tripTitle: string): bool
    IF the attribute file of the selected trip is successfully located:
        Display form window of current trip attributes
        Return True for successful edit of trip
    ELSE:
        Display error message that the trip attributes could not be found
        Return False for failed edit of trip

BackupTrip(in tripTitle: string): bool
    IF Internet connection established:
        IF cloud storage server connection established:
            Upload all files of the selected trip into the cloud storage server
            Return True for successful backup of trip
        ELSE:
            Display error message that the device failed to connect to the cloud storage server
            Return False for failed backup of trip
    ELSE:
        Display warning message that the device must have Internet connection in order to backup
        Return False for failed backup of trip

### 2.3.2 Collaborator



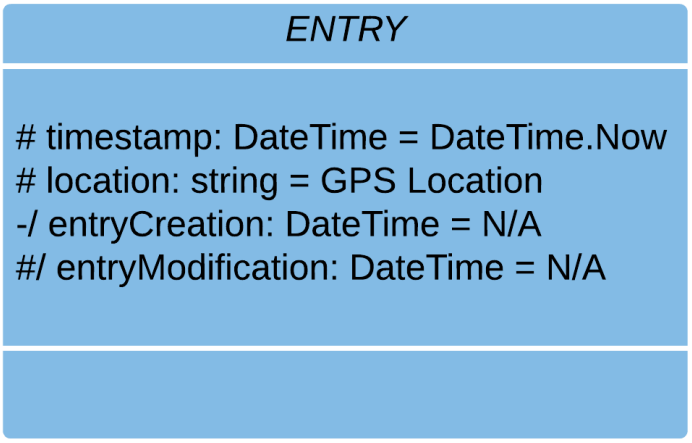

**Description:** Represents a collaborating user of a travel journal trip
**Visibility:** Public
**Is Abstract:** No

**Additional Information:**

## Attributes Table

| Name | Description | Read Only? | Multiplicity |
|---|---|---|---|
| **emailAddress** | List of valid and unique email address(es) | No | 1 [1..*] |
| **username** | Any name that identifies the person and corresponds to the given email address(es) | No | 1 |

### 2.3.3 Entry



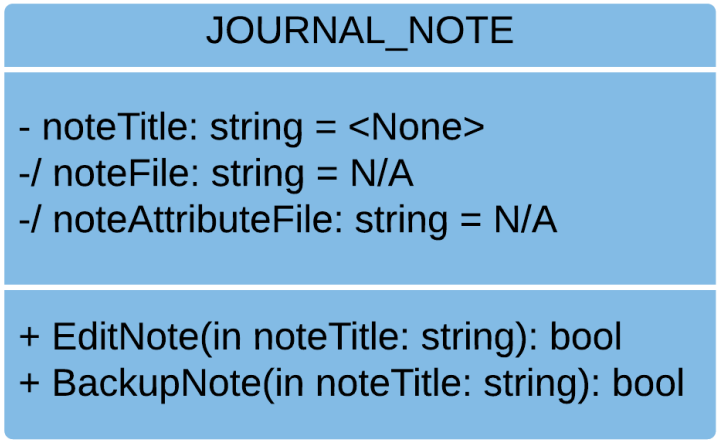

**Description:** Represents a travel journal entry of a travel journal trip
**Visibility:** Public
**Is Abstract:** Yes

**Additional Information:**

## Attributes Table

| Name | Description | Read Only? | Multiplicity |
|---|---|---|---|
| **timestamp** | Date and time of the event recorded in the entry | No | 1 |
| **location** | Place, city, state, county and/or country location of entry | No | 1 |
| **entryCreation** | Date and Time at which the entry was created | Yes | 1 |
| **entryModification** | Date and Time at which the entry was last edited | No | 1 |

### 2.3.4 Journal Note




**Description:** Represents a journal note of a travel journal entry
**Visibility:** Public
**Is Abstract:** No

**Additional Information:**

#### Attributes Table

| Name | Description | Read Only? | Multiplicity |
|---|---|---|---|
| **noteTitle** | Unique name to identify the journal note | No | 1 |
| **noteFile** | Unique filename of the generated journal note content file | No | 1 |
| **noteAttributeFile** | Unique filename of the generated journal note attribute file | No | 1 |

#### Operations Table

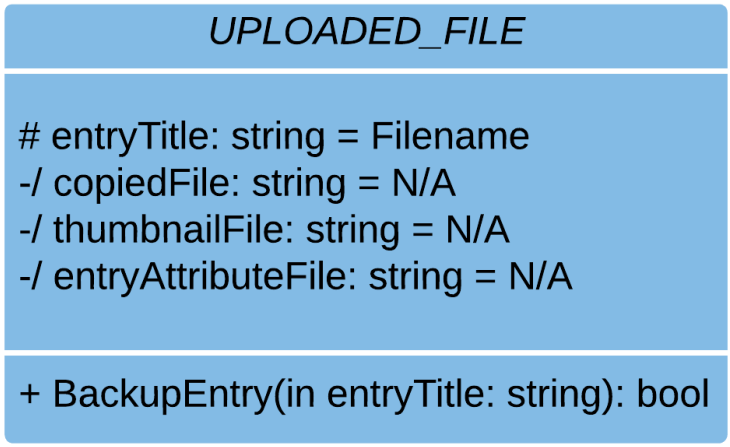
| Name | Description | Is Query? | Is Polymorphic? |
|---|---|---|---|
| **EditNote** | Edit the attributes or content of the journal note | No | No |
| **BackupNote** | Store the journal note files in the cloud storage server | Yes | No |

**Processing Outlines:**

EditNote(in noteTitle: string): bool
    IF the content AND attribute files of the selected note are successfully located:
        Display form window of current note attributes
        Return True for successful edit of note
    ELSE:
        Display error message that the note could not be found
        Return False for failed edit of note

BackupNote(in noteTitle: string): bool
    IF Internet connection established:
        IF cloud storage server connection established:
            Upload the content and attribute files of the selected note into the cloud storage server
            Return True for successful backup of note
        ELSE:
            Display error message that the device failed to connect to the cloud storage server
            Return False for failed backup of note
    ELSE:
        Display warning message that the device must have Internet connection in order to backup
        Return False for failed backup of note

### 2.3.5 Uploaded File




**Description:** Represents an uploaded file of a travel journal entry
**Visibility:** Public
**Is Abstract:** Yes

**Additional Information:**

#### Attributes Table

| Name | Description | Read Only? | Multiplicity |
|---|---|---|---|
| **entryTitle** | Unique name to identify the entry | No | 1 |
| **copiedFile** | Filename of the copied file of the entry | No | 1 |
| **thumbnailFile** | Filename of the generated thumbnail of the entry | No | 1 |
| **attributeFile** | Filename of the generated attribute file of the entry | No | 1 |

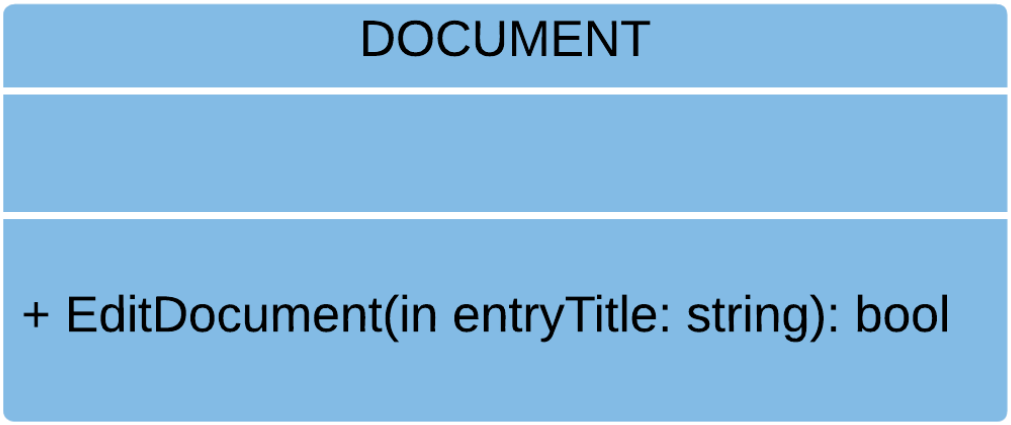
#### Operations Table

| Name | Description | Is Query? | Is Polymorphic? |
|---|---|---|---|
| **BackupEntry** | Store the entry files in the cloud storage server | Yes | No |

