



School of Computer & Information Sciences

Software Project Proposal

of

NAGA VENTURE

Midterm Project Requirement
for
Software Engineering
(BCS324L/BIT324L)

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PROJECT ROADMAP

I. Project Description

A. Project Goal

To develop a software solution that will provide a centralized platform for tourists to explore accommodations, tourist spots, and local shops that addresses the challenges faced by the tourism and hospitality industry in Naga City. This solution aims to enhance accessibility and convenience for visitors while also empowering small businesses to promote their services effectively. By integrating an interactive map, directories, and real-time updates, the platform will improve the overall travel experience, foster economic growth, and support sustainable tourism development in the region.

B. Stakeholders

ACTO Officer: Responsible for promoting and preserving Naga City's cultural heritage and tourism industry by managing information on local attractions, events, and tourism initiatives.

Tourist: visiting Naga City for leisure, exploration, or cultural experiences, seeking information on accommodations, tourist spots, and local services.

Locals: The residents of Naga City who benefit from tourism in terms of community growth, economic activity, and cultural exchange. They also play a role in shaping the city's tourism identity.

Business Owners: Business owners or managers of hotels, resorts, inns, and other lodging establishments that provide temporary stays for tourists. Entrepreneurs and business operators running restaurants, souvenir shops, and other retail establishments catering to both tourists and locals.

C. Key Features

Interactive Map: Locate accommodations, tourist spots, and shops easily using an integrated, user-friendly map. This feature allows users to navigate the city, find places of interest, and access real-time location-based information.

Booking: A built-in booking system designed for accommodation owners who may not have the budget to list their properties on major booking platforms. This feature

allows them to manage reservations directly within the app, offering a cost-effective alternative to reach potential guests.

User Reviews & Ratings: Enable users to provide feedback on accommodations, rooms, attractions, and shops. This feature fosters transparency, helps future travelers make better choices, and encourages service providers to maintain high standards.

Content Management System (CMS): Enables tourism authorities and business owners to manage and update their information efficiently.

Directories: Categorized listings of accommodations, tourist spots, events, and local businesses for easy navigation and discovery.

II. Development Plan

Agile Development Model. Agile methodology was selected for this project due to the dynamic nature of tourism and the need for a flexible development process. The tourism industry requires a

platform that can quickly adapt to evolving user demands, emerging trends, and stakeholder requirements, given the diverse features—such as an interactive map, directories, and a booking system. Agile enables the team to develop and refine these components incrementally. Since different groups like government offices, business owners, and tourists are involved, the development process should allow teamwork and quick changes based on real feedback.

Name of Key Module/Feature

Phases	Timeframe	Key Activities	Deliverables
Planning and Data Gathering	January 20 - 31	Identify project scope, gather stakeholder requirements, define goals	Project Scope Document, Stakeholder Requirements Report
System Requirement Modeling	February 1 - 14	Define functional and non-functional requirements, system specifications	Software Requirements Specification (SRS), Use Case, PFM and DFM
Design and Prototyping	February 15 - 28	Create wireframes, system architecture, UI/UX design	Wireframes, System Design Document, UI Prototypes
Develop System	March 1	Implement core	Initial

Component	- April 10	modules: Accommodation Management, Tourism Management, Event Management, Shop Management	System Modules (Frontend & Backend)
Integrate System Components	March 11 - April 15	Connect different system modules, API integration, database setup	Integrated System, Database Schema
Testing & Quality	April 16 - April 30, 2025	Conduct unit, integration, and user acceptance testing	Test Reports, Bug Fixes, System Optimization
Deployment	May 1 - May 10, 2025	Deploy the system on live servers, finalize configurations	Deployed System, Live Platform
Maintenance and	May 11 -	Monitor system,	Maintenance

Support	May 20, 2025	fix post-deployment issues, user feedback handling	Reports, System Updates
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III. Development Team

Team Member	Key Roles	Assigned Module & Features
Rayven Clores	Team Leader	Accommodation Management <ul style="list-style-type: none"> • Booking System • Accommodation Listing • Accommodation/Room Reviews and Rating • Accommodation Location Pinning
Emmanuel Collao	Analyst	Tourism Management <ul style="list-style-type: none"> • Tourist Spots Listing • Business Listing • Business Promotion • Tourist Spot

		<ul style="list-style-type: none"> • Content Approval • Location Pinning • Tourist Spot Reviews and Rating
Hans Candor	Developer	<p>Shop Management</p> <ul style="list-style-type: none"> • Shop Listing • Business Promotion • Shop Location Pinning • Shop Reviews and Rating
Wayne Sanao	UI/UX Designer	<p>Event Management</p> <ul style="list-style-type: none"> • Event Listing • Event Reviews and Rating • Business Promotion

SYSTEM SPECIFICATIONS & DESIGN

I. Software Requirement Specification

1. User Authentication and Role Management

1.1. The system shall provide secure user authentication for Tourism Admin, Business Listing CMS Manager, Tourism Content CMS Manager, Business Registration Manager, and Business Owners.

1.2. The system shall implement role-based access control to restrict access to CMS features and data based on the following user roles:

1.2.1. Tourism Admin: Full administrative access to all CMS features, user management, system configuration, analytics, all content management.

1.2.2. Business Listing CMS Manager: Access to manage Business Listings (Shops, Accommodations, Services) - CRUD(Create,View,Update,Delete), content approval for business updates, manage reviews and promotions for businesses, access to business listing analytics.

1.2.3. Tourism Content CMS Manager: Access to manage Tourism Content (Landmarks, Tourist Spots, Events) - CRUD(Create,View,Update,Delete) for

tourism content, access to tourism content analytics.

1.2.4. Business Registration Manager: Access to manage Business Registrations - review and approve/reject registration requests, manage business owner accounts.

1.2.5. Business Owner: Access to the Business Portal (web/mobile) to manage their own business listing profile, view basic analytics.

1.3. The system shall allow Tourism Admin to manage all user accounts, roles, and permissions (add, remove, modify).

1.4. The system shall provide a password recovery mechanism for all user roles.

2. Business Listing Management:

2.1. The system shall allow Business Listing CMS Managers and Tourism Admins to create, read, update, and delete (CRUD) Business Listings (Shops, Accommodations, Services).

2.2. The system shall allow Business Owners to update their own business profiles.

2.3. Business profiles shall include the following fields:

2.3.1. Basic Information: Business Name, Business Type (Dropdown: Shop, Accommodation, Service), Address, Contact Information (phone, email, website, social media).

2.3.2. Descriptive Content: Detailed Description
(minimum 200 words), Categories, Keywords/Tags,
High-resolution Images (up to 10), Amenities
(Multi-select list).

2.3.3. Operational Details: Business Hours.

2.3.4. Promotional Content: Promotions and Special
Offers (managed separately - see FR-9).

2.3.5. For Accommodations (if Business Type is
Accommodation): Room Types and Details
(including availability and fixed pricing
changeable by business owner).

2.3.6. For Services (if Business Type is Service):
Services Offered (list/description).

2.4. The system shall support categorization and
multi-category tagging of Business Listings.

2.5. The system shall provide a preview feature for
Business Listings before publishing.

3. Tourism Content Management (Tourism CMS):

3.1. The system shall allow Tourism Content CMS Managers
and Tourism Admins to CRUD(Create, View, Update, Delete)
tourist spot information.

3.2. Tourist spot information shall include: Name,
Description, Images, Location (including
OpenStreetMaps integration), Contact Information,
Operating Hours, Entry Fees, Categories (e.g.,
Existing, Emerging).

- 3.3. The system shall allow Tourism Content CMS Managers and Tourism Admins to CRUD(Create, View, Update, Delete) event information.
 - 3.4. Event information shall include: Event Name, Description, Date, Time, Venue (linked to Tourist Spot or general location), Applicable Fees, Scheduling (start and end dates for display).
 - 3.5. The system shall support categorization of tourist spots and events.
 - 3.6. The system shall provide analytical reports on visitor interest and engagement with tourist spots and events (e.g., view counts, feedback).
4. Content Approval Workflow:
 - 4.1. The system shall implement an approval workflow for content updates submitted by Business Owners.
 - 4.2. The system shall notify Business Listing CMS Managers and Tourism Admins when business listing content updates are submitted for review.
 - 4.3. The system shall allow Business Listing CMS Managers and Tourism Admins to approve or reject submitted content updates.
 - 4.4. The system shall provide a feedback mechanism for Business Listing CMS Managers and Tourism Admins to communicate with Business Owners regarding rejected updates.

4.5. Only approved content shall be visible in the Naga Ventures App.

5. Business Registration and Claiming:

5.1. The system shall allow new businesses (Shops, Accommodations, Services) to register through the Business Portal (web/mobile).

5.2. The registration process shall collect necessary business information and documentation for verification.

5.3. The system shall allow existing businesses to "claim" their listings if they are already pre-populated in the CMS by the Tourism Office.

5.4. Business Registration Managers and Tourism Admins shall review registration and claim requests, validate business legitimacy, and approve or reject them.

5.5. Upon approval, Business Owners shall be granted access to manage their listings through the Business Portal.

6. Booking System (Direct Booking for Accommodations):

6.1. The system shall provide a direct booking engine for accommodations listed in the Naga Ventures App.

6.2. The booking system shall handle room reservations, payment processing, and booking confirmations.

6.3. The booking system shall generate booking receipts and notifications for both tourists and accommodation providers.

6.4. The booking system shall integrate with Gcash payment gateway for secure online payments.

7. Interactive Map (Mobile App):

7.1. The mobile app shall feature an interactive map displaying tourist spots, accommodations, shops, and event venues.

7.2. The map shall integrate with OpenStreetMaps API for location data, directions, and navigation.

8. Search and Filtering (Mobile App):

8.1. The mobile app shall provide a search function for tourists to find tourist spots, accommodations, shops, and events by name, keywords, and categories.

