

MEet and You

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BUSINESS REQUIREMENT DOCUMENT

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1. Introduction

1.1. Objectives

- The goal is to create a web app that gives users event recommendations in a city. These recommendations will allow users to create an itinerary.
- Users can register with our web app, allowing the user to save and share itineraries.
- Users can browse through their itineraries with information such as itinerary rating and event cost, if applicable.
- Support search functions to display event details for an itinerary.

1.2. Background

Initially, our application allowed the user to have a shareable calendar that displayed our itinerary. This did not add value to our product and we have since updated our system to include features that help users determine which events to choose. These features include the weather of the day, the price associated with an event, and user ratings.

1.3. Project Scope

1.3.1. In Scope

- Create a web application for people who live in the United States and who also understand American English.
- The time zones for events will be adjusted based on the itinerary's city and will account for six daylight savings time zones: Hawaii, Alaska, Pacific, Mountain, Central, and Eastern.
- Metrics will be displayed with the imperial system.
- Allow users to create an account with the site in order to access more privileges (e.g., saving, sharing, duplicating itineraries)
- The web application will be compatible with Chrome v94.0.4606.61.
- Allow users to be redirected to an event details page to reselect or reschedule an event.

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- A succinct and holistic overview of an event (e.g., name, description, and address) will be shown to the user on the event details page.
- Allow an itinerary to obtain event cost details to help the user select events within their budget.
- Allow an itinerary to obtain weather details to help the user select weather-appropriate events and clothing.
- A dashboard centralizing information related to the user's account such as profile picture and account settings.
- Create an all itinerary section to show every itinerary that the user owns or has been shared with.
- Allow users to access a subset of itineraries that have been favorited and recently accessed.
- Allow registered accounts to save, edit, and share itineraries.
- Allow registered accounts to share itineraries via a hyperlink.
- Allow registered accounts to rate and review an itinerary or event.
- Allow users to upload images to the web server for an itinerary.
- Registered users also have the ability to duplicate itineraries.
- Allow users to access the web application 24/7, 7 days a week.

1.3.2. Out of Scope

- Multiple language support.
- Multiple browsers support.
- Support for countries that are not the U.S.

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2. Core Feature Requirements

2.1. Data Store Access

2.1.1. Functional

- Create

Description: Support the ability to create and store application-specific user data.

Business Rules:

- Duplicate accounts are not allowed (e.g., the user can only have one account associated with a specific email).
- The system will not add new data if the storage capacity has been reached (5 GB).

- Delete

Description: Support the ability to delete existing data (itineraries, accounts, etc.) from the database.

Business Rules:

- The user will be notified if requested data to delete does not exist in the database.

- Update

Description: Support the ability to modify existing users data (e.g., change username and password).

Business Rules:

- Changes to the record must follow the uniqueness constraints (not changing username to already existing username).

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- Read

Description: Support the ability to read existing data from the database.

Business Rules:

- The user will be notified if the requested data to read does not exist in the database.

2.1.2. Non-Functional

- The time it takes to execute an action for data store access (create, delete, update, or read) is less than 4 seconds.
- If Data Store Access becomes unavailable, it can be under maintenance for approximately 3 hours.
- The Data Store must be able to achieve an annual growth rate of 20%, with no degradation in performance.
- If the Data Store exceeds the maximum limit (20 GiB), it will automatically scale to insert the new data (Max 1000 GiB threshold).
- Users will only be able to access their own data and not the data of others.
- Users with the role of “regular user” will only be able to access their own account information.
- The web application should not store any hard-coded sensitive information.

2.1.3. Pass/Fail Requirements

Pass

- Database objects will be created if uniqueness constraints are met (e.g., the username is unique and not present in the database).
- Database objects will be retrieved if the key to identifying the object is present in the server.

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- Database objects will be deleted if the key to identifying the object is present in the server.
- Database objects will be updated if the key to identifying the object is present in the server.

Fail

- If the storage capacity has been reached then the create function will fail.
- If requested data does not exist then the delete, update, read functions will fail.
- An unregistered account is able to execute an action for datastore access.

2.2. Documentation

2.2.1. Functional

- Developer Docs

Description: Contains technical information relevant to software developers (e.g. code functions, use cases, etc.).

Business Rules:

- The document is made available to all users.
- Sections of the document (e.g. code) should be copy-pasted easily.

- FAQ

Description: Answers the most common questions asked by users of the web application.

Business Rules:

- Registered & non-registered accounts can access the FAQ.
- The FAQ is tailored for non-technical users.
- Only system admins have the privilege to edit the FAQ.

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- User Manual

Description: Document with instructions and examples on how to use the web app.

Business Rules:

- The manual excludes any technical documentation of the web app.
- The manual includes all necessary information to use the web app.
- The manual can be accessed by anyone.
- The user manual is tailored for non-technical users.

2.2.2. Non-Functional

- Font and Font size will be Times New Roman and 12-point respectively for all documentation created.
- The Documentation interface should be user-friendly and straightforward, allowing users to understand Developer Docs/FAQ/User Manual with at least 90% accuracy.
- If Documentation becomes unavailable, it can be under maintenance for approximately 3 hours.
- Only the users with the role “system admin” can modify the Developer Docs/FAQ/User Manual.
- Users with the role “regular user” can only view the Developer Docs/FAQ/User Manual.
- Users can access the Developer Docs/FAQ/User Manual 98% of the time without failure.