**Processing Outline:**

```
BackupEntry(in entryTitle: string): bool
        IF Internet connection established:
                IF cloud storage server connection established:
                        Upload the copied, thumbnail, and attribute files of the selected entry
                                into the cloud storage server
                        Return True for successful backup of entry
                ELSE:
                        Display error message that the device failed to connect to the cloud
                                storage server
                        Return False for failed backup of entry
        ELSE:
                Display warning message that the device must have Internet connection in order
                        to backup
                Return False for failed backup of entry
```

### 2.3.6 Document




**Description:** Represents an uploaded document file
**Visibility:** Public
**Is Abstract:** No

**Additional Information:**

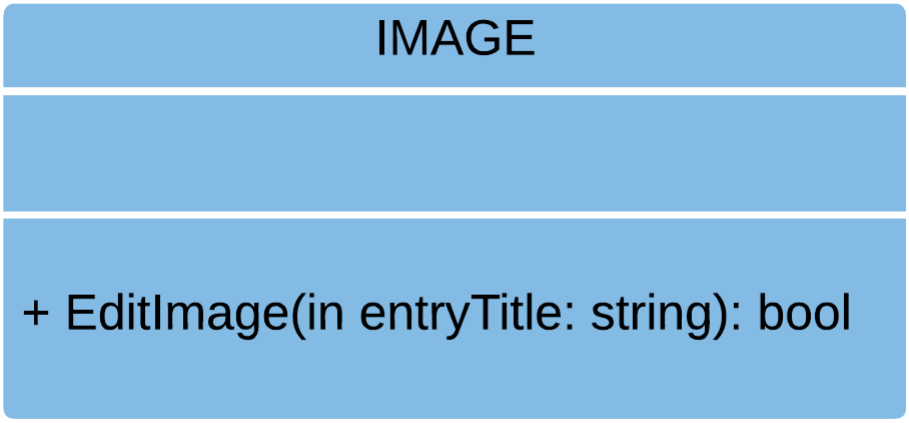
## Operations Table

| Name | Description | Is Query? | Is Polymorphic? |
|---|---|---|---|
| **EditDocument** | Edit the attributes of the document entry | No | No |

**Processing Outline:**

EditDocument(in entryTitle: string): bool
    IF the attribute file of the selected document entry is successfully located:
        Display form window of current document entry attributes
        Return True for successful edit of document
    ELSE:
        Display error message that the document entry could not be found
        Return False for failed edit of document

### 2.3.7 Image




**Description:** Represents an uploaded image file
**Visibility:** Public
**Is Abstract:** No

**Additional Information:**

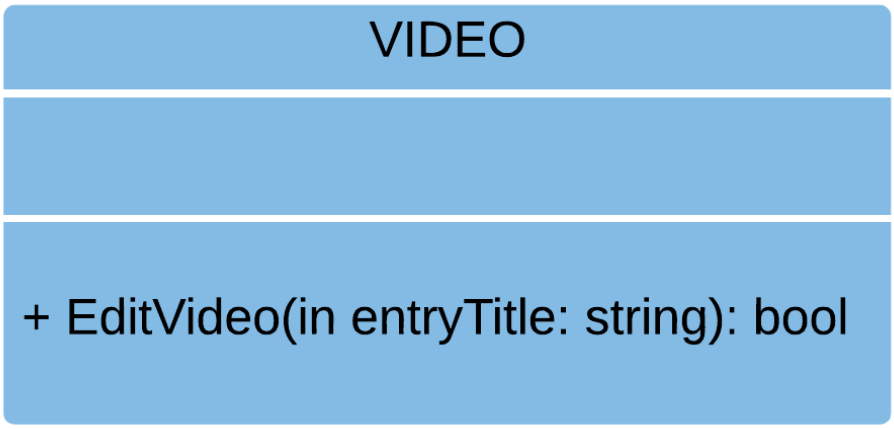
## Operations Table

| Name | Description | Is Query? | Is Polymorphic? |
|---|---|---|---|
| **EditImage** | Edit the attributes of the image entry | No | No |

**Processing Outline:**

EditImage (in entryTitle: string): bool
    IF the attribute file of the selected image entry is successfully located:
        Display form window of current image entry attributes
        Return True for successful edit of image
    ELSE:
        Display error message that the image entry could not be found
        Return False for failed edit of image

### 2.3.8 Video




**Description:** Represents an uploaded video file
**Visibility:** Public
**Is Abstract:** No

**Additional Information:**

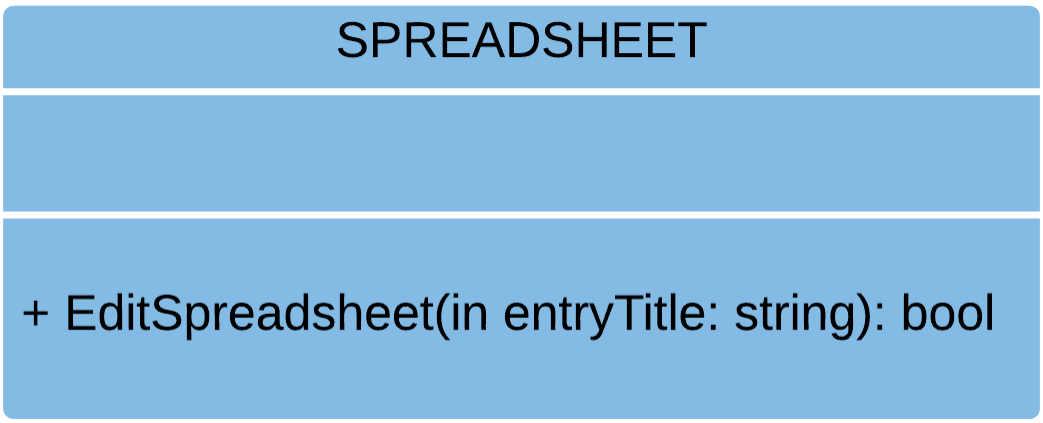
## Operations Table

| Name | Description | Is Query? | Is Polymorphic? |
|---|---|---|---|
| **EditVideo** | Edit the attributes of the video entry | No | No |

**Processing Outline:**

EditVideo (in entryTitle: string): bool
    IF the attribute file of the selected video entry is successfully located:
        Display form window of current video entry attributes
        Return True for successful edit of video
    ELSE:
        Display error message that the video entry could not be found
        Return False for failed edit of video

### 2.3.9 Spreadsheet




**Description:** Represents an uploaded spreadsheet file
**Visibility:** Public
**Is Abstract:** No

**Additional Information:**

## Operations Table

| Name | Description | Is Query? | Is Polymorphic? |
|---|---|---|---|
| **EditSpreadsheet** | Edit the attributes of the spreadsheet entry | No | No |

**Processing Outline:**

EditSpreadsheet (in entryTitle: string): bool
    IF the attribute file of the selected spreadsheet entry is successfully located:
        Display form window of current spreadsheet entry attributes
        Return True for successful edit of spreadsheet
    ELSE:
        Display error message that the spreadsheet entry could not be found
        Return False for failed edit of spreadsheet