8.2. The mobile app shall allow filtering of search results based on categories, location, price range (for accommodations), and dates (for events).

9. Promotions and Special Offers:

9.1. The system shall allow Business Owners and Business Listing CMS Managers/Tourism Admins to create and manage promotional listings with specified start and end dates.

9.2. Promotional content shall include title, description, images, and links.

- 9.3. Promotions shall be displayed prominently in the mobile app (e.g., on business profiles, in a dedicated promotions section).
- 9.4. Promotions shall automatically appear and disappear from the app based on the specified duration.
- 9.5. Promotions created by the Business Listing CMS Managers/Tourism Admins shall be displayed in a prominent 'Promotions' section within the Naga Ventures mobile app as Platform-wide promotions, and the Naga Ventures CMS shall provide a dedicated interface for Tourism Office staff to create and manage these promotions.

10. Feedback and Reviews & Issue Reporting:

- 10.1. The system shall allow tourists to submit feedback and reviews (star rating and comments) for tourist spots, accommodations, and shops.
- 10.2. Reviews shall be displayed on the respective profiles in the mobile app.
- 10.3. Business owners shall be able to view and respond to user feedback. Initially, responses will be published without pre-moderation, but a post-publication reporting mechanism shall be implemented to allow users to flag responses that violate platform guidelines.

- 10.4. The system shall provide a mechanism for tourists to report issues or complaints about tourist spots and establishments through the mobile app.
- 10.5. Reported issues shall be logged and tracked in the CMS with the following statuses: Open, Investigating, Resolved. Notifications shall be sent to Tourism Admin upon issue submission. Tourism Admin Can update issue status and add internal notes.
- 10.6. The system shall provide a 'Report' or 'Flag as Inappropriate' feature for tourists to report business owner responses that are believed to violate platform Community Guidelines. This reporting feature shall be accessible on the mobile app within the review/response section.
- 10.7. The system shall provide a similar 'Report' or 'Flag as Inappropriate' feature for Business Owners to report tourist reviews that are believed to be false or violate platform Community Guidelines. This reporting feature shall be accessible in the Business Portal within the review section.
- 10.8. All reported content (business owner responses and tourist reviews) shall be reviewed by Tourism Admins. The system shall provide a CMS interface for viewing and managing reported content, including the ability to take action such as issuing warnings to the content creator or removing/editing the content.

11. Analytics and Reporting:

- 11.1. The system shall track basic analytics such as page views, click-through rates (for promotions), and user engagement time for business profiles, tourist spots, and events. (Note: "Page views" refers to views of business profiles, tourist spot profiles, and event profiles within the mobile app)
- 11.2. The CMS shall provide a visual dashboard for administrators to view:
 - 11.2.1. Overall User Engagement Trends
(Daily/Weekly/Monthly Active Users, Average Session Duration)
 - 11.2.2. Top Tourist Spots, Accommodations, Shops, and Businesses (by Views)
 - 11.2.3. Click-Through Rates on Promotions
 - 11.2.4. Most Frequent Search Terms
- 11.3. The CMS shall allow administrators to export the following reports in CSV or PDF format:
 - 11.3.1. Detailed Tourist Spot Report (Views, Feedback Summary)
 - 11.3.2. Detailed Accommodation Report (Views, Feedback Summary)
 - 11.3.3. Detailed Shop Report (Views, Feedback Summary)
 - 11.3.4. Detailed Business Report (Consolidated view of all Business Listings - Views, Feedback Summary)

11.3.5. Detailed Event Report (Views)

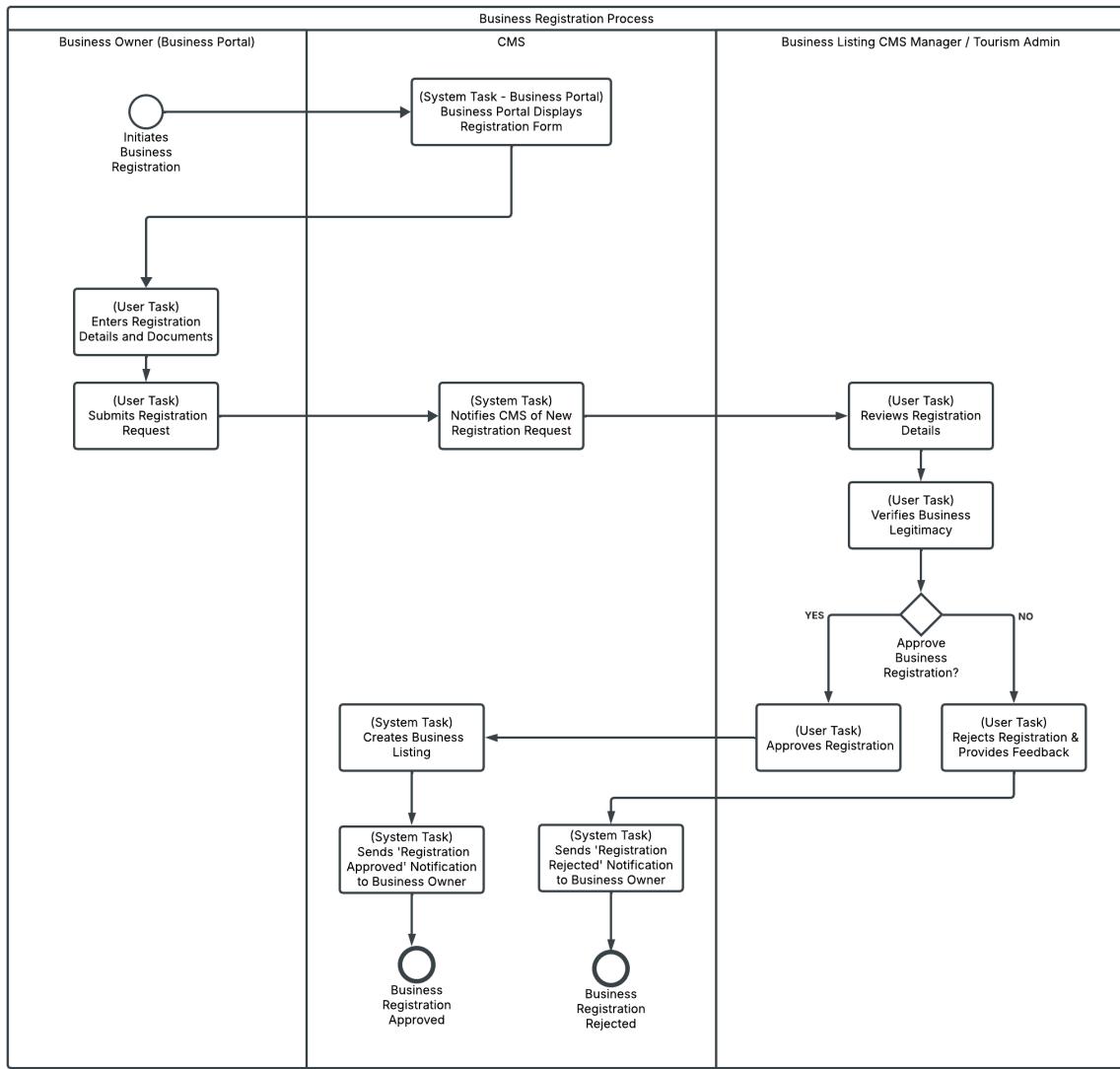
11.3.6. Search Term Report (Frequency)