2.2.3. Pass/Fail Requirements

Pass

- Developer Docs provide a transparent explanation of all the technicalities associated with the web app.

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- FAQ helps non-technical users with questions when they use the web app.
- User Manual provides an overview to non-technical users on how to use the web app.

Fail

- Developer Docs fail if it is NOT comprehensive for software developers.
- FAQ fails if it is NOT comprehensible for non-technical users.
- User Manual fails if it is NOT comprehensive for non-technical users.

2.3. Error Handling

2.3.1. Functional

- Client-side Error Handling

Description: Detecting and mitigating the errors generated by the client.

Business Rules:

- All client-side exceptions will result in a user-friendly message when applicable. This message will display when any of the following occur:
 - Server Request Timeouts
 - Invalid Server Request
 - Server Error
 - Invalid User Input
 - Unauthorized Access
 - Required Contact Administrator
- Exceptions should not cause the system to halt.
- Quick fixes will be provided as a part of the error handling.

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- **Server-side Error Handling**

Description: Detecting and mitigating the errors generated by the server.

Business Rules:

- All server-side errors will result in a user-friendly message when applicable. This message will display when any of the following occur:
 - Invalid Server Request
 - Server Error
 - Unauthorized Access
 - Required Contact Administrator
- Only fatal errors (e.g., server/network shutdown) will cause the system to halt.

2.3.2. Non-functional

- The software system must detect the type of error with 100% accuracy.
- If the system encounters fatal errors, it can be under maintenance for approximately 5 hours.
- Code is tested such that users of the application should not have unauthorized access to data.

2.3.3. Pass/Fail Requirements

Pass

- The correct error message and a possible solution(s) are shown to the client when an error occurs on their end.
- The correct error message is shown on the server-side and corrected shortly after.

Fail

- The system halts and does NOT address the error appropriately.
- The user does NOT receive contextual information about the error.

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- The system does NOT detect the error.
- The system detects the wrong error type.

2.4. Logging/Archiving

2.4.1. Functional

- Archiving

Description: The systematic behavior describing the log archiving process.

Business Rules:

- All logs older than one month are backed up.
- All records older than one year are archived and then removed from the system.
- If an archive attempt fails, then try again after 3 hours.
- If an archive attempt fails more than three times, then the system administrator is notified.

- Error Logging

Description: The systematic recording of errors that occurred in the web application.

Business Rules:

- One hundred or more failed error log attempts will result in the system administrator being notified.
- Information regarding the error logged for every user includes:
 - Error date & time of the error
 - Error description
 - Error location
 - Which user encountered the error
 - How the user encountered the error
- Only system admins have the privilege to delete error logs.

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- Error logs will be machine-parsable with high human readability.

- Telemetry

Description: The systematic recording of user and usage data and storing it over a network.

Business Rules:

- One hundred or more failed telemetry log attempts will result in the system administrator being notified.
- Telemetry information will be logged for every user unless opted out; this includes:
 - Date and time of user login
 - Date and time of user logout
 - Date and time of user page visit
 - Date and time of user functionality execution
 - IP address & location

- Malicious Attacks

Description: The systematic recording of server requests to identify request patterns with malicious intent.

Business Rules:

- All server requests made by any user are logged to detect denial-of-service attacks.

2.4.2. Non-Functional

- Record of the error-log should be stored into the database at most 5 seconds after the error is detected.
- Error date & time of the errors is 100% accurate.
- If Logging/Archiving becomes unavailable, it can be under maintenance for approximately 3 hours.
- The web application should prevent denial-of-service attacks.

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- Only the users with the role “system admin” can view Logging/Archiving.

2.4.3. Pass/Fail Requirements

Pass

- Personal user data is recorded unless the user opts out.
- Error and telemetry data is properly logged and archived.

Fail

- Malicious, error, and telemetry logs are NOT recorded and archived.
- A system log is NOT archived at the proper time.
- The system logs do NOT provide enough contextual information.

2.5. Login / Logout

2.5.1. Functional

- Login

Description: Starting a session with a corresponding username/email, password, and SMS code that is associated with an account.

Business Rules:

- Credentials (username and password) are required to access the system
- To log in the user must do the following:
 - Enter an email/username
 - Enter password
 - Enter SMS code
- If 2FA is enabled, the user must enter the SMS code whenever they log into a new device.
 - New devices will be tracked by IP address.
- Accounts will be locked after 10 unsuccessful login attempts.

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- Locked accounts require administrative assistance to unlock.

- Logout

Description: Ending a session to the web application for a given account.

Business Rules:

- Users are automatically logged out after 15-30 minutes of being idle. (Low-risk web application)
- Users are flagged idle when they have not interacted with any page for 15-30 minutes.
- Users can automatically log out of their current session.

- Forgot Password

Description: The user can select that they forgot their password when logging in.

Business Rules:

- The user must enter their email to receive a link to reset their password.
- The user must enter a new password following the Registration password criteria.
- The user must re-enter the new password for confirmation.

- Password Reset

Description: Users can change their existing passwords.

Business Rules:

- Users have the option to update their passwords if they are in an active session.

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- Users must enter their previous password to reset their password.
- Users cannot use previous passwords when resetting passwords.