# 3.0.0 Architecture Design

## 3.1.0 Introduction

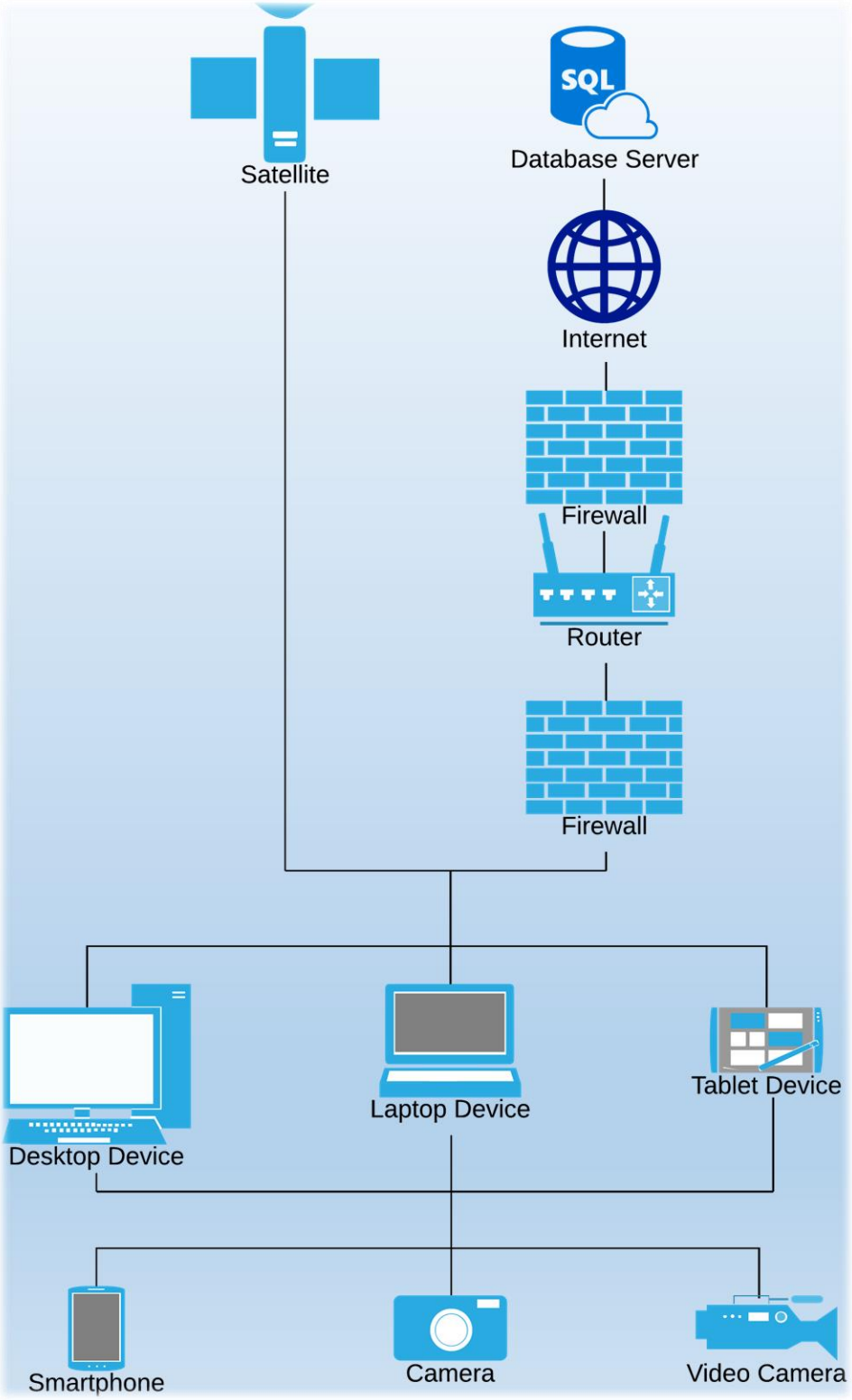
Primary section 3.0.0 Architecture Design details the architectural design of the TrackTravel™ application designed for Wanderer's Tools. The TrackTravel™ app will be a two-tier client-server system utilizing a thick client. The client device will host the presentation logic of the TrackTravel™ application. The server will be used only for database storage in the cloud. A Single Database on the Microsoft Azure SQL Database will host the cloud server database. The system will require Wanderer's Tools to purchase a license to a Microsoft Azure SQL Database.

Travelers and other end-users will use personal desktops, laptops, and/or tablets running Windows or Mac operating systems. Travelers and other end-users will use smartphones, cameras, video cameras, and other devices to generate media, which then will be transferred or downloaded on to personal desktops, laptops, and/or tablets. The operating system of the end-user device will retrieve the current location from GPS satellites.

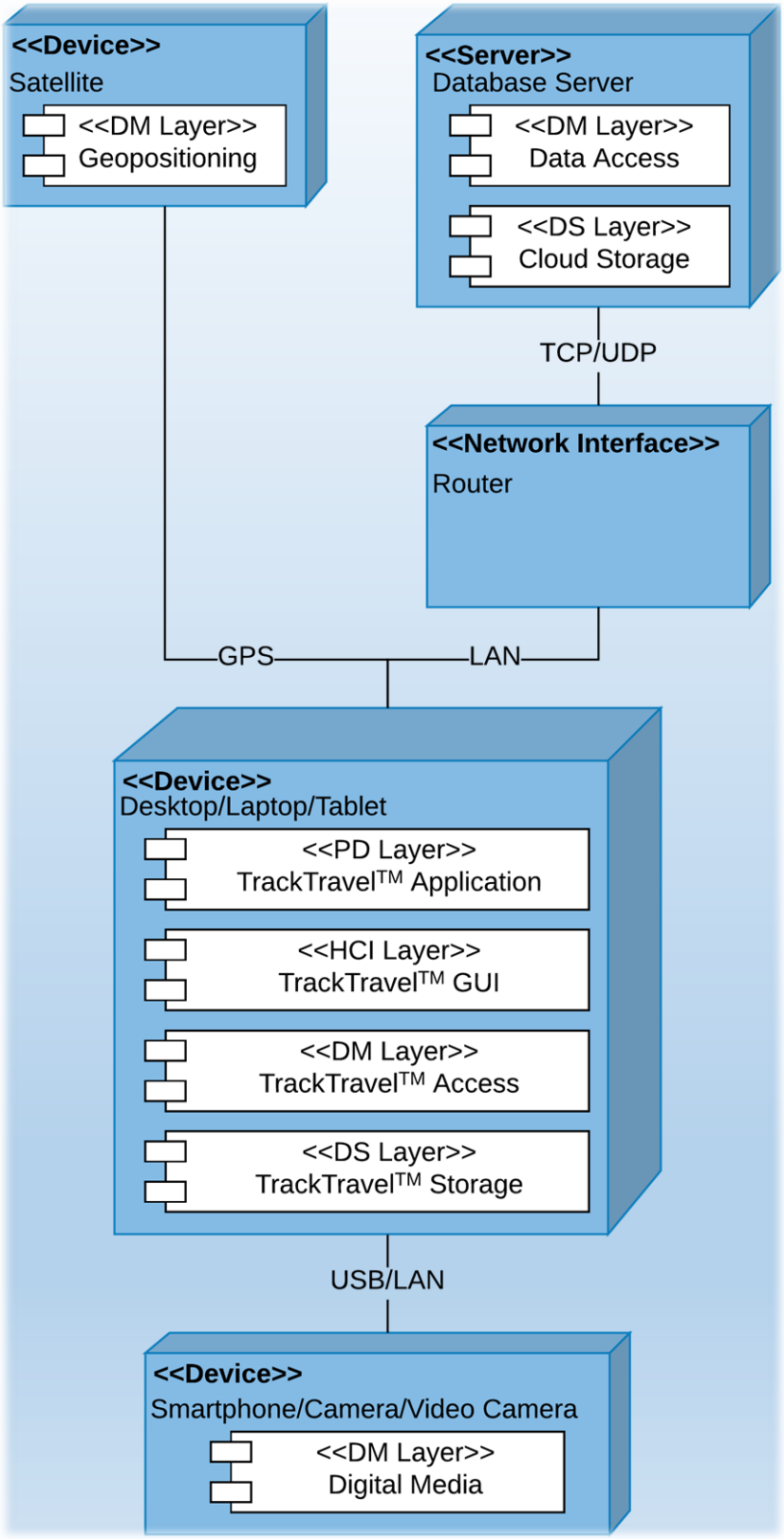
Secondary section 3.2.0 Infrastructure Model contains tertiary sections 3.2.1 Architecture Overview Deployment Diagram, which shows a context model of the relationships between each of the nodes, and 3.2.2 Nodes and Artifacts Deployment Diagram, which is a Box-and-Line diagram that depicts a network model of each system layer. Secondary section 3.3.0 Hardware and Software Requirements contains tertiary sections 3.3.1 Required Hardware Components and 3.3.2 Required Software Components, which detail the necessary components needed to operate the system. 3.4.0 Security Plan provides a table that lists the prepared responses to all identified potential threats.