12. Real-Time Synchronization:

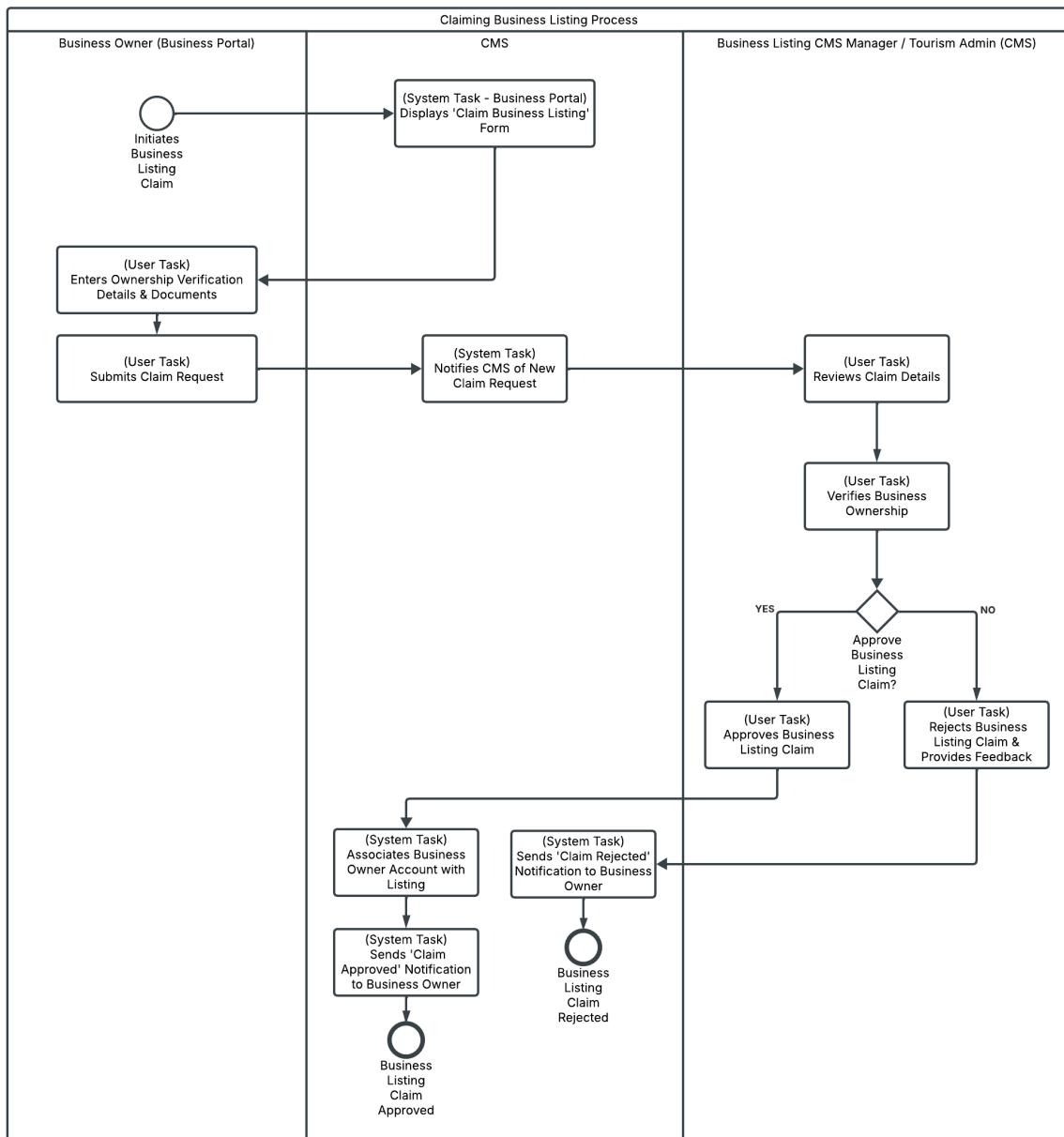
12.1. All approved content updates in the CMS shall be synchronized with the Naga Ventures App in near real-time, with a maximum latency of 1-2 minutes.