2.5.2. Non-Functional

- After entering credentials and SMS code, logging on should take no more than 3 seconds.
- The user should be able to log out in less than 3 seconds.
- The login/logout interface should be user-friendly and straightforward, allowing users to successfully login/logout with at least 90% accuracy.
- If Login/Logout becomes unavailable, it can be under maintenance for approximately 3 hours.
- Only users with the role “system admin” or “regular user” can log in / log out to the webapp.

2.5.3. Pass/Fail Requirements

Pass

- The user provides valid login credentials and begins an active session.
- The user provides their current password during the active session to update the password accordingly.
- The user enters a valid SMS code and successfully logs in.
- The user ends the active session successfully.
- The user forgets their password and successfully resets their password via email.

Fail

- The user provides invalid login credentials and can start a session.
- The user provides an invalid password during an active session and can reset their password.

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- The user enters an invalid SMS code and can log in.
- The user forgets their password and cannot receive a reset link via email.

2.6. Network Communication

2.6.1. Functional

- Microsoft Internet Information Services (IIS)

Description: The system will deploy an IIS server using AWS to host our web application. This web server will accept HTTPS requests and relay responses to and from the database.

Business Rules:

- HTTPS requests will be accepted on port 443

- System Availability

Description: The system must remain accessible to the user at all times of the day, there should be no instances in which the system goes down for an extended period of time.

Business Rules:

- The system must be online at any given time except when major maintenance is required.

2.6.2. Non-Functional

- The System Availability should be down 6 hours at most for any maintenance.
- HTTPS requests/responses should take less than 3 seconds.
- AWS should have the infrastructure needed to automatically scale client requirements.

2.6.3. Pass/Fail Requirements

Pass

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- The user is able to connect to the site at any time.
- The user is able to send/receive HTTPS requests within our system.

Fail

- The user is NOT able to connect to the site at any time.
- The user is NOT able to send/receive HTTPS requests within our system.
- The user has a valid internet connection but can not connect to the web application.

2.7. Registration

2.7.1. Functional

- Regular Users

Description: The user must provide information to create a regular account within our system.

Business Rules:

- To create a regular account, the user must provide the following:
 - Name
 - Username
 - Phone number
 - Email address
 - Password
- The user must agree to the privacy policy in order to register.
- Passwords should follow the criteria:
 - A length of 8 - 16 characters.
 - At least one special character.
 - At least one upper case character.

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- To verify a phone number, the user must enter the SMS code sent to their phone.
- To verify an email address, the user must click a link sent to their email.
- The username will be restricted to 16 alphanumeric characters with some special characters allowed (underscore and period).
- The user cannot use the existing username to register with a new account.

- **Terms of Service (ToS)**

Description: ToS is the terms that the user must agree to to use our web app.

Business Rule:

- Users that do not agree with ToS can not register an account.

2.7.2. Non-Functional

- Once the user has registered, it should take no more than 5 seconds to append the user's account information to our system.
- The registration interface should be user-friendly and straightforward, allowing users to successfully register with at least 90% accuracy.
- If Registration becomes unavailable, it can be under maintenance for approximately 3 hours.
- The web application must be able to support a 10% growth in user concurrency, with no degradation in performance.
- Only the users with the role "system admin" can modify the EULA.
- Users with the role "regular user" can only view the EULA.
- The web application should not store any hard-coded passwords.

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- Users with the roles “system admin” or “regular user” can register to the web application.

2.7.3. Pass/Fail Requirements

Pass

- The user successfully registers an account.
- The user accepts the EULA and an account is registered.
- The user provides a username/email not in the system and an account is registered.

Fail

- The user declines the EULA, and an account is registered.
- The user provides an existing username, and an account is registered.
- The user provides an existing email already within the system, and an account is registered.
- A system administrator is unable to modify the EULA.
- The user creates an account that does NOT follow password criteria.
- The user declines the privacy policy, and an account is registered.

2.8. Usage Analysis Dashboard

2.8.1. Functional

- Bar Chart

Description: Application data will be displayed to the system administrator using a bar chart.

Business Rule:

The following line charts will be displayed:

- The following bar charts will be displayed:
 - A comparison of how many times each event category has been selected.

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- A comparison of the top five most popular cities that have been chosen for events.
- Line Chart
Description: Application data will be displayed to the system administrator using a line chart.

Business Rule:
 - The following line charts will be displayed:
 - The number of registered users in the last four months.
 - The number of itineraries created in the last four months.

2.8.2. Non-Functional

- Displaying the collected data should take no more than 5 seconds.
- The collected data should be as close to 100% accurate as possible.
- The Usage Analysis Dashboard interface should be user-friendly and straightforward, allowing system admins to understand top metrics with at least 90% accuracy.
- Only the users with the role “system admin” can view the Usage Analysis Dashboard.
- System admins can access the Usage Analysis Dashboard 98% of the time without failure.

2.8.3. Pass/Fail Requirements

Pass

- The software system is up and running and we are able to access the app data in order to create the respective bar and line charts.

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Fail

- If the system is not connected to a network, the data cannot be accessed and used to create metrics (e.g., bar and line chart) about app data.
- The metrics (e.g., bar and line chart) do NOT correctly update quarterly.
- Data is accurate but not adequately represented within the bar or line chart.