## 3.2.0 Infrastructure Model

### 3.2.1 Architecture Overview Deployment Diagram



### 3.2.2 Nodes and Artifacts Deployment Diagram



## 3.3.0 Hardware and Software Requirements

### 3.3.1 Required Hardware Components

- **Smartphone, Camera, and/or Video Camera** (0 or more): Travelers may use digital media devices to capture images and videos. Travelers may use currently owned devices or may purchase new or used devices. In the Data Management Layer, the system will access the digital media files stored on the devices by transferring the files to the PC through USB, LAN, and/or other digital media transfer methods.
- **Desktop, Laptop, and/or Tablet** (1 or more): Travelers must have at least one compatible PC that will install and run the TrackTravel™ application. Travelers may use currently owned PCs or may purchase new or used PCs. The PCs will run the program software in the Program Deployment Layer. The PCs will display GUI screens in the Human-Computer Interface Layer. The PCs will store data files in the Data Storage Layer and will access the stored data files in the Data Management Layer.
- **Router** (1 or more): PCs may connect to at least one router as to establish Internet connection. PCs will connect to the initial router through LAN. Travelers may connect to a nearby router or may purchase a new or used router.
- **Database Server** (1): Routers must connect PCs to the Microsoft Azure SQL Database. Wanderer's Tools must purchase a license to a Single Database cloud storage server. The PCs will backup data files into the cloud storage server in the Data Storage Layer and will access the backup data files in the cloud storage server in the Data Management Layer.
- **Satellite** (4 or more): PCs may connect to at least four GPS satellites through the Global Positioning System. The PCs will access the location from the GPS satellites in the Data Management Layer.

### 3.3.2 Required Software Components

- **Windows and/or Mac Operating System** (1): PCs must have a compatible operating system version such as Microsoft Windows XP/7/8/8.1/10, Apple Mac OS X 10.10/10.11, or Apple macOS 10.12/10.13/10.14. Travelers may use the currently installed operating system or may purchase and install an alternative, supported operating system. The operating system should provide geopositioning location tracking.
- **Microsoft Azure SQL Cloud Service** (1): Microsoft will host cloud database software used to access and manage the Microsoft Azure SQL Single Database Server.
- **Digital Media Tools and Services** (0 or more): Travelers may use software programs and services to create and edit journal entry content. Travelers may utilize Microsoft products such as Word, Excel, Photos, OneNote, OneDrive, Paint, and Publisher. Travelers may utilize Apple products such as Pages, Photos, Clips, and Numbers. Travelers may utilize Google services such as Drive, Maps, Earth, Photos, Docs, Sheets, Drawings, and Translate. Travelers may use image and video editing tools such as Adobe Photoshop CC, Adobe Photoshop Elements, Adobe Premiere Pro CC, and Paint.NET.

### 3.4.0 Security Plan

The primary potential security threat is unwanted access of user data. Users are primarily concerned with infringement of their privacy rights and the risk of their personal data being altered, unrecoverable, or otherwise compromised. Wanderer's Tools is primarily concerned with network integrity, liability protection, and preventative security measures to protect users.

TT will protect user data by requiring a username with the corresponding password entered in the 4.3.1 Login Screen. Each user will create a username and password and will provide at least one valid, authenticated email address when creating a new account. The 4.3.2 Forgot Password Screen provides recoverability by allowing a user to request a password reset link after providing a valid, authenticated email address.

On all screens, TT will display in a footer bar links to both the Terms of Use and Privacy Policy, which inform the user of security-related issues such as privacy and liability. When a user provides a valid collaborator email address when creating or editing a trip on the 4.3.3 Trips Screen, the corresponding user will receive a collaboration request that may either be accepted or declined. Each user will only be able to view, restore, and delete trips stored in the cloud database that pertain to each respective user. Microsoft will ensure the cloud database maintains confidentiality, integrity, and availability.

Wanderer's Tools will internally select company individuals that will be granted access to the cloud database for data analytics and research. These authorized personnel will only have access to aggregate data including travel locations, trip dates, trip durations, and upload frequency of each type of supported media file. The authorized personnel will be responsible for resolving issues related to individual user account information and cloud backup data through a customer support ticket service.

# 4.0.0 User-Interface

## 4.1.0 User-Interface Requirements and Constraints

Primary section 4.0.0 User-Interface provides preliminary GUI designs for the TrackTravel™ application. Travelers and other end-users will have various levels of computer skills and familiarity. Therefore, the system will utilize standard icons, tooltips, and simple layouts on every displayed screen. The screens must have consistent, cohesive designs that provide strong predictability and intuitive affordance for novice, intermittent, and expert users. Metaphors familiar in tourism and travel will offer learnability and memorability to travelers. Screens will also provide high recoverability through undo, redo, and backup buttons.