II. Process Flow Model

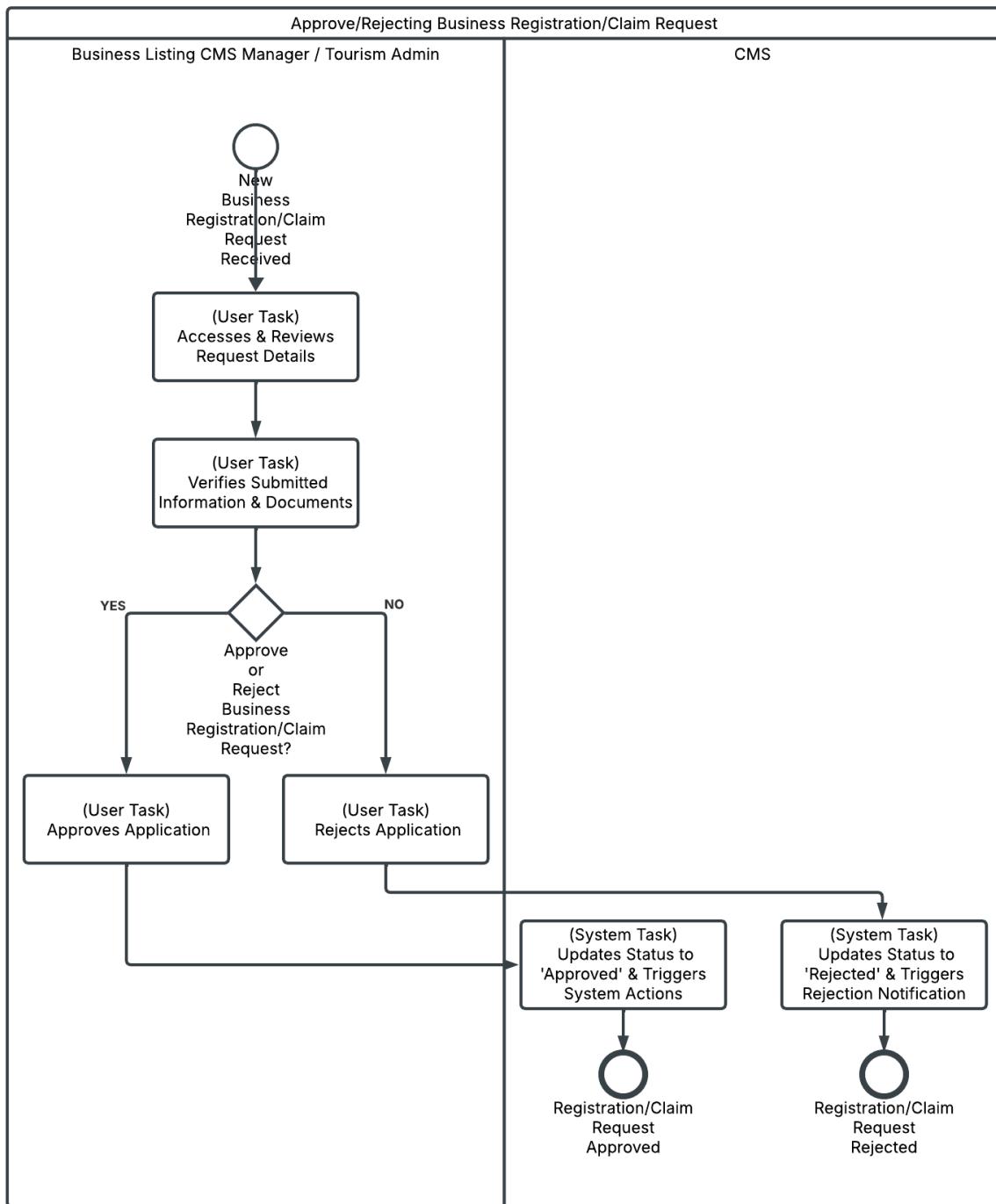
A. Business Registration Process



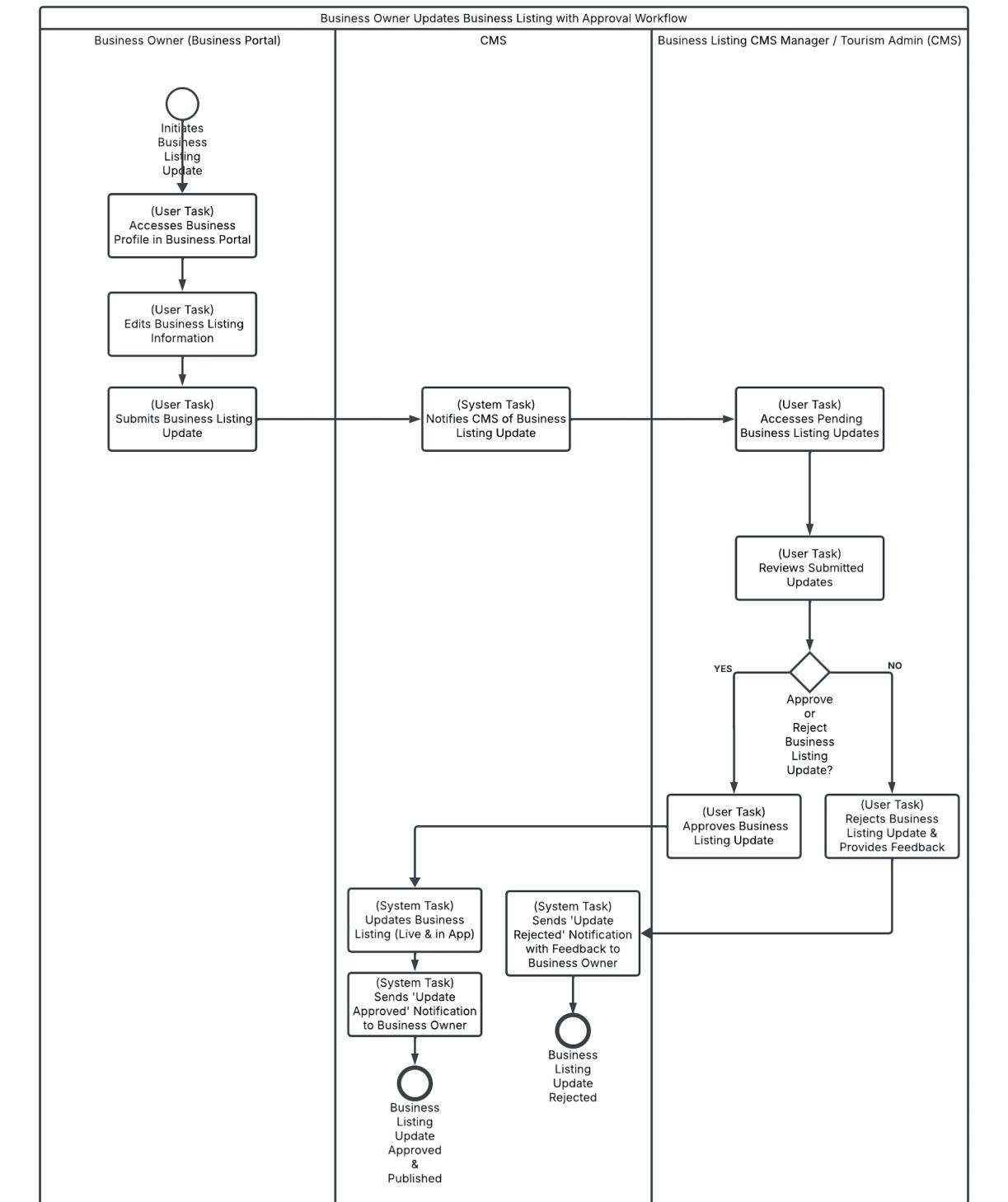
B. Claiming Business Listing Process



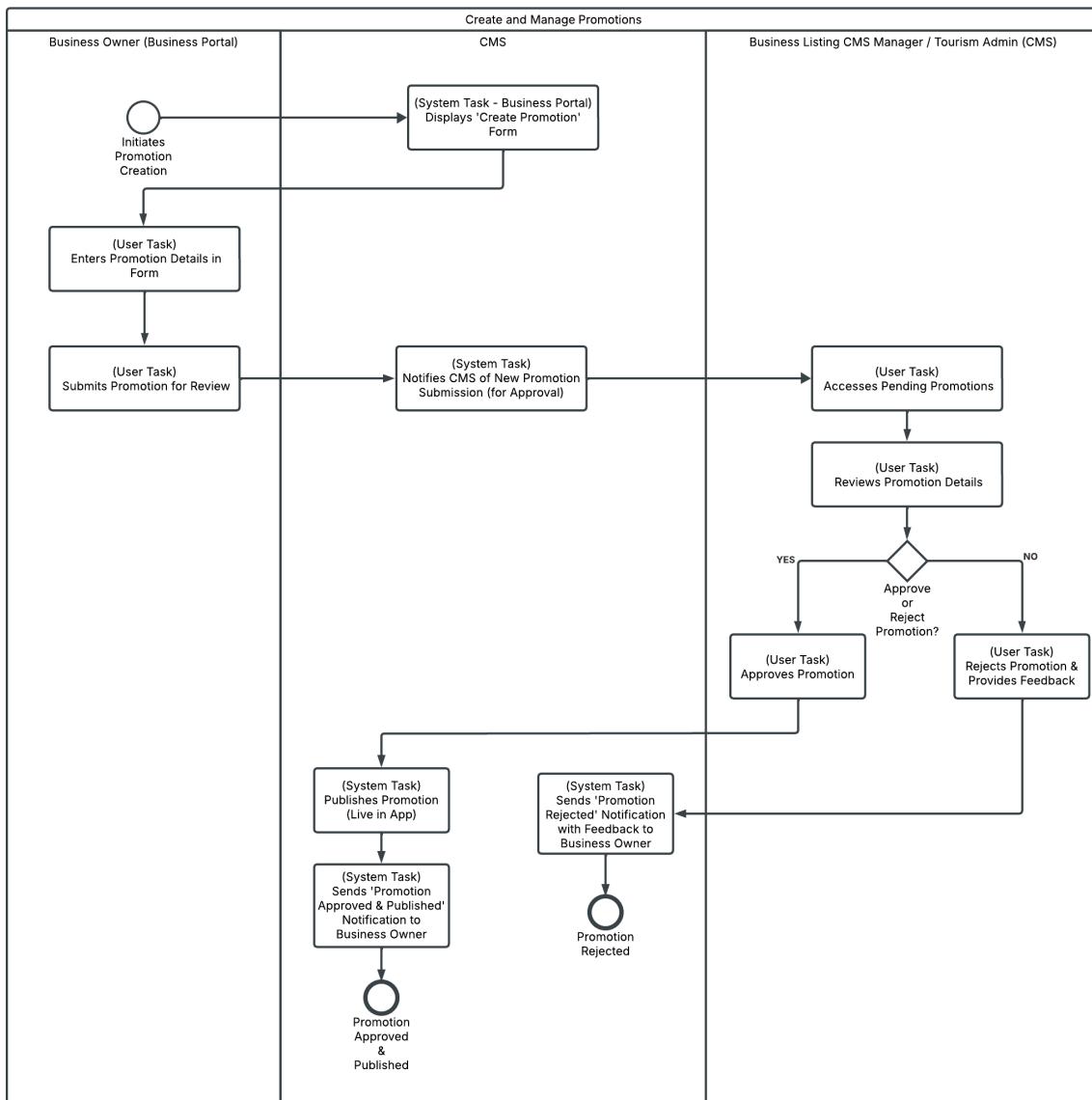
C. Approve/Rejecting Business Registration/Claim Request



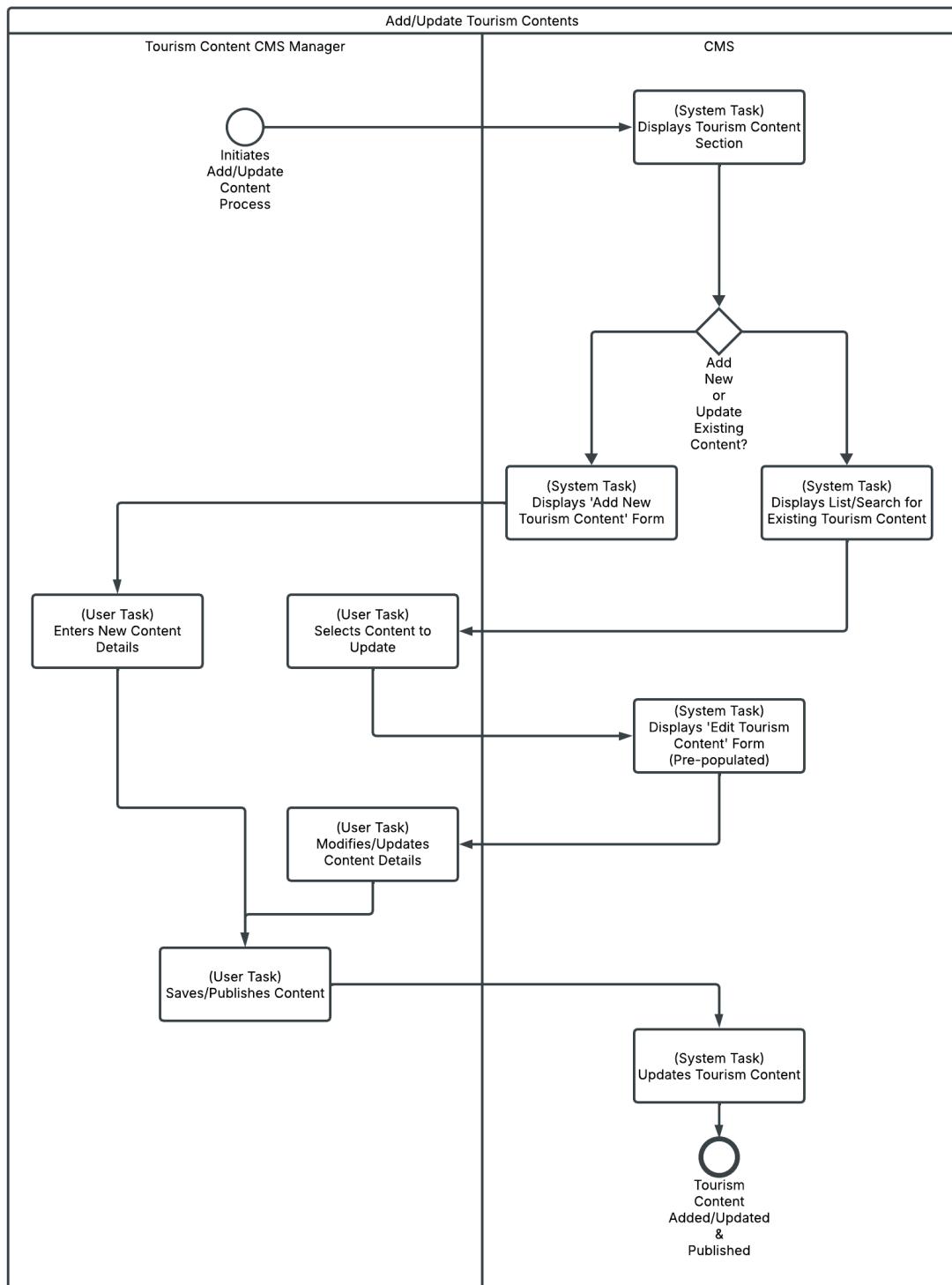
D. Business Owner Updates Business Listing with Approval Workflow



