Sight See Tourist Map – Report 1

Software Engineering – Spring 2025

Cover Page

Project Name: Sight See Tourist Map
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GitHub Repository: https://github.com/sublimebovine/Sight-See.git

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1. Project Description

Project Sight See Tourist Map is an innovative way to help tourists plan their travels. The website's goal is to not only help tourists pick attractions based on their locations but also help them know when the best time is to go.

Our website displays an interactive map powered by Earth Engine. Tourists can use this map to find locations. Each location will display top attractions rated by tourists and locals who have seen these places. This will help tourists get an idea of attractions and restaurants in the area they plan to visit.

The website also displays the current and forecasted weather conditions on that location. This is to help tourists plan their travels. Our website can also filter what you are looking for based on things like reviews, budget, and travel. This can help users do a text-based search rather than using the map if it is more convenient. The website is free of cost, and uses APIs such as Earth Engine, Google Places, and OpenWeather to power the live updates that can help the users. Project Sight See is the next best day for people to plan and organize their vacations.

2. Data Collections

Several data collections are collated from both the user and other services to enable our ability to provide a service to Sight See users.

To provide for map services we use Google Maps API to populate our interactive maps with locations and flag some number of tourist destinations as well as provide users access to information available through Google services. From our registered users we collect location reviews and tracking information and we use this data to display reviews to our visitors and registered users while more advanced services like the popularity of various attractions or live weather data gathered from the weather API are only accessible to registered users.

3. Operations

Most of the operations performed will be filtering operations taking a subset of the available data collections.

- Filtering by weather creates a subset of locations based on the collection of data from the weather API.
- Filtering by review confidence takes the reviews collection as a whole and rates each review by reviewer confidence to determine if the review can be trusted to be a legitimate user and then outputs a subset of reviews to the user searching for reviews of a given confidence.
- Average review rating takes the review collection and presents a subset of reviews with a greater average rating.
- Popularity filters for a subset of the tracking data of users and presents a subset of locations in a given range of users at the location.

Beyond this Sight See also handles and stores user data by accounts and allows for the registration of new accounts with accompanying account information.

4. Business Policies

Sight See wants to encourage users to register an account and enable notifications as well as provide Sight See as much user data as possible. This includes but is not limited to email, name, locations visited and other user survey and demographic information. Sight See hopes to use this information to recommend trips, advertise advanced Sight See services and sell Sight See related merchandise. Sight See hopes to sell higher visibility to different attractions, presenting users with the option of visiting the location as well as some location information, when searching in the area. Sponsored locations will be marked for the user in the UI. Sight See ensures user privacy by securely storing personal data and allowing users to manage their privacy settings. All sponsored listings will be clearly marked, and advertisers must follow content guidelines to prevent misleading promotions. Data protection measures, including encryption and secure authentication, are in place to safeguard user information.

5. System Requirements

- API Implementation
- CSS/HTML Design
- JavaScript
- Code Libraries
- Testing/Debugging
- GitHub Pages
- GitHub Repository
- NoSQL Database (MongoDB)
- Email/Password Login

6. Team Sub-Groups & Responsibilities

Team Members	Responsibilities
Aaryan & Saahil	UI/UX Frontend Design
Sean & Rayyan	Data Handling
Adiel & Abhinav	API Integration
Sachit & Nirshanth	Testing, Debugging & Optimization

7. Use Cases

Actors & Goals

Actors:

- Tourist (Registered User) [Initiating] - Can search for attractions, view reviews, filter results, and save locations.
- Visitor (Unregistered User) [Initiating] - Can browse general location data and read limited reviews.
- Admin [Participating] - Manages user data, verifies reviews, and handles content moderation.
- Google Maps API [Participating] - Offers services related to maps, including the plotting of locations and the provision of directions.
- Google Places API [Participating] - Supplies location reviews and business data.
- OpenWeather API [Participating] - Delivers both present and anticipated weather conditions.
- Advertiser [Participating] - Pays to promote attractions within the platform.