2.9. User Access Control

2.9.1. Functional

- Data Access/Restriction

Description: The requirements imposed on the user that limit the data and functionalities they have access to.

Business Rules:

- The user should not have the ability to view, execute, or manipulate data that does not apply to them.
- Access to the website will be unavailable to those outside of the United States.
- The system should inform unauthorized users that they do not have access to the data they are trying to access.
- The user has the flexibility to configure the data that they use for their account (e.g., name, username, email, password).

2.9.2. Non-Functional

- The time it takes to report the error to an unauthorized user is less than 4 seconds.
 - The error message should be accurate and inform the user what the problem is.
- The user verification time to allow access is less than 4 seconds.

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- The time it takes for the user's account information to be kept up to date should take no more than 5 seconds.
- If User Access Control becomes unavailable, it can be under maintenance for approximately 3 hours.

2.9.3. Pass/Fail Requirements

Pass

- The user pulls up their account information, and they only have access to data about their account.
- The user tries to access the website from another country, and they cannot access it.
- The user changes their password, and the new password they input successfully logs them into their account.

Fail

- The user is outside of the United States and can access the web application.
- An unauthorized user successfully views, executes, or manipulates data.

2.10. User Management

2.10.1. Functional

- User Account Deletion

Description: The user will be able to remove their account from our system.

Business Rules:

- The user can request for their data to be deleted from our system.
- The system will ask for confirmation to delete the account.
 - The user must click "Yes" or "No" respectively.

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- The user's account data must be fully removed from the system.

- **User Account Unlock**

Description: The system administrator will be able to unlock locked accounts.

Business Rules:

- A system admin can unlock multiple accounts simultaneously.
- System admins cannot unlock accounts that are already unlocked.

- **User Account Lock**

Description: The system will lock regular accounts after consecutive unsuccessful login attempts.

Business Rules:

- Accounts will be locked after 10 unsuccessful login attempts.
- To mitigate denial-of-service attacks, the lockout duration will be 15 minutes.

2.10.2. Non-Functional

- The time it takes to lock/unlock an account in the system is less than 4 seconds.
- The time it takes to delete an account in the system is less than 4 seconds.
- If User Management becomes unavailable, it can be under maintenance for approximately 3 hours.
- Only users with the role of "system admin" can unlock regular accounts.

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2.10.3. Pass/Fail Requirements

Pass

- The user requests that their data be deleted, and their data is no longer available within our system.
- The system administrator successfully unlocks a regular account.

Fail

- The user requests that their data be deleted, but their data still exists within our system.
- The system administrator is NOT able to unlock a regular account.

3. App-specific Feature Requirements

3.1. Duplicating Itineraries

3.1.1. Functional

- Duplicating Access

Description: The user must access the context menu in order to duplicate an itinerary.

Business Rules:

- The user must have at least one itinerary in their account in order to duplicate.
- The user must access the context menu to duplicate an itinerary.
- The user must be logged in to duplicate an itinerary.

- Duplicating Name

Description: The new name of the duplicated itinerary.

Business Rules:

- The user must provide a new name that is different from the itinerary they are duplicating.

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- The new itinerary name will be limited to 35 alphanumeric characters.
 - The default name will be “Copy of” plus the original itinerary name.
 - The duplicated itinerary will copy over the ratings of the original itinerary’s events.
 - The duplicated itinerary will NOT copy over the original itinerary notes.
- Duplicating Events
Description: Users will choose from the list of original events to duplicate to the new itinerary.

Business Rules:

- The new itinerary must have at least one event selected to duplicate an itinerary.
 - The event title of each event in the list will be limited to 20 alphanumeric characters.
 - The short description of each event in the list will be limited to 50 alphanumeric characters.
 - By default, all events will be selected for duplication into the new itinerary.
- Duplicating Restrictions
Description: Restrictions for duplicating and sharing itineraries.

Business Rules:

- If the user has reached the maximum itineraries, the user will be notified to delete itineraries in the User Profile Dashboard.

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- If there are collaborators on the desired itinerary the user wants to duplicate, those collaborators will not have access to the duplicated itinerary.

3.1.2. Non-Functional

- The system will create a new itinerary from the original with a new name and the original events within 3 seconds of duplication.
- The duplication interface should be user-friendly and straightforward, allowing users to successfully duplicate an itinerary with at least 90% accuracy.
- If Duplicating Itineraries becomes unavailable, it can be under maintenance for approximately 3 hours.
- Users can access Duplicating Itineraries 98% of the time without failure.

3.1.3. Pass/Fail Requirements

Pass

- The user successfully duplicates an itinerary with a new name and selected events.

Fail

- The user tries to duplicate an itinerary and nothing new is created.
- The user tries to duplicate an itinerary and a new one is created but with only some of the events.
- The user enters the same name as the original itinerary and a duplicate itinerary is created.

3.2. Hyperlink Sharing

3.2.1. Functional

- Sharing Access

Description: Clicking share will prompt the user to get a link to share with people.

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Business Rules:

- If the link is used, a permanent link will be generated with a set permission.
- A user needs to be logged in to share an itinerary.
- A user needs to be logged in to accept the invite and become a collaborator (permanent link).
- The user that owns the itinerary can remove any collaborators at any time.
- An itinerary can include up to five people (owner included).