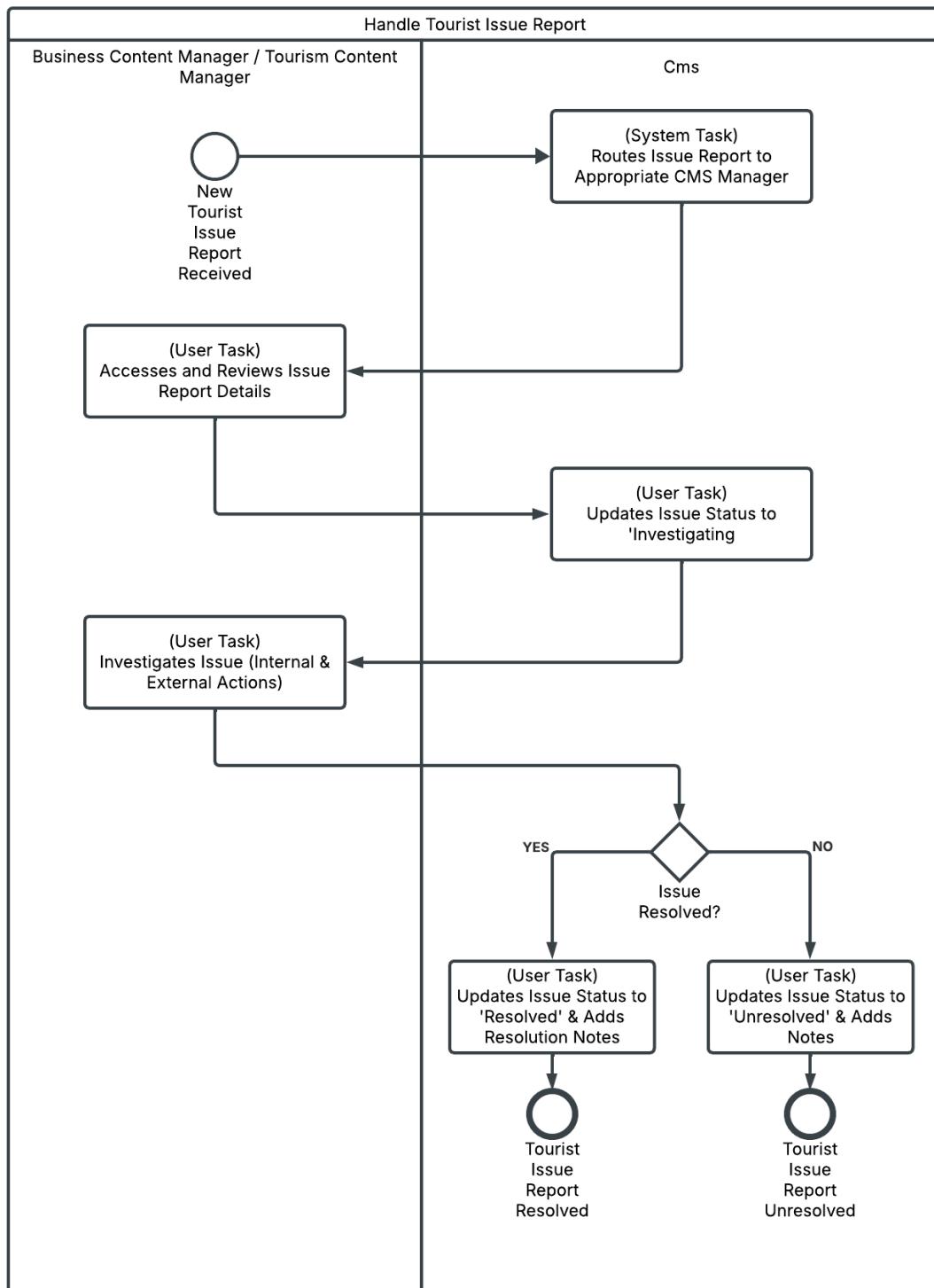
E. Create and Manage Promotions



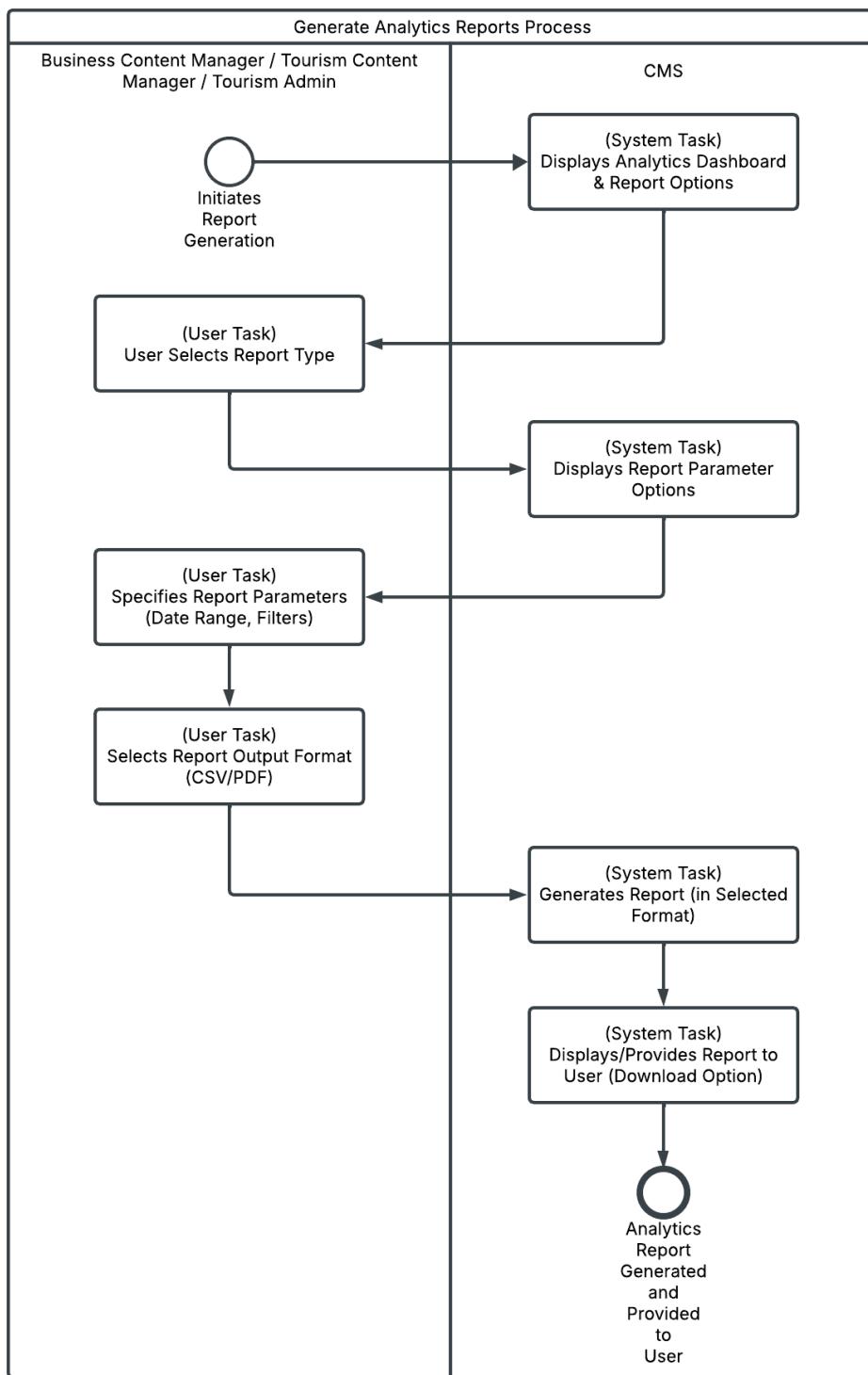
F. Add/Update Tourism Contents



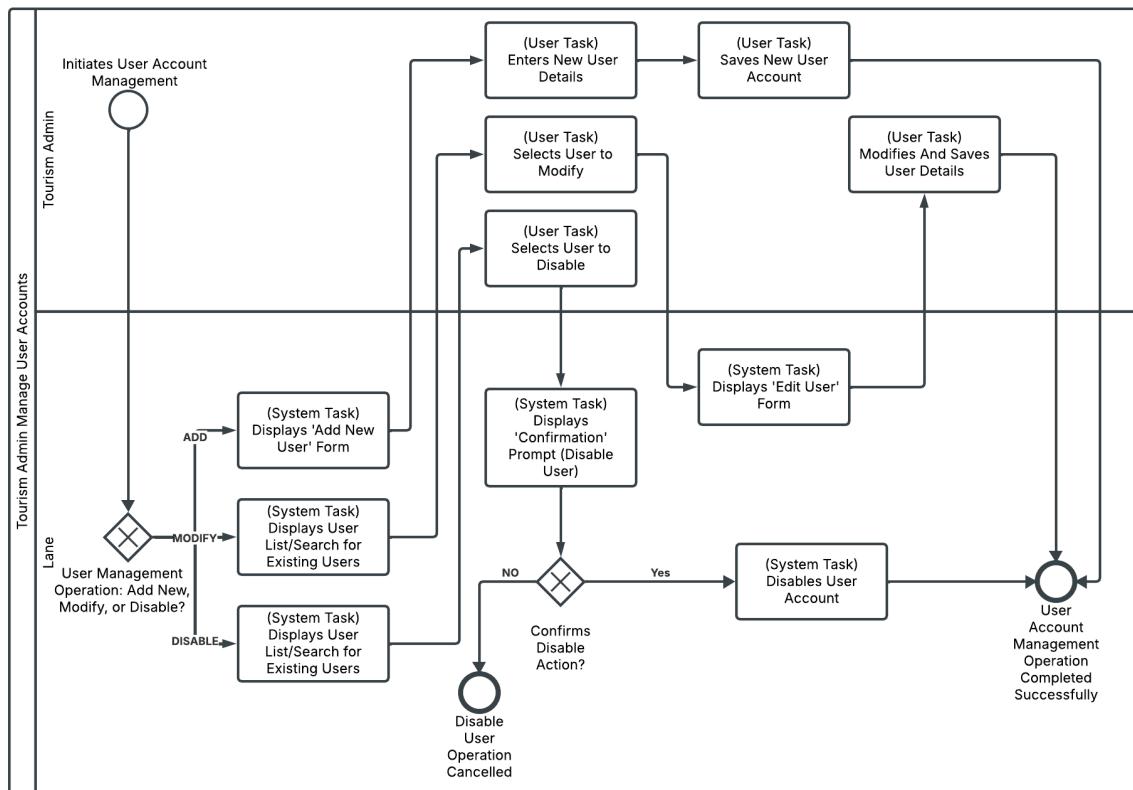
G. Handle Tourist Issue Report



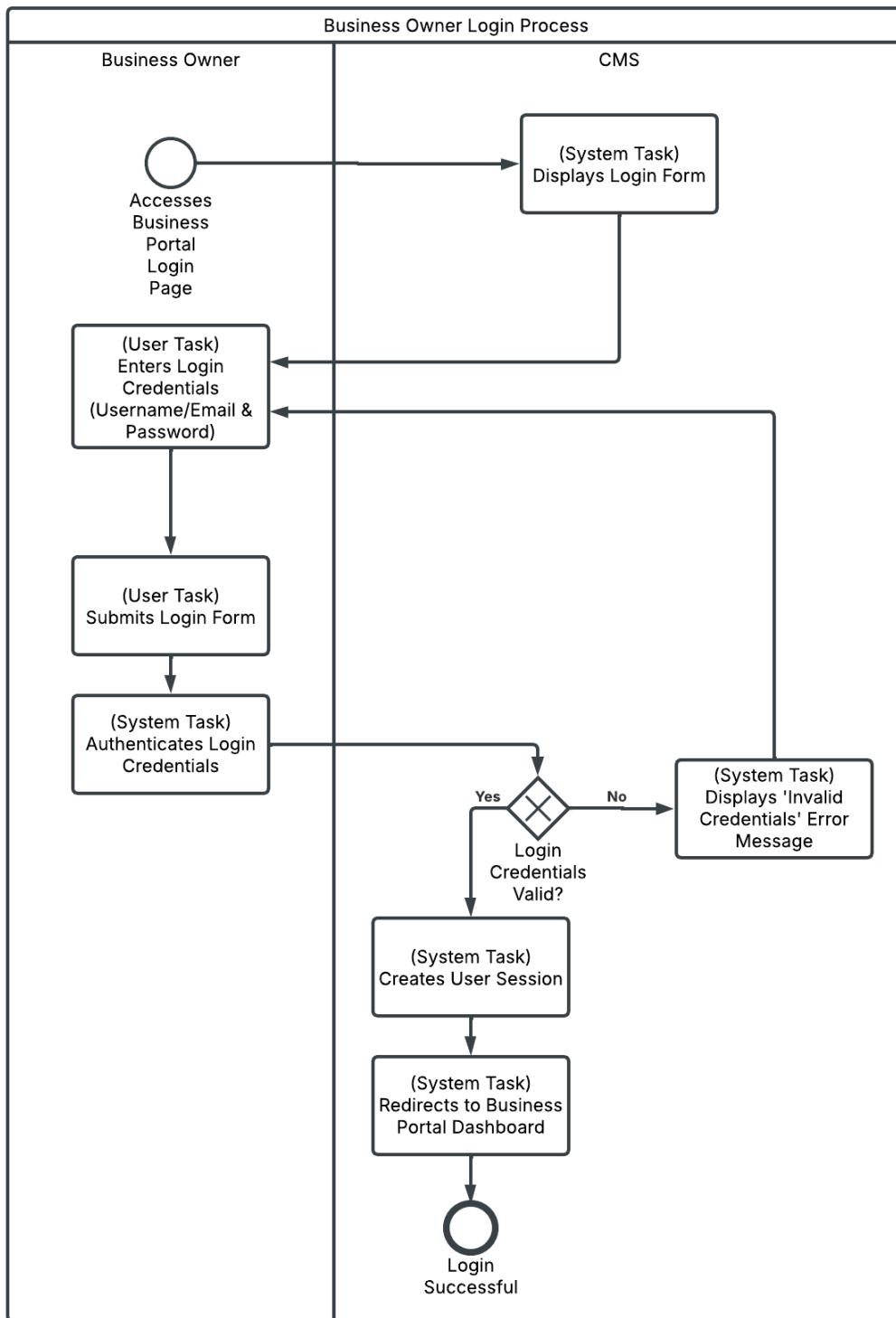