Goals:

- Tourists want to find reliable and popular attractions while planning their trip.
- Visitors want to browse important information without the need to register.
- Admins aim to maintain data integrity and moderate user-generated content.
- APIs provide needed services for maps, weather, and attractions.
- Advertisers seek visibility by promoting their locations.

Case Descriptions

1. Search for attractions
    - Tourist, Visitor, Google Maps API
        - Users can search for attractions by entering a location or keyword.
            - (Aaryan & Saahil)
2. Filter by weather and reviews
    - Tourist, OpenWeather API
        - Users can filter results based on forecasted weather and user reviews.
            - (Sean & Rayyan)
3. Register and log in
    - Tourist, Admin
        - Users must create an account to access advanced features.
            - (Adiel & Abhinav)
4. Submit a review
    - Tourist, Admin, Google Places API
        - Registered users can post reviews, which are subject to moderation.
            - (Sachit & Nirshanth)
5. Advertiser Promotion
    - Advertiser, Admin
        - Advertisers can purchase sponsored listings to increase visibility.
            - (Adiel & Abhinav)

8. Case Workflow

Use Case: Search for Attractions:

- Business Concepts:
    - Location-based search
    - User interaction with APIs
    - Attraction recommendations

- Operations:
    - Querying the Google Maps API for attractions
    - Fetching and displaying attraction details
    - Allowing users to save their favorite locations

- Business Rules:
    - Only registered users can save attractions
    - API failures trigger fallback recommendations

- Normal Flow:
    1. The user enters a search term (e.g., “Museums in New York”).
    2. The system fetches locations using the Google Maps API.
    3. The user selects a location to view details.
    4. The system displays the location information and user reviews.
    5. The registered user has the option to save the location.

- Exceptions:
    - No results found → The system notifies the user to refine the search.
    - API failure → A fallback message is displayed with general location recommendations.

Use Case: Submit a Review:

- Business Concepts:
    - User-generated content
    - Review moderation
    - Trust and reputation systems

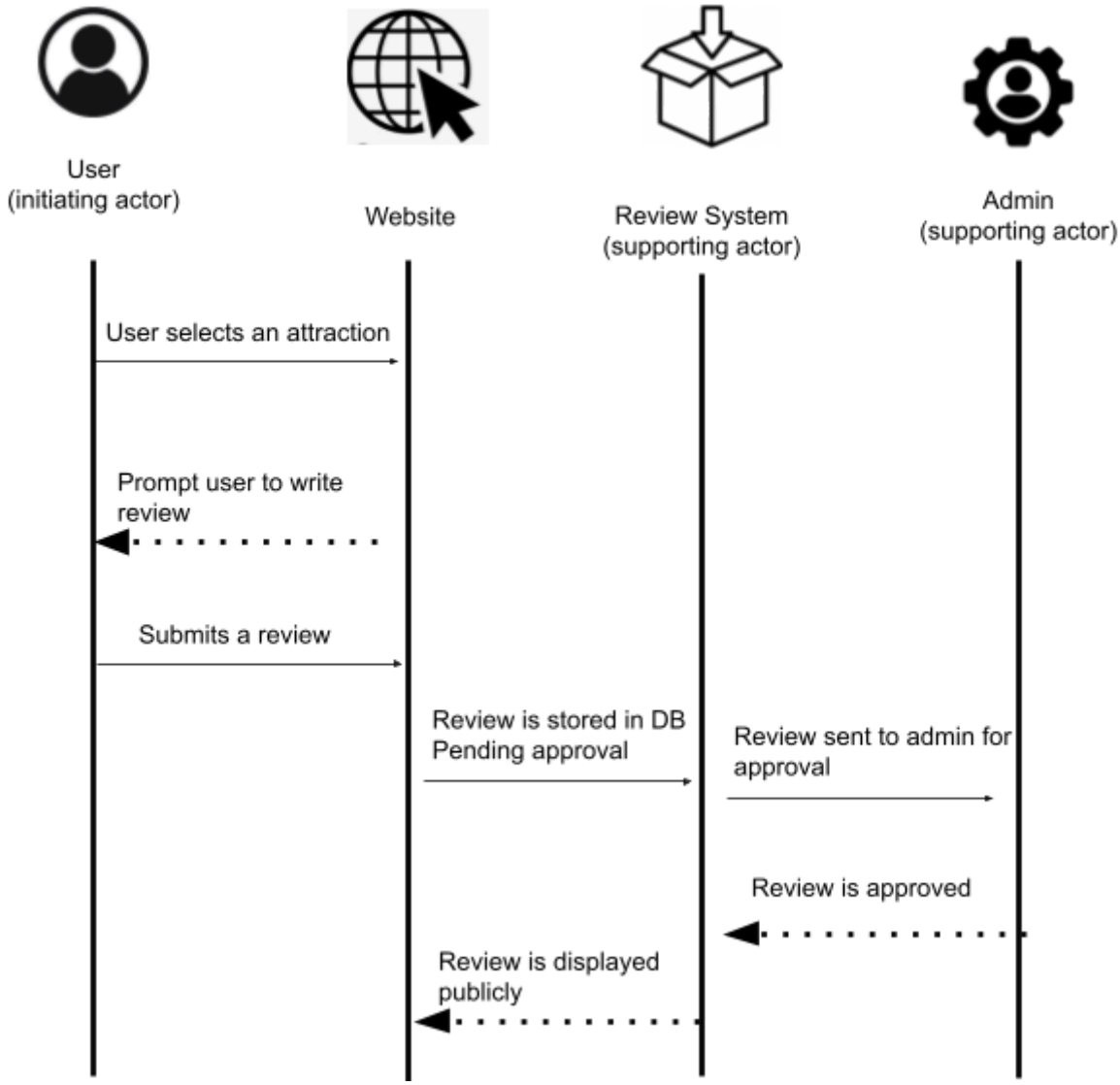
- Operations:
    - Submitting a review to the database
    - Analyzing review credibility
    - Publishing verified reviews