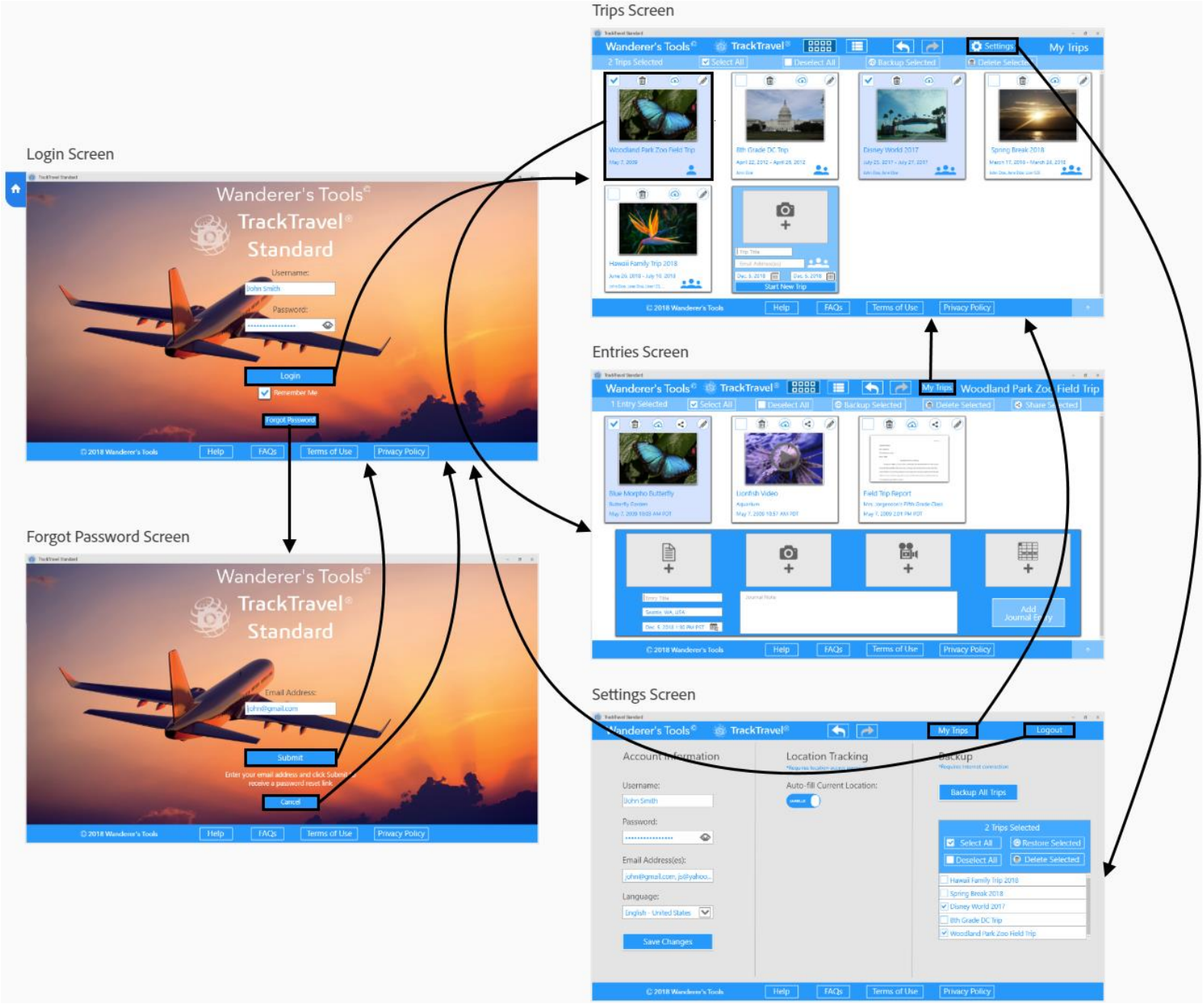
Secondary section 4.2.0 Window Navigation Diagram depicts the navigation flow between the application screens. Secondary Section 4.3.0 Forms: Screen and User-Interaction Design illustrates mockups of the GUI designs of the interactive application screens.

A visual Design Specifications link is provided here: https://xd.adobe.com/spec/077ec937-c38b-4f68-429b-c2ca354f872e-714f/

A visual interactive Prototype link is provided here: https://xd.adobe.com/view/d46aa605-873f-4af5-566a-5c8bee1cb29e-a25b/?fullscreen

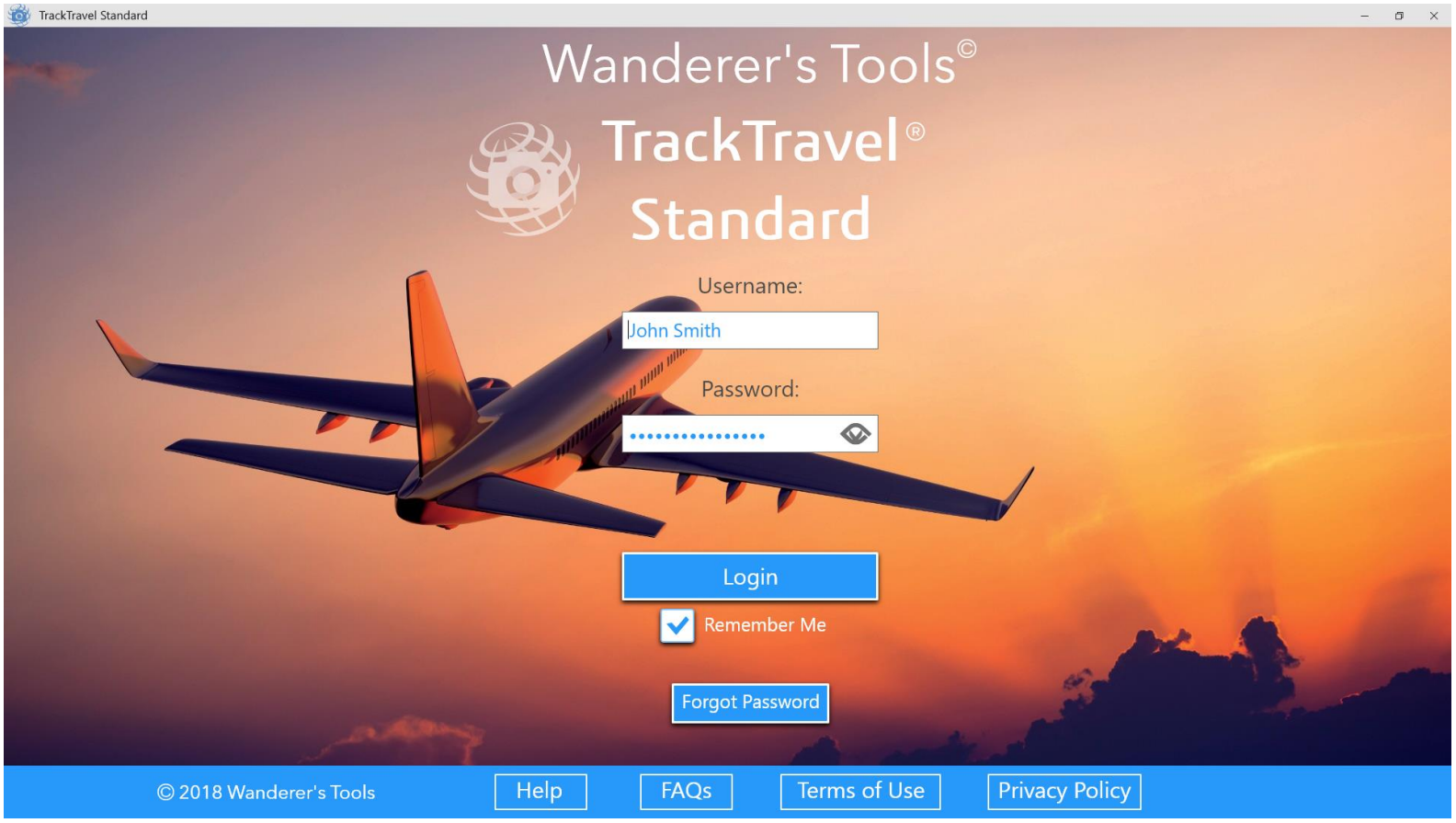
### 4.2.0 Window Navigation Diagram

Each rectangular screen has a tertiary section link that will link to the respective HCI screen design. This interactive capability may be utilized by either clicking anywhere within the rectangular screen or by holding the “Ctrl” key on the computer keyboard and then clicking anywhere within the rectangular screen.