- Sharing Permissions

Description: The user has the ability to specify whether or not the people they are sharing their itinerary with have certain privileges.

Business Rules:

- Permissions
 - *View*: The recipient can only view but not edit the itinerary.
 - *Edit*: The recipient is able to modify the itinerary directly.
- The user that owns the itinerary can change permissions at any time.

3.2.2. Non-Functional

- Recipient permissions must be updated within 5 seconds if the user chooses to change them.
- The hyperlink sharing interface should be user-friendly and straightforward, allowing users to successfully share with at least 90% accuracy.
- If Hyperlink Sharing becomes unavailable, it can be under maintenance for approximately 3 hours.

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- The hyperlink will only give collaborators access to the specific itinerary.
- Users can access Hyperlink Sharing 98% of the time without failure.

3.2.3. Pass/Fail Requirements

Pass

- The user that owns the itinerary changes permissions and the collaborators' permissions are updated.

Fail

- The user that owns the itinerary changes permissions but the collaborators' permissions do NOT update.

3.3. Localized Weather Forecast

3.3.1. Functional

- Weather Access

Description: The user can view weather metrics of an event on the Event Details Page. The metrics will be in the form of a widget located above the event description.

Business Rules:

- A user needs to be logged in to view weather data.

- Weather Data

Description: Weather metrics that are used to display the forecast to the user.

Business Rules:

- Weather data will be shown based on the day of the week and the time of the event.
- These metrics will only be displayed in the imperial system.

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- The weather data will only appear on the event details page if the itinerary happens within the next ten days.
 - The widget will not appear on past itineraries.
 - Itinerary collaborators will be able to see the weather widget.
- The following metrics will be displayed:
 - High, Low, and Current Temperature (Fahrenheit)
 - Wind speed (MPH)
 - Humidity (%)
 - Precipitation (%)
 - Air quality (AQI)

3.3.2. Non-Functional

- The accuracy of the weather for individual events will be at least 80%.
- The localized weather forecast interface has to be user-friendly and easy to read, allowing users to understand weather metrics with at least 90% accuracy.
- If Localized Weather Forecast becomes unavailable, it can be under maintenance for approximately 3 hours.

3.3.3. Pass/Fail Requirements

Pass

- The user is logged in and weather data is correctly displayed.
- The forecast for the day and time of an event is properly updated.

Fail

- The user is logged in and weather data is NOT displayed.
- The user is NOT logged in and the weather data is displayed.
- The weather data is accurate, but not precisely displayed to the user.

3.4. Memory Album

3.4.1. Functional

- **Memory Album Access**

Description: To access the memory album, users must view a specific itinerary. The memory album will have an exclusive section to the right of the events.

Business Rules:

- If there are no pictures in the memory album, users will be prompted to upload files.
 - Users can upload multiple photos at a time.
- A user needs to be logged in to access the memory album.
- All users of the itinerary will have the same memory album visibility.
- The user can use a scroll bar to view through the album.
- Clicking on the image will enlarge them to its original size.

- **Memory Album Restrictions**

Description: The user must follow certain constraints when interacting with the memory album feature.

Business Rules:

- There can only be up to ten images per memory album.
- The user will be notified about image upload constraints if they attempt to go over the allotted ten images per memory album.
- File types that will be supported in our memory album include jpeg, jpg, and png.
- The maximum image file size will be 5MB.
- Only collaborators with the “Edit” permission can upload images.

3.4.2. Non-Functional

- Images need to be uploaded to the system within five seconds.
- Images scaled to smaller dimensions will be at least 90% recognizable.
- The memory album interface has to be user-friendly and easy to use, allowing users to view the album with at least 90% accuracy.
- If Memory Album becomes unavailable, it can be under maintenance for approximately 3 hours.
- Users can access the Memory Album 98% of the time without failure.

3.4.3. Pass/Fail Requirements

Pass

- User tries to upload the 11th image and the system stops them from uploading the new image.
- The user adds an image that is 5MB or less and the image is uploaded to the memory album.
- The user adds a supported image type, and the system allows their image to be uploaded to the memory album.
- Uploaded images are properly scaled down to smaller dimensions.

Fail

- The user tries to upload an 11th image to the memory album and they are allowed to.
- The user adds an image larger than 5MB and the image is uploaded to the memory album.
- The image is scaled down and the image is NOT recognizable.
- The user adds an unsupported image type, and the system allows their image to be uploaded to the memory album.
- Collaborators without editing permissions are able to modify the itinerary.

3.5. Rating System

3.5.1. Functional

- Rating an Individual Event

Description: The user can rate individual events within an itinerary. The rating system's range will be between 1-5 location pins. More location pins means the user enjoyed the event more.

Business Rules:

- The user must be logged in to rate individual events.
- If the user gives a low rating on an event, then the web app would stop suggesting that event for making any future itineraries.
- Rating will be permanently displayed unless removed.

- Itinerary Notes

Description: The user is also able to add a note to the itinerary for future reference.

Business Rules:

- The ratings of individual events, along with itinerary notes, are intended for the user to be able to look back and understand why they gave a rating to a particular itinerary.
- The note will have a 300 character limit.

- Modifying a Rating

Description: Changing the rating of an event.

Business Rules:

- The user has the choice to edit a rating as many times as they want.
- Collaborators must be given editing permissions to alter an event's rating.