H. Generate Analytics Reports Process



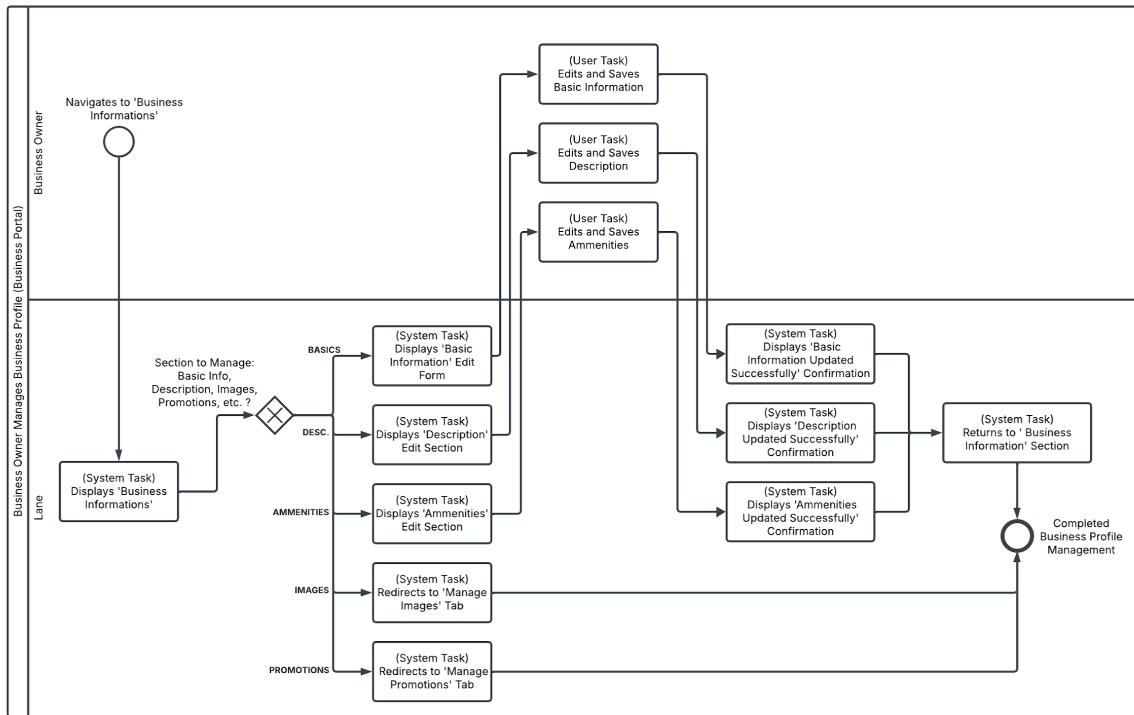
I. Tourism Admin Manage User Accounts



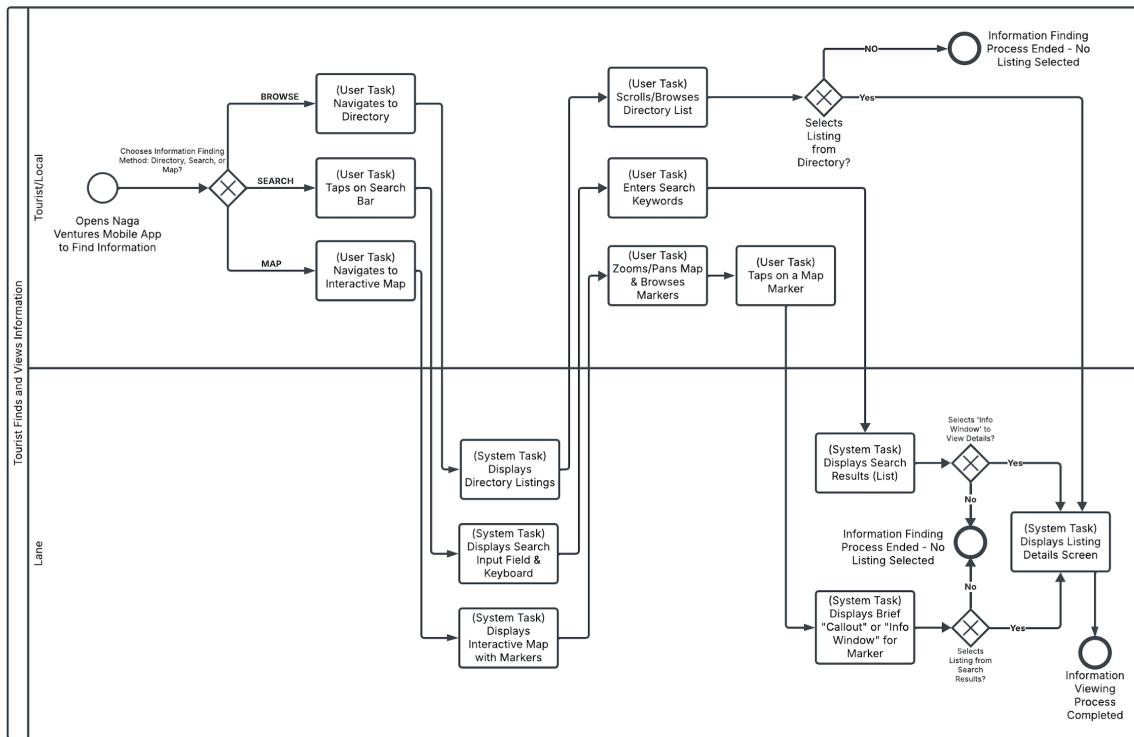
J. Business Owner Login Process



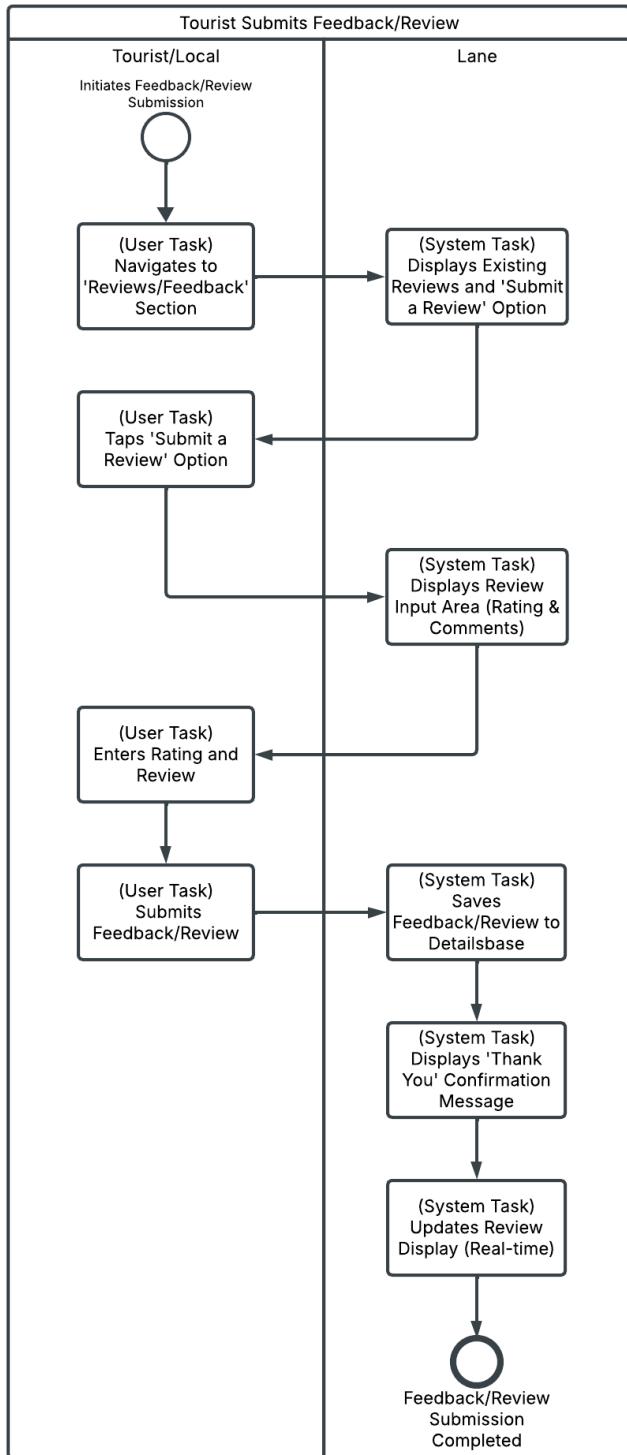
K. Business Owner Manages Business Profile (Business Portal)