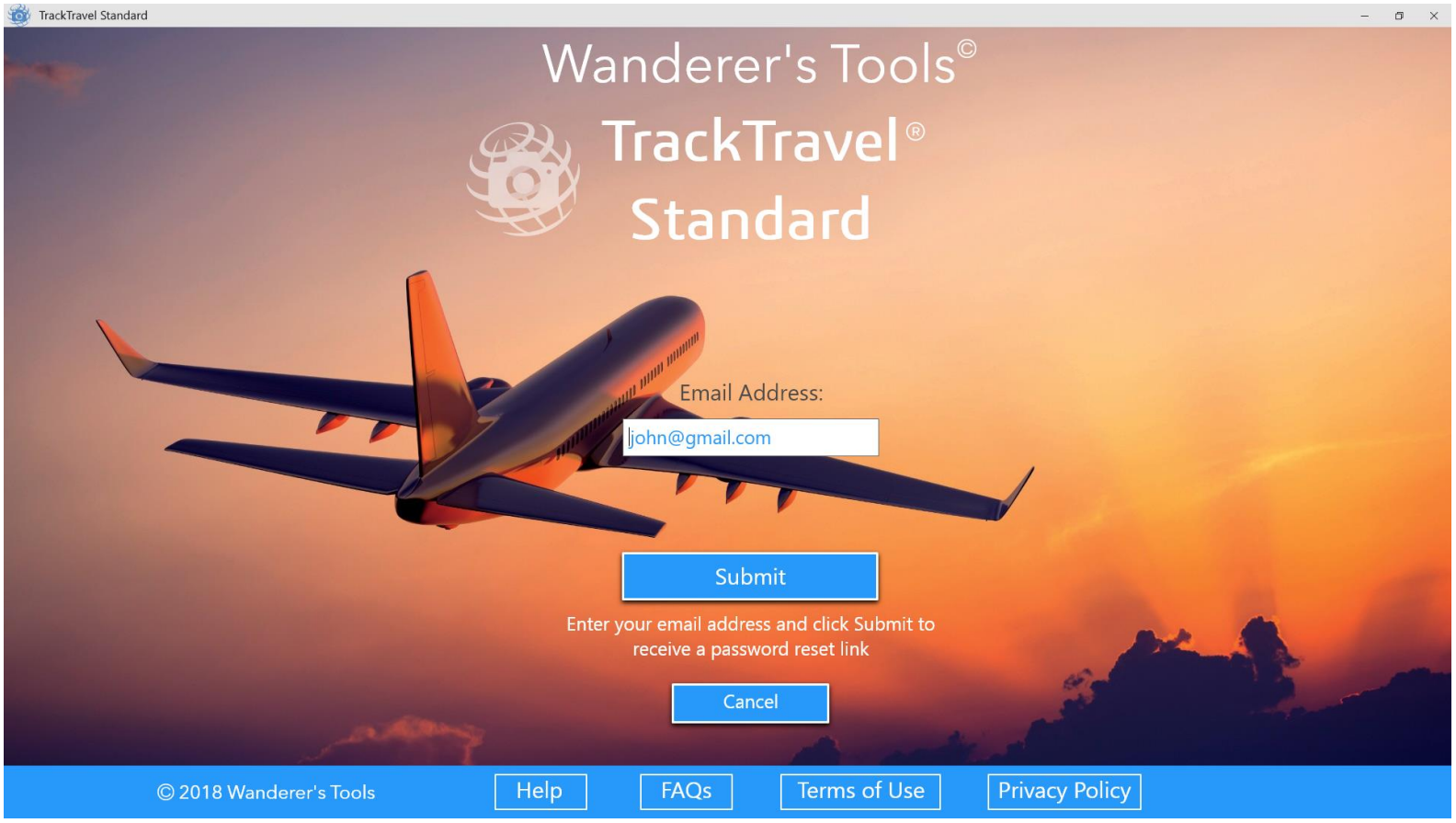


## 4.3.0 Forms: Screen and User-Interaction Design

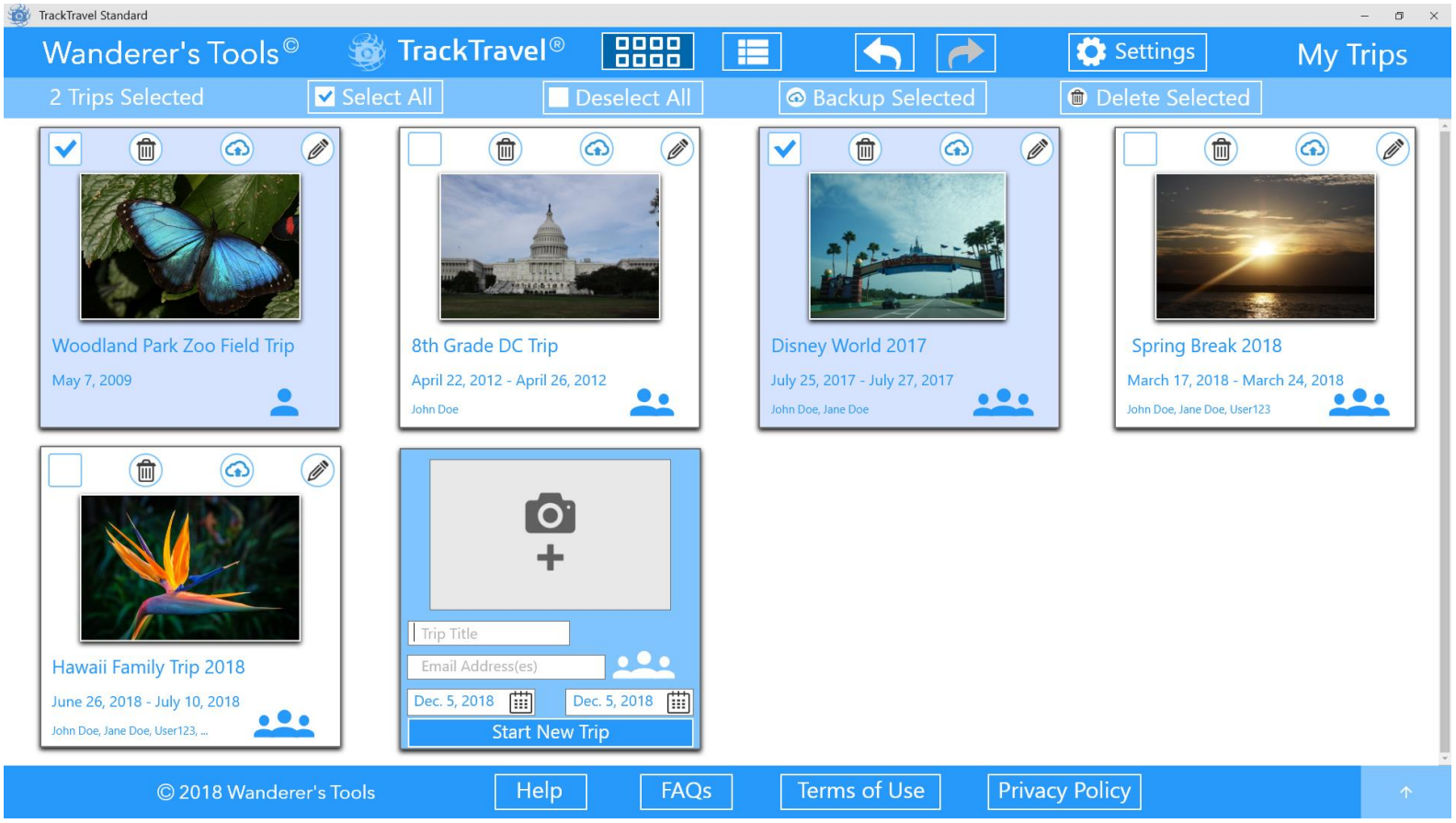
### 4.3.1 Login Screen



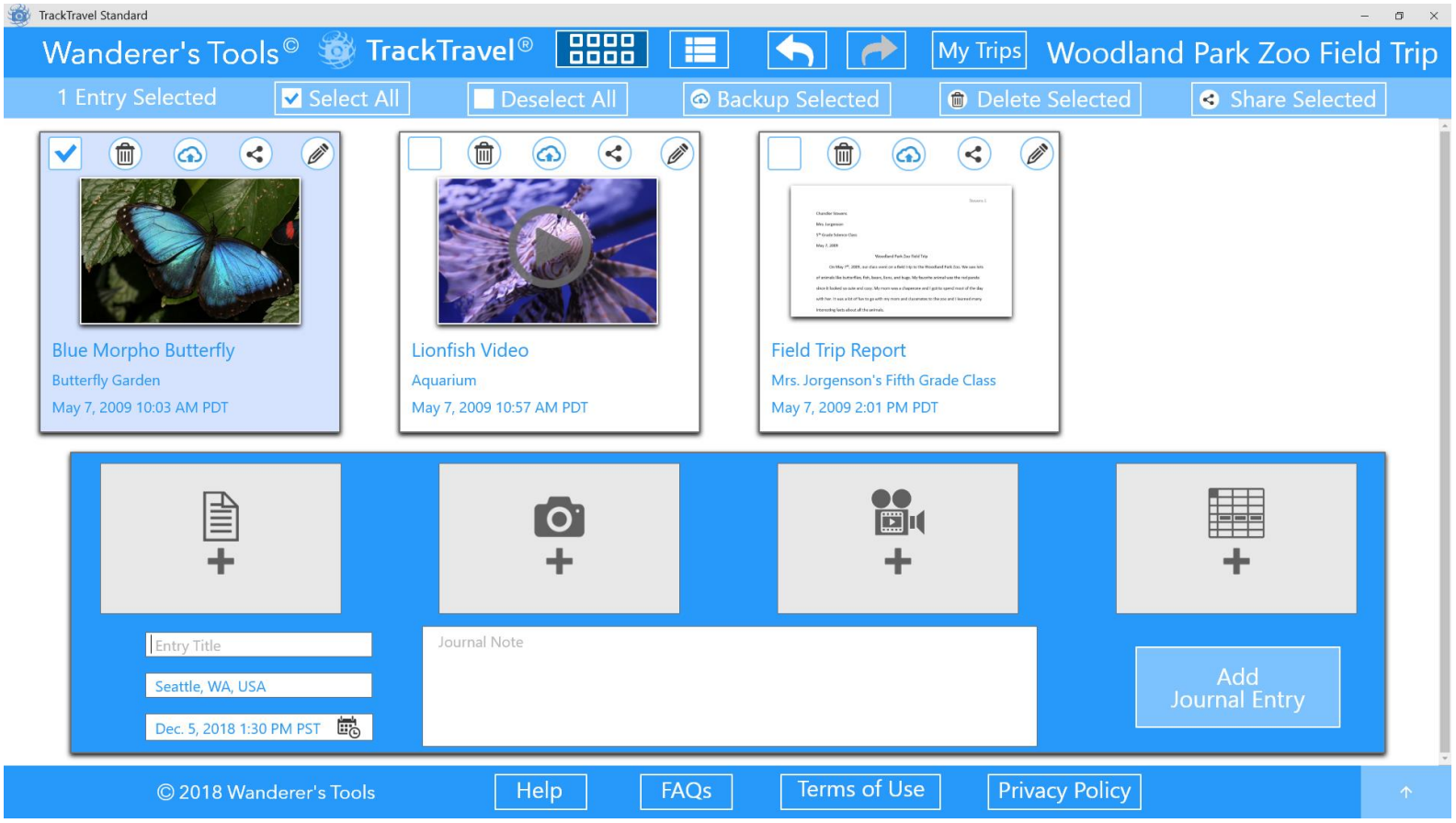
### 4.3.2 Forgot Password Screen



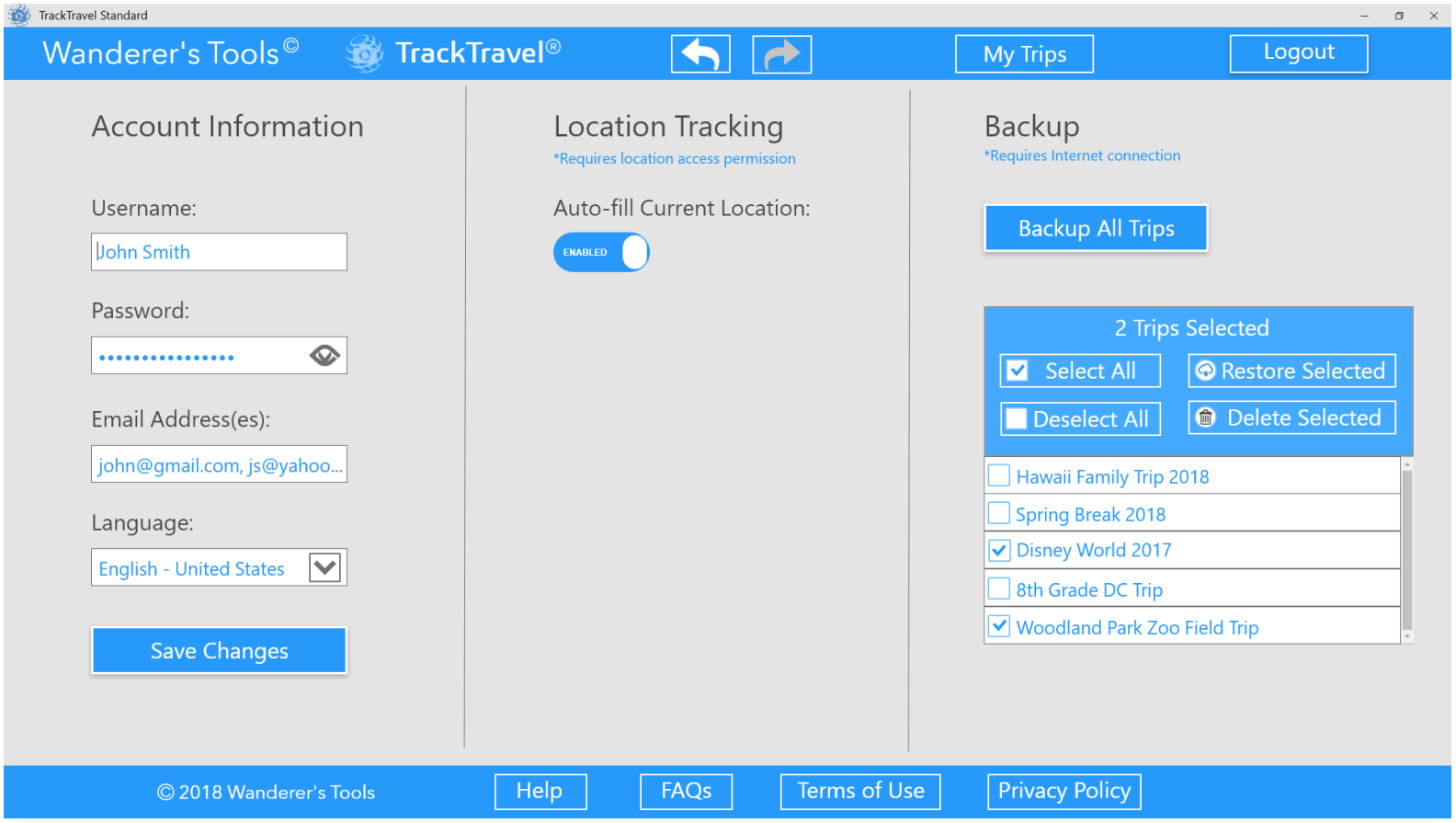
### 4.3.3 Trips Screen



### 4.3.4 Entries Screen



### 4.3.5 Settings Screen



# 5.0.0 Appendices

## 5.1.0 Glossary

**Affordance** – The quality of having intuitive and obvious usage

**Architecture Design** – A model of the infrastructure of the *software product* with descriptions of the required hardware and software components

**Cloud storage** – A service on the Internet that can store large amounts of data; Also referred to as "**cloud server(s)**," "**cloud server database**," and "**the cloud**" throughout this System Specification