BUSINESS REQUIREMENT DOCUMENT

- If there are no editing permissions, the collaborator can only view the rating.

3.5.2. Non-Functional

- The rating is appended to an event within 3 seconds.
- An event's rating is deleted within 3 seconds.
- The rating interface has to be user-friendly and easy to use, allowing users to successfully rate an event with at least 90% accuracy.
- If the Rating System becomes unavailable, it can be under maintenance for approximately 3 hours.

3.5.3. Pass/Fail Requirements

Pass

- The user adds a rating to the event and the event now has the rating associated with it.
- The user modifies the rating and the event rating properly updates.
- The user adds notes to an event and the event now has a description.

Fail

- The user adds a rating to the event and the event does NOT have the score associated with it.
- The user is unable to modify or delete an event rating.
- The user adds notes to an event and the notes do NOT update.

3.6. Suggestions

3.6.1. Functional

- Home Page

Description: The first page that is presented to the user, this is where they can begin to create an itinerary.

BUSINESS REQUIREMENT DOCUMENT

Business Rules:

- The user does not need to be logged in to access this page.
- The user cannot input a date that has already passed.
- Changing the radius or city will update the map accordingly.
- The user can press “Home” on the top left of the web application to return to the Home Page at any time.

- Itinerary Creation Page

Description: The page where the user selects events from general categories to be appended to the itinerary. The user can also share with collaborators.

Business Rules:

- The user must be logged in to access this page.
- The categories include: parks, art, attractions, night life, live music, movies, museums, libraries, fitness activities.
- Each selected category will have its own Event Details Page in order to list events under that category.
- The user can change the order of events at any time.
- The user can remove a category/event from the Itinerary Creation Page at any time.
- If the user has reached the maximum itineraries, the user will be notified to delete itineraries in the User Profile Dashboard.

- Recommended Events

Description: Recommended events will be shown on the right of the Itinerary Creation Page in order to encourage users to explore events outside their original choices.

BUSINESS REQUIREMENT DOCUMENT

Business Rules:

- Only events within the radius will be shown.
 - Recommended events will display the following:
 - Name
 - City
 - Date and Time
 - Description
 - No more than ten recommended events will be shown
 - If there are no events in the area then there are no recommendations to be displayed.
 - The events that are displayed in the recommended events exclude the general categories of the events chosen by the user.
 - E.g. If the user chooses to see a movie, then no movie suggestions will appear in the recommended events.
 - If the user adds a Recommended Event, it will be moved under all the selected general categories.
-
- Event Details Page
- Description: Upon clicking Next on the Itinerary Creation Page, the user is taken to a page with a list of events from the selected category. This is where the user can choose and append events into their itinerary.

Business Rules:

- Only events within the radius will be shown.
- If the user is on the Event Details Page of a Recommended Event, then only that event will be shown with expanded event details. (Description, Time, etc.)
- Events on the page will contain:
 - The name of the event

BUSINESS REQUIREMENT DOCUMENT

- The characters displayed for the name of the event will be limited to 35 characters.
- A description of the event
 - The description will be limited to 350 alphanumeric characters.
- Weather forecast
 - Will display general weather statistics (temperature, precipitation, air quality) on each event item
 - Ex: 75 F 50% Rain 150 AQI
- Address of the event
 - The address will display the street number followed by the street name, suite number (if applicable), city, state, and zip code.
- Event price
 - Displays a price range (\$ - \$\$\$\$\$), from least expensive to most expensive
 - Cost of the event is in the U.S. dollar amount.
 - Events with no cost (e.g. hiking) will display Free.
- Event Time Frame
 - Displays start and end time of the event.
- If the user is interested in the event and chooses to expand the event, additional information will be shown such as:
 - An expanded description of the event
 - The expanded description will be limited to 700 alphanumeric characters.
 - The expanded event title will be limited to 80 characters.
 - If the event *does not* have a set time (e.g. hike, library visit)

BUSINESS REQUIREMENT DOCUMENT

- User can select any time slot that fits within the time frame of the itinerary
 - If the event *does* have a set time (e.g. movies)
 - User will be prompted to select a time slot fitting within the time frame of the itinerary
 - Hour, Minute, and AM/PM should be shown to the user.
 - Hours will have a range from 1-12.
 - Minutes will have 10-minute intervals from 0-55.
 - The user can move back and forth between selected categories at any time.
 - The user can scroll until all events within the radius have been exhausted.
- Itinerary Summary

Description: Collection of all the events that have been added to the itinerary. This would appear on the top right of each Event Details Page.

Business Rules:

- The events will be displayed in chronological order.
 - Only three events will be displayed at a time.
 - The user may scroll through all events in the Itinerary Summary.
- The user can change the order of events on the Itinerary Summary.
- The user can change the time of an event through the Itinerary Summary.
 - The user can use the Itinerary Summary to redirect back to the corresponding Event Details Page to reschedule that specific event's time.

BUSINESS REQUIREMENT DOCUMENT

- The user can remove an event from the Itinerary Summary at any time.
- Changing the order of events, the time of events, or removing events will be reflected on the Itinerary Summary.
- The user will be notified if changing the order conflicts with the times of the existing events.
 - Events with overlapping times or events not in chronological order would display as red until the user clicks the Edit icon to reschedule.