- Business Rules:
    - Only registered users can submit reviews
    - Suspicious reviews must be flagged for moderation
    - Inappropriate content is rejected

- Normal Flow:
    - The user selects an attraction.
    - The user enters a rating and text review.
    - The system submits the review for approval.
    - An admin moderates the review before publishing.

- Exceptions:
    - Review flagged as suspicious → The system prompts the user to verify their submission.
    - Inappropriate content → The admin rejects the review and notifies the user.

System Sequence Diagram:



Use Case: Advertiser Promotion:

- Business Concepts:
    - Digital marketing
    - Sponsored content
    - Payment processing

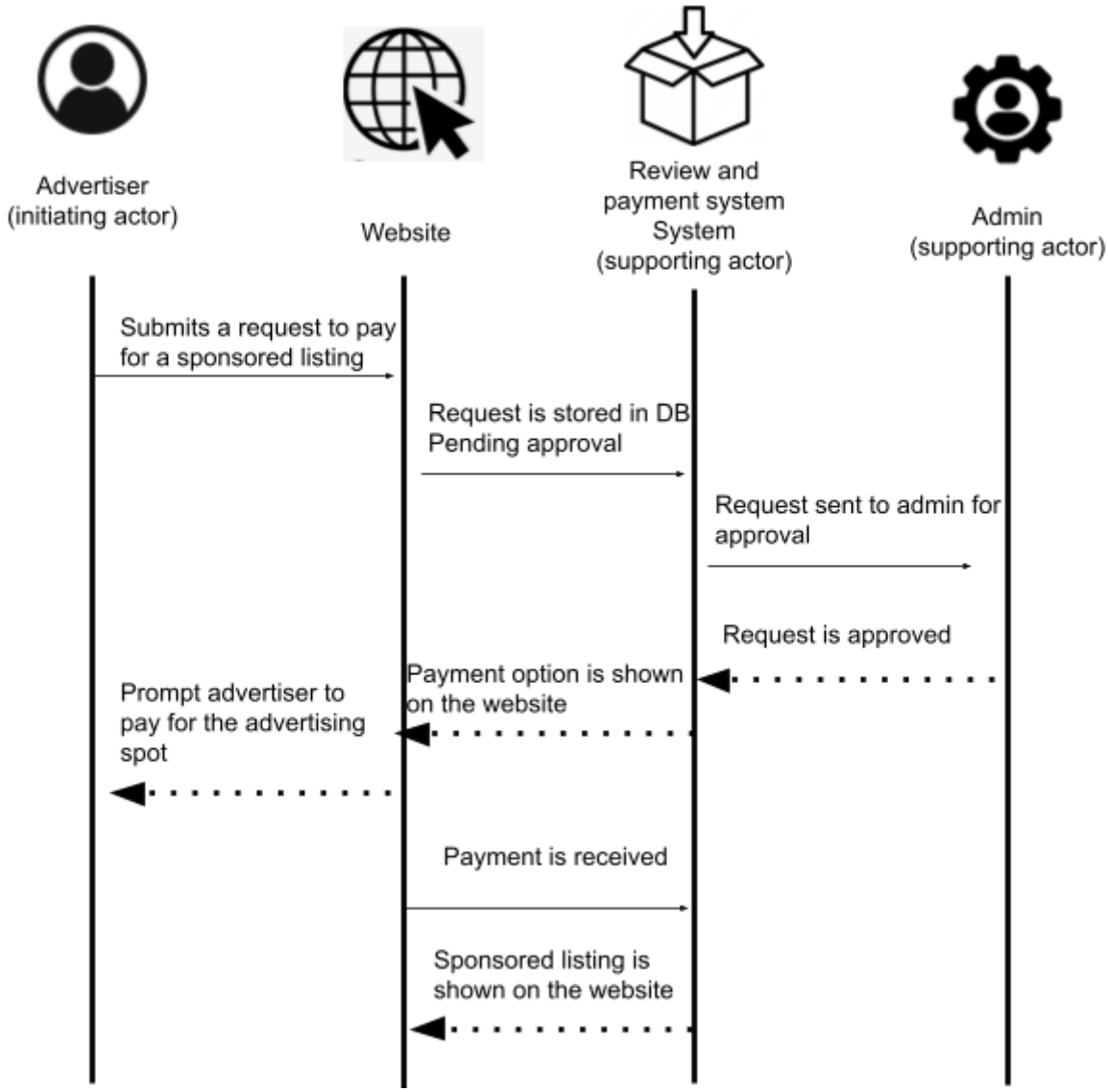
- Operations:
    - Processing advertiser requests
    - Approving and listing sponsored attractions
    - Handling transactions

- Business Rules:
    - Advertisers must meet content guidelines
    - Payments must be processed successfully before listing
    - Sponsored locations are clearly marked in the UI

- Normal Flow:
    1. An advertiser submits a request for a sponsored listing.
    2. The admin reviews the request.
    3. If approved, the advertiser makes a payment.
    4. The sponsored listing appears in search results.

- Exceptions:
    - Payment failure → The system notifies the advertiser and asks for a retry.
    - Misleading or fraudulent listings → The admin rejects the request and notifies the advertiser.

System Sequence Diagram:



8. Glossary of Business Terms

-Tourist Attraction: A location or landmark that travelers visit for leisure, sightseeing, or cultural interest.

-Registered User: A user who has created an account on Sight See to access additional features such as reviews and personalized recommendations.

-Visitor (Unregistered User): A user who can browse general location data but has limited access to features such as saving locations or leaving reviews.

-API (Application Programming Interface): A service that allows Sight See to retrieve and integrate data from external sources like Google Maps and OpenWeather.

-Sponsored Listing: A paid advertisement that increases the visibility of a tourist attraction or business on the platform. Sponsored listings are marked as promotions.

-Review Moderation: The process of verifying and filtering user-generated reviews to maintain credibility and prevent spam or false information.

-Filtering Operations: A system that allows users to refine their search results based on parameters such as weather, user reviews, and attraction popularity.

-Authentication: The process of verifying a user's identity before granting access to certain system features, such as leaving reviews or saving locations.

-Data Protection: Security measures used to safeguard user information, including encryption, secure authentication, and access control policies.

-Advertising Guidelines: A set of rules that ensure all paid promotions on Sight See are truthful, appropriate, and compliant with platform policies.