**End-user(s)** – The person or people for whom the *software product* is distributed; A *stakeholder* who uses the *software product*; Also referred to as "**user(s)**" and "**traveler(s)**" throughout this System Specification

**eXtreme Programming** – A type of agile development *methodology* or *process model* with five values including (1) communication, (2) simplicity, (3) feedback, (4) courage, and (5) respect; Also referred to as "**XP**" throughout this System Specification

**Graphical User Interface(s)** – A visual interface that allows human interaction with the *software product*; Also referred to as "**GUI(s)**" throughout this System Specification

**License(s)** – An exclusive authorization of rights to an individual *user* of a *software product* that is usually specified by an End-User License Agreement (EULA)

**Methodology** – A particular structure or approach of the *System Development Life Cycle (SDLC)*; Also referred to as "**process model**" throughout this System Specification

**Nonfunctional requirements** – A detailing of the characteristics and limitations of the *software product* and consist of seven subtypes including (1) project development, (2) product operation, (3) performance, (4) efficiency, (5) security and control, (6) cultural, political, and legal, and (7) service

**Operating system(s)** – A set of instructions that enable a computer to use the *software product*

**Privacy Policy** – An agreement required by law for a *software product* that collects or uses any personal information from the *users* of a *software product*; An agreement with the purpose of informing the *users* of a *software product* that the personal data of the *users* may be collected and used by the organization associated with the *software product*

**Source code** – The set of typed instructions that compose the *software product*

**Software product** – An electronic or digital tool used by a computer

**Stakeholder(s)** – A person, people, or organization that have an interest in the *software product* and who can affect or can be affected by the *software product*

**Structural Model** – A model of the major classes of the *software product* with associated descriptions of the attributes and operations of each class

**System Development Life Cycle** – A structured process that guides the development of the *software product* and consists of five phases including (1) planning, (2) analysis, (3) design, (4) implementation, and (5) support; Also referred to as "**SDLC**" throughout this System Specification

**System Proposal** – A document that defines the *software product* and specifies the development process of the *software product*

**System services** – A detailing of the features of the *software product*

**System Specification** – A document that details the design of the *software product*

**TrackTravel™** – The name of the *software product*; Also referred to as "**TT**," "**the system**," "**the completed system**," "**project**," "**application**," "**product**," or "**program software**" throughout this System Specification

**Terms of Use** – An agreement that defines the terms, conditions, requirements, and clauses concerning the usage of the *software product* by *users*

**Thick Client** – A client device that includes all essential components for operating and executing the *software product* while utilizing an external server for supplementary tasks

**Two-tier Client-Server System** – A architectural design in which the presentation and application logic of the *software product* is performed on a client device while the data is stored on an external server

**Use-case** – A sequence of actions performed to complete a specific task of the *software product*

**VISION™ Systems Development, LLC** – The organization responsible for the development of the *software product*; The *stakeholder* that produces the *software product*; Also referred to as "**VISION™**" throughout this System Specification

**Wanderer's Tools** – The organization responsible for the sponsorship of the *software product*; The *stakeholder* that distributes the *software product*; Also referred to as "**the client**" throughout this System Specification

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## 5.3.0 Supporting Documentation

### 5.3.1 Microsoft Azure SQL Database

# Azure SQL Database

The developer's intelligent cloud-database service

- Built for application developers
- Lets you focus on your business application
- Accelerates your time to market
- Built-in advisors learn your app's unique characteristics; adapts to maximize performance, reliability, and data protection
- Helps you build secure apps and connect to your database by supporting the languages and platforms that you prefer


# Azure SQL Database

The intelligent cloud database


| Key benefits | Differentiating proof |
|---|---|
| Learns and adapts | Self-tuning performance with **Index Advisor** and real-time **Threat Detection** |
| Scales on the fly | One click scaling, over **11 performance tiers** with zero downtime |
| Manages 1000s, like one | Tenant isolation and automatic management of compute and storage with **Elastic Pools** |
| Works in your environment | Popular platforms & languages, from **Python** to **Ruby** to **Java** to **C#** to **.NET** |
| Secures & protects | Built-in HA and data protection with **99.99% SLA**, **Geo-Replication**, & **Point-in-time-Restore** |

### 5.3.2 Question and Answer Session with Ms. Weltz on October 29th, 2018:

**Q:** What should be the first screen the user sees when opening the application?
**A:** The first screen should be welcoming and display the available tools within the app.

**Q:** Will any tourist company be authorized to have access to user data?
**A:** Travel industries do not need to know any specific or personal details about the users. Wanderer's Tools highly prefers that the app does not display any ads as to prevent spamming. Wanderer's Tools would like aggregate user data to be accessible for viewing by authorized personnel of Wanderer's Tools. This capability would enable the possibility of data analytics and to observe statistical trends, such as how often users travel domestically versus abroad.

**Q:** How essential of a requirement is support for Windows and Mac devices at time of launch?
**A:** Lacking support for a particular operating system will severely limit the initial target market. However, if attempting to provide support for both operating systems pushes the project behind schedule, then the initial release of the completed system may acceptably only support Windows devices. Nonetheless, the product must provide cross-platform support in an update to the completed system.

**Q:** Should the application backup user data into the cloud?
**A:** The app should allow the user to enable automatic backup of journal entries into the cloud while connected to the Internet. However, the user must not be required to have an Internet connection in order to use the app and the user must not be required to backup data into the cloud.

**Q:** Under which pricing models should the application be distributed?
**A:** The app could be offered as an annual paid subscription or as a one-time purchase.

### 5.3.3 Question and Answer Session with Ms. Weltz on October 31st, 2018:

**Q:** Should the application directly interface with social media?
**A:** Wanderer's Tools is very concerned with protecting the privacy of users and prefers that the app does not directly integrate social media. However, the app should provide a way for the user to share journal entries with a known contact or to collaborate with other users.

**Q:** What should be the launch date for the application?
**A:** The app should be launched by June 2019, since that is the beginning of the prime travel season. If the app is not ready for launch by June 2019, then a minimal working system should be released as to provide the target market a product to try out, test, and review.

**Q:** Should the application display localized advertisements or upcoming local events?
**A:** The primary purpose of the app is to allow users to record where they have been and what they have done. Ads that are carefully considered and that align with the primary purpose of the app may be tolerable. However, Wanderer's Tools would prefer that the app omit any ads.

**Q:** Should the application be able to interface with third-party programs for the addition and enhancement of journal entries?
**A:** Users will likely prefer to use tools that are already familiar and are specifically designed for a desired task. Therefore, the app should allow users to easily upload content, especially pictures, created and edited in other programs. The app should provide a simple text editor that allows users to submit or edit a note for a journal entry.

**Q:** Should any travel agents be authorized to have access to user data?
**A:** Travel agents do not need to know who the users of the app are. Wanderer's Tools would like a database of who the users of the app are. This capability would allow Wanderer's Tools to contact an individual user who has opted in to receiving emails from Wanderer's Tools. These emails would suggest similar travel destinations to the user based on the user's past trips.

**Q:** Should the application be sold as a subscription or a one-time payment?
**A:** Wanderer's Tools has no preference regarding the pricing model of the app. However, a subscription should be annual instead of monthly since most people do not travel every month of the year. The app could even have a free edition or a free trial edition with limited features and services, which would allow users to try out the product before purchase.

**Q:** Will Wanderer's Tools be responsible for the marketing and advertising of the application?
**A:** Wanderer's Tools will advertise the product on the Wanderer's Tools website. The systems development organization will not be responsible for the marketing or advertising of the app.

**Q:** Could the application be distributed as a mobile edition?
**A:** Wanderer's Tools would like a future edition of the app to be available on smart-phones.