3.6.2. Non-Functional

- The time it takes to add/remove an event from the Itinerary Creation Page is less than 3 seconds.
- The time it takes to add/remove an event from the Event Details Page is less than 3 seconds.
- The Suggestions interface should be user-friendly and easy to use, allowing users to successfully create an itinerary with at least 90% accuracy.
- If Suggestions becomes unavailable, it can be under maintenance for approximately 3 hours.

3.6.3. Pass/Fail Requirements

Pass

- The user enters a valid city, date, and radius and proceeds to the Event Details Page.
- Events displayed in Recommended Events are within the selected radius.
- Events displayed in the Event Details Page are within the selected radius.
- Each event category/recommended event does NOT generate an individual Event Details Page.

BUSINESS REQUIREMENT DOCUMENT

- The events on the Event Details Page relate to the selected general category.

Fail

- The user enters a invalid city, date, or radius and proceeds to the Event Details Page.
- Events displayed in Recommended Events are NOT within the selected radius.
- Events displayed in the Event Details Page are NOT within the selected radius.
- Each event category/recommended event does NOT generate an individual Event Details Page.
- The events on the Event Details Page do NOT relate to the selected general category.

3.7. User Profile Dashboard

3.7.1. Functional

- **User Profile Dashboard Access**

Description: The dashboard displays a personal profile and a list of all itineraries a user has created or collaborated on.

Business Rules:

- To access the User Profile Dashboard, the user must click the person icon on the top right of the screen.
- The user can access the User Profile Dashboard at any time.
- The user's personal profile will display the following:
 - Profile picture
 - First name
 - Last name
 - Username
 - Email

- **Recent/Favorite/All Itineraries**

Description: Itineraries will be stored and organized based on how recently the user accessed the itinerary, whether or not it has been favorited, and a general collection of all the itineraries the user has created.

Business Rules:

- To access an itinerary overview, the user must click on the respective tab (Recent/Favorite/All Itineraries).
- An itinerary overview will be displayed in a grid format.
 - For each itinerary in the grid, the itinerary name, date created, and location will be displayed.
 - Infinite scrolling will be utilized until all itineraries have been exhausted.
- Accessing the context menu of an itinerary should allow a user to edit, share, delete, or duplicate an itinerary.
- The user must view on an individual itinerary to expand it.
- Expanding on an itinerary will display the following:
 - Itinerary Name
 - Itinerary City
 - Itinerary Notes
 - Itinerary Events
 - Memory Album
 - Collaborators
- The collaborators of the itinerary will have their profile pictures displayed below the city of the itinerary.
- An expanded itinerary can be scrolled until all events within have been exhausted.
- The recent itineraries will display the ten most recent itineraries.

BUSINESS REQUIREMENT DOCUMENT

- **Account Settings**

Description: Account settings is where the user can edit their profile, change text notifications, edit two-factor authentication, and change their password.

Business Rules:

- To access the Account Settings, the user must click the cog icon in the top right of the screen.
- The user can press the cog icon on the top right of the web application to access the Account Settings at any time.
- In the “Edit Profile” tab the user should be able to modify the following:
 - Picture
 - i. Acceptable image types of png, jpeg, and jpg. Images need to be smaller than 5MB and will be automatically resized to 170x170 pixels.
 - Username
 - i. The username will be restricted to 16 alphanumeric characters with some special characters allowed (underscore and period).
 - Email
 - i. In order to change the user’s email address, they must reverify through the link sent to their email.
 - Phone Number
 - i. In order to change the user’s phone number, they must reverify through the SMS code sent to their phone.
 - First and Last Name

BUSINESS REQUIREMENT DOCUMENT

- i. Each name will be limited to 25 alphabetic characters.
 - ii. No special characters and numbers will be allowed.
- In the “Notification Settings” tab the user should be able to check/uncheck the following:
 - Receive messages when collaborators cancel an event.
 - Receive messages when collaborators cancel an itinerary.
 - Receive messages when collaborators are late to an event.
- The user must unselect all options to turn off text notifications.
- In the “Privacy and Security” tab the user should be able to do the following:
 - View the date the account was created.
 - Enable/Disable two-factor authentication
 - i. To enable two-factor authentication, the user must click on the toggle button.
 - ii. A user-friendly message will be displayed, stating 2FA is on with a specified number.
- In the “Change Password” tab, the user should be able to update their password.
 - To update the password the user must do the following:
 - i. Input the old Password.
 - ii. Input the new Password.
 - iii. Confirm the new password.

BUSINESS REQUIREMENT DOCUMENT

- A user-friendly message will display if the New Password does not match with the Confirm new password.
- In the “Change Password” tab, the user should also be able to use “Forgot password”.
 - To update the password the user must do the following:
 - i. Click “Forgot password”
 - ii. Click on the link sent to the user email.
 - iii. Input the new Password.
 - iv. Confirm the new password.
 - A user-friendly message will display the password stating instructions were sent to the registered email.
- A user-friendly message will display the password criteria if the new password is invalid.

3.7.2. Non-Functional

- Updating a user account settings should take less than 5 seconds.
- Updating a user profile should take less than 5 seconds.
- The user will receive a 2FA code within 15 seconds requesting the code.
- Enabling/Disabling 2FA should take less than 3 seconds.
- Changing passwords should take less than 3 seconds.
- The user should receive an SMS/email to verify their phone/email address within a minute of requesting it.
- The user should receive an email for Forgot password within a minute of requesting it.
- Inputting an invalid new password will notify the user that their password is insufficient within 3 seconds.

