BUSINESS REQUIREMENT DOCUMENT

MEet and You

Brent Nishioka (Leader)
Gideon Essel
Joshua Ramos
Raymond Guevara
Vivian Dinh
Team Pentaskilled
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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.
- 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.
- 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.

1.3.2. Out of Scope

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

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).

- 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.

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.
- 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-paste easy.

- 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.

- 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.
  - Only system admins have the privilege to edit the user manual.
  - 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.

2.2.3. Pass/Fail Requirements

Pass

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

- 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.

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.
- 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.

- 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.

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 and password that is associated with an account.

  Business Rules:
  - Credentials (username and password) are required to access the system
  - Users have a username separate from their email that they can use to log in.
  - Email addresses can also be used to log in.
  - Passwords should be a minimum of 8 characters.
  - Passwords should have a maximum of 50 characters.
  - Passwords shall not be stored as text.
  - Password strength will be tested through an encryption algorithm to prevent brute force attacks.
  - Accounts will be locked after 10 unsuccessful login attempts.
  - 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.

- 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.
  - Users must enter an SMS code to reset their password while not authenticated.

- Users cannot use previous passwords when resetting passwords.

2.5.2. Non-Functional

- The user should login and start an active session within 3 seconds of entering their credentials.
- After validating their identity, resetting the password should take no more than 3 seconds.
- The user can log out in less than 3 seconds.

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 provides valid two-factor authentication and resets the password accordingly.
- The user ends the active session successfully.

Fail

- The user provides invalid login credentials and can start a session.
- The user provides an invalid password during an active session and can update to a new password.
- User does not successfully validate their identity via phone authentication and resets their password.

2.6. Network Communication

2.6.1. Functional

- _____

  Description:

  Business Rules:

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2.6.2. Non-Functional

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2.6.3. Pass/Fail Requirements

Pass

-

Fail

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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 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.
  - System admins are the only ones that can modify the EULA.

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 register with 90% accuracy successfully.

2.7.3. Pass/Fail Requirements

Pass

- The user accepts the EULA and an account is registered.

- The user provides a username not in the system and an account is registered.
- The user provides an 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.

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

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.

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 are allowed to access.

  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., email, username, 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.
- The time it takes for the user's account information to be kept up to date should take no more than 5 seconds.

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 inputted 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.
  - Data pertaining to the user's account is fully removed from the system.

- User Account Unlock
  Description: The system administrator will be able to unlock locked accounts.

  Business Rules:
  - Only system admins can unlock regular accounts.
  - 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.

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

- Duplicated 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.
  - The new itinerary name will be limited to 35 alphanumeric characters.

- Duplicated 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.

- Restrictions
  Description: Restrictions for duplicating and sharing itineraries.

  Business Rules:
  - If the user has reached the maximum of 50 itineraries, itineraries can not be duplicated unless space is freed.
  - 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.

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

- Registered User Accounts
  Description: Accounts with corresponding user information that exists within the system.

  Business Rules:
  - 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 (email/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.
    - *Comment*: The recipient is able to suggest improvements or comment on the itinerary but is not able to modify it.
    - *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.

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 are not updated.

3.3. Localized Weather Forecast

3.3.1. Functional

- 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.
  - The following metrics will be displayed:
    - High, Low, and Current Temperature (Fahrenheit)
    - Wind speed (mph)
    - Humidity (%)
    - Precipitation (%)
    - Air quality (AQI)

- Registered User Accounts
  Description: Accounts with corresponding user information that exists within the system.

Business Rules:

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

3.3.2. Non-Functional

- The accuracy of the weather for individual events will be at least 80%.

3.3.3. Pass/Fail Requirements

Pass

- The user is logged in and weather data is correctly displayed.
- The forecast for the day of the itinerary 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.