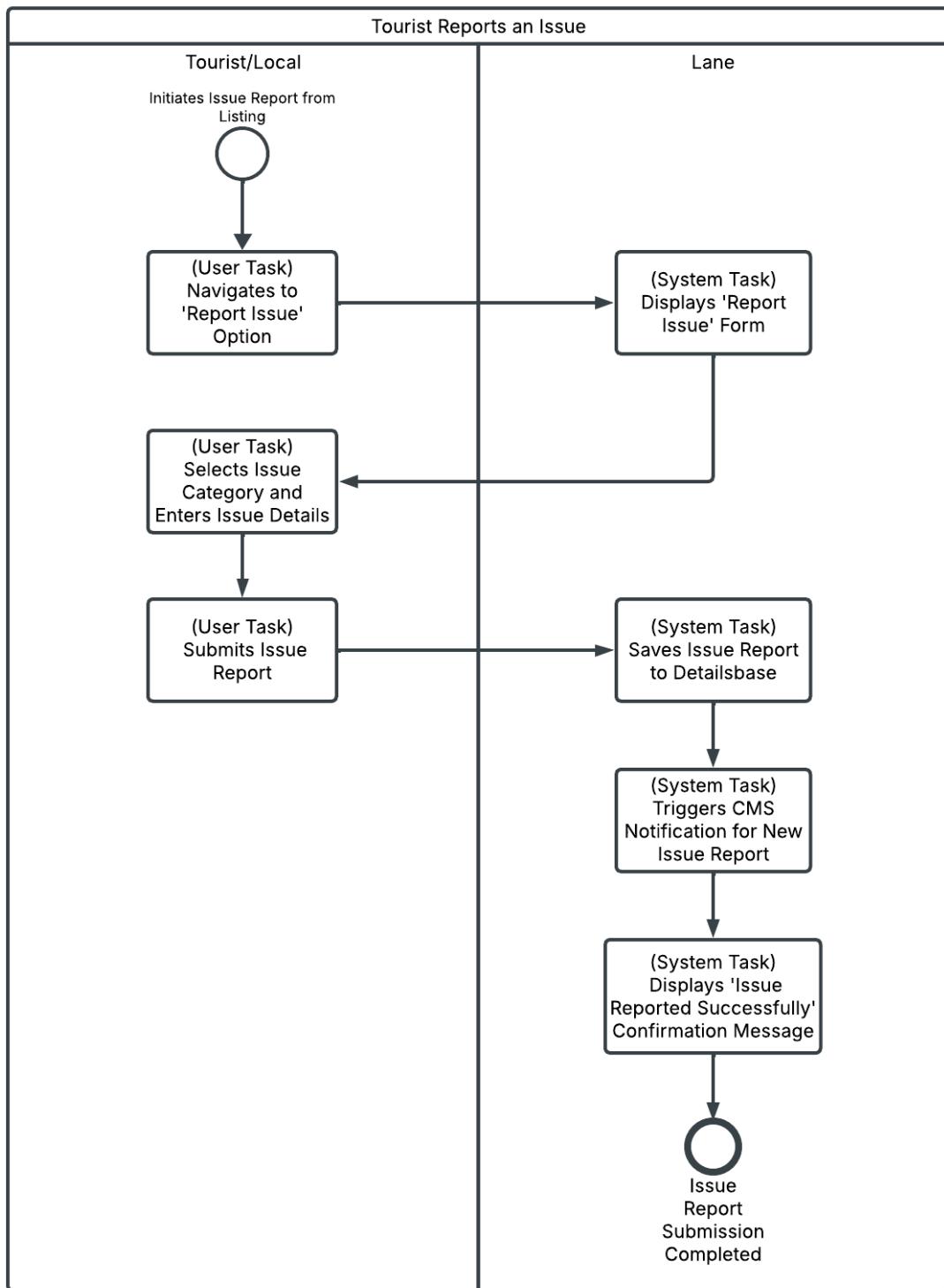
L. Tourist Finds and Views Information



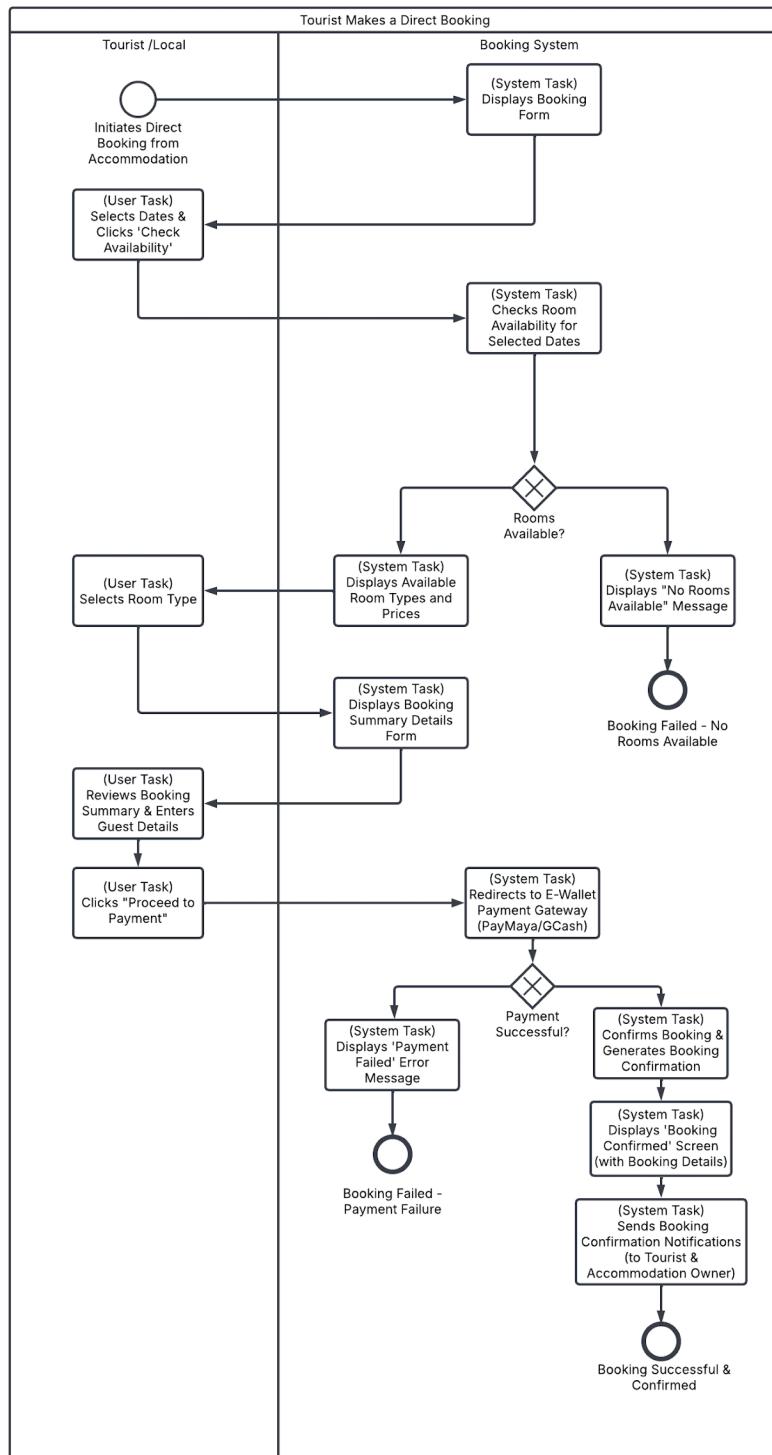
M. Tourist Submits Feedback/Review



N. Tourist Reports an Issue



O. Tourist Makes a Direct Booking



III. Use Cases

1. Use Case: Business Owner Registration

- a. Actor(s): Business Owner
- b. Pre-condition:
 - i. The business owner has access to the web or mobile application.
 - ii. The system is online and operational.
- c. Post-condition:
 - i. The business owner's registration request is submitted for review.
 - ii. If the details are valid, the account is approved, and the owner can manage their business profile.
- d. Main Success Scenario:
 - i. Navigates to the registration page.
 - ii. Fills in business details (name, category, address, contact information).
 - iii. Uploads the required business documents.
 - iv. Reviews the entered details and submits the application.
 - v. Receives a confirmation message that the application has been sent for review.
- e. Alternative Scenarios:
 - i. Some required fields are missing (Step 3)
 - 1. The system prompts the user to complete missing fields before submission.
 - ii. Application is rejected due to incorrect or incomplete details (Step 5)
 - 1. The system notifies the business owner of the rejection, including feedback on what needs to be corrected. The business owner can update the application and resubmit without repeating the entire process.

2. Use Case: Business Owner Claims a Business Profile

- a. Actor(s): Business Owner
- b. Pre-condition:
 - i. The business is already listed in the system as "Unclaimed."
 - ii. The business owner has an active account or is able to register.
 - iii. The system is online and operational.
- c. Main Success Scenario:
 - i. If the claim is approved, the business owner gains management access to the business profile.
 - ii. If the claim is rejected, the owner receives feedback and can resubmit proof of ownership.
- d. Main Success Scenario:
 - i. Logs into their account on the system.
 - ii. Searches for and selects their business from the unclaimed business listings.
 - iii. Click the "Claim Business" button.
 - iv. Uploads proof of ownership (e.g., business permits, legal documents).
 - v. Submits the request for verification.
 - vi. Receives a confirmation message that the claim request is under review.
- e. Alternative Scenarios:
 - i. Missing or invalid proof of ownership (Step 4)
 - 1. The system prompts the business owner to upload the correct documents before submission.
 - ii. Claim request is rejected due to insufficient or incorrect documents (Step 6)
 - 1. The system notifies the business owner of the rejection with feedback. The owner can update the application and resubmit without repeating the entire process.

3. Use Case: **Tourism Officer Reviews Business Registration & Claim Applications**

- a. Actor(s): Tourism Office Staff
- b. Pre-condition:
 - i. The system has received a business registration or claim request.
 - ii. The Tourism Office staff has the appropriate access to the CMS.
 - iii. The system is online and operational.
- c. Post-condition:
 - i. If the application is approved, the business owner receives confirmation and access to manage their business profile.
 - ii. If the application is rejected, the business owner receives a notification with feedback and can update and resubmit their application.
- d. Main Success Scenario:
 - i. Logs into the CMS and navigates to the pending applications section.
 - ii. Selects a submitted business registration or claim request.
 - iii. Reviews the provided business details and uploaded documents.
 - iv. Determines if the submission is valid and complete.
 - v. Approves the request if all details and documents are correct.
 - vi. System updates the status and grants the business owner CMS access.
 - vii. System notifies the business owner of the approval.
- e. Alternative Scenarios:
 - i. Submission contains missing or invalid details or documents (Step 3)
 - ii. The Tourism Office staff rejects the application and provides feedback.
 - iii. The system notifies the business owner, who can update and resubmit the application.

4. Use Case: Tourism Officer Add New Tourist Spot/Event

- a. Actor(s): Tourism Office Staff
- b. Pre-condition:
 - i. The Tourism Content CMS Manager has the appropriate access to the system.
 - ii. The system is online and operational.
- c. Post-condition:
 - i. The new tourist spot was successfully added to the system and made visible to users.
- d. Steps:
 - i. Logs into the CMS and navigates to the Tourist Spots/Event Management section.
 - ii. Click the option to Add New Tourist Spot/Event.
 - iii. Fills in required details.
 - iv. Uploads relevant images and other media.
 - v. Reviews the entered details and submits the new listing.
 - vi. The system saves the new tourist spot/Event and publishes it in the app.
 - vii. The system confirms the successful addition.

5. Use Case: Tourism Officer Update Existing Tourist Spot/Event