BUSINESS REQUIREMENT DOCUMENT

- The user profile dashboard interface should be user-friendly and straightforward, allowing users to interact with an itinerary/configure account settings with at least 90% accuracy.
- If User Profile Dashboard becomes unavailable, it can be under maintenance for approximately 3 hours.
- When editing the code for the user's User Profile Dashboard, the rest of the web application stays up and running.
- Users can access the User Profile Dashboard 98% of the time without failure.
- Up to 50 itineraries can be stored for a user.
- The User Profile Dashboard should have high usability, where users can easily determine features in the context menu.

3.7.3. Pass/Fail Requirements

Pass

- The personal profile displays accurate information.
- The recent itineraries are properly updated.
- The user edits their profile picture and it updates properly.
- The user opts into text notifications and receives them accordingly.
- The user opts out of receiving text notifications and they no longer receive them.
- The user attempts to change their password and the new password grants them access to their account.

Fail

- The personal profile displays inaccurate information.
- The recent itineraries do NOT properly update.
- The user enters an invalid profile picture and the picture updates.
- The user enters an invalid email and the email updates.
- The user enters an invalid phone number and the number updates.
- The user enters an invalid first/last name and the number updates.
- The user changes their password and the old password still grants them access to their account.

BUSINESS REQUIREMENT DOCUMENT

- The user enables text notifications but does NOT receive any texts.
- The user disables text notifications but still receives them.

3.8. Edit Pictures

3.8.1. Functional

- Edit Picture

Description: A feature where the user can make changes like cropping, rotating, brightness/contrast/saturation modifications, a reflection of images to pictures that they upload into a memory album.

Business Rules:

- The user must be logged in to edit pictures.
- The user must choose the changes that they want to make to the image.
- We are using Pixo REST API (Web Editing) to edit pictures stored in the Memory Album.
- Users are only able to edit **ONE** picture at a time.
- The user is able to apply an edit from one picture to all or selected pictures within the memory album.
- Editing pictures include functions: crop, transform (rotate/flip, 90, 180, 270 degrees), filter.
- The user should be able to undo the changes that they did to the image after saving (up to 5 saved points).
- The image will revert back to the closest save point. The stack that keep the changes to the image will be deleted automatically within 1hr after the changes started.

3.8.2. Non-Functional

- Image editing requests made by the user are returned and displayed to the user upon being completed.

BUSINESS REQUIREMENT DOCUMENT

- The editing interface has to be user-friendly and easy to use, allowing users to successfully edit a photo with at least 90% accuracy.
- If the Edit Pictures becomes unavailable, it can be under maintenance for approximately 3 hours.

3.8.3. Pass/Fail Requirements

Pass

- The image is edited with the chosen parameter within 10 seconds.
- The user edits the photo and the photo properly updates.
- The user successfully undo changes and reverts to the last saved image.

Fail

- The image is edited with the chosen parameter over 10 seconds.
- The user edits the photo and the photo properly does not update.
- The image fails to revert back to the unmodified last saved image.

3.9. Events Calendar

3.9.1. Functional

- Calendar Page

Description: A page for marking events and itinerary or notes. The user will also have the option to import via .ics files.

Business Rules:

- The user must be logged in to view and use the calendars.
- The users can access the calendar anytime.
- The users can upload a .ics file (5MB) and then the events that were marked on the file will be automatically marked on the personal calendar available on the website.
- The calendar will highlight time conflicts between itineraries.

BUSINESS REQUIREMENT DOCUMENT

- The user will be able to add notes to a date with limited to 100 characters (non-extended ASCII characters)
- The users can add a tag to separate days

List of possible tags:

- + Holiday
- + Anniversary
- + Birthday

3.9.2. Non-Functional

- The .ics file uploading process must be completed within 3 seconds.
- The calendar must be filled in automatically within 3 seconds using the uploaded file
- A note on the calendar must be deleted within 3 seconds.
- The calendar must update a tag within 3 seconds when the user changes it.
- If the Rating System becomes unavailable, it can be under maintenance for approximately 3 hours.
- The calendar interface has to be user-friendly and easy to use, allowing users to successfully view/modify events with at least 90% accuracy.

3.9.3. Pass/Fail Requirements

Pass

- The user upload a .ics calendar file and the website calendar is not automatically updated with events
- The calendar shows a new itinerary that is created by the user
- The calendar shows a new tag after the user add a tag on a date.
- The user adds notes to an event and the event now has a description.
- The calendar highlights all events that have a time conflict.

BUSINESS REQUIREMENT DOCUMENT

Fail

- The user uploads an .ics calendar file and the website calendar is updated automatically but missing events.
- The user is unable to modify or delete notes on the calendar.
- The calendar has a missing tag after the user adds a tag to a date.
- The user adds notes to an event and the notes do NOT update.
- The calendar does NOT highlight events that have a time conflict or only highlights partially.

4. Glossary

Term	Definition
AWS	Amazon Web Services
2FA	Two-factor authentication
AQI	Air quality index
EULA	End-user license agreement
FAQ	Frequently asked questions
IIS	Internet information services
SMS	Short message service
ToS	Terms of service