- a. Actor(s): Tourism Office Staff
- b. Pre-condition:
 - i. The tourist spot/Event already exists in the system.
 - ii. The Tourism Content CMS Manager has the appropriate access to edit listings.
 - iii. The system is online and operational.
- c. Post-condition:
 - i. The updated information is saved and reflected in the system.
- d. Main Success Scenario:
 - i. Logs into the CMS and navigates to Tourist Spots/Event Management.

- ii. Searches for and selects the tourist spot/Event to update.
- iii. Edits necessary details.
- iv. Reviews the changes and submits the update.
- v. The system updates the tourist spot/Event and reflects the changes in the app.
- vi. The system confirms the update was successful.

6. Use Case: **Content Approval Process for Business Listing Updates**

- a. Actor(s): Tourism Office Staff
- b. Pre-condition:
 - i. A business owner has submitted an update request for their business listing.
 - ii. The Business Listing CMS Manager has access to the CMS.
 - iii. The system is online and operational.
- c. Post-condition:
 - i. If approved, the updated business details are reflected in the system.
 - ii. If rejected, the business owner is notified and can revise and resubmit the update.
- d. Main Success Scenario:
 - i. Logs into the CMS and navigates to the Pending Business Listing Updates section.
 - ii. Selects a submitted update request for review.
 - iii. Reviews the updated business details and any attached supporting documents.
 - iv. Approves the update if all details are valid.
 - v. The system updates the business listing and reflects the changes in the app.
 - vi. The system notifies the business owner that their update was approved.
- e. Alternative Scenarios:

- i. Update contains invalid or incomplete information
(Step 3)
 1. The system notifies the CMS Manager, who rejects the request and provides feedback. The system notifies the business owner to revise and resubmit the update.

7. Use Case: **Adding a New User**

- a. Actor(s): Tourism Admin
- b. Pre-condition:
 - i. The Tourism Admin has the appropriate access to the CMS.
 - ii. The system is online and operational.
- c. Post-condition:
 - i. The new user account is created, and login credentials are sent.
- d. Main Success Scenario:
 - i. Logs into the CMS and navigates to the User Management section.
 - ii. Click the option to Add New User.
 - iii. Fills in the user details (name, email, role, etc.).
 - iv. Assigns the appropriate role and permissions.
 - v. Submits the new user registration.
 - vi. The system creates the new user account and sends login credentials.
 - vii. The system confirms the successful addition of the user.

8. Use Case: **Modifying an Existing User Account**

- a. Actor(s): Tourism Admin
- b. Pre-condition:
 - i. The user account already exists in the system.
 - ii. The Tourism Admin has the appropriate access to edit user details.
 - iii. The system is online and operational.

- c. Post-condition:
 - i. The user's details are updated in the system.
- d. Main Success Scenario:
 - i. Logs into the CMS and navigates to User Management.
 - ii. Searches for and selects the user account to modify.
 - iii. Edits necessary details (e.g., role, permissions, contact information).
 - iv. Submits the changes.
 - v. The system updates the user account accordingly.
 - vi. The system confirms the update was successful.

9. Use Case: **Disabling a User Account**

- a. Actor(s): Tourism Admin
 - i. The user account already exists in the system.
 - ii. The Tourism Admin has the appropriate access to disable accounts.
 - iii. The system is online and operational.
- b. Post-condition:
 - i. The user account is disabled and cannot log in.
- c. Main Success Scenario:
 - i. Logs into the CMS and navigates to User Management.
 - ii. Searches for and selects the user account to disable.
 - iii. Clicks the option to Disable User Account.
 - iv. Confirms the action.
 - v. The system disables the user account, restricting access.
 - vi. The system confirms the account has been disabled.

10. Use Case: **Business Owner Updates Business Listing**

- a. Actor(s): Business Owner
- b. Pre-condition:
 - i. The business owner has an active account with CMS access.
 - ii. The business is already listed in the system.
 - iii. The system is online and operational.

- c. Post-condition:
 - i. The updated business details are submitted for review.
 - ii. The business owner receives a notification once the update request is approved or rejected.
- d. Main Success Scenario:
 - i. Logs into the CMS and navigates to Business Listings Management.
 - ii. Selects their business profile to update.
 - iii. Edits necessary business details (e.g., contact info, description, images).
 - iv. Reviews changes and submits for approval.
 - v. The system saves the updates and marks them as Pending Review.
- e. Alternative Scenarios:
 - i. Update request is rejected (Step 5)
 - 1. The system notifies the business owner of the rejection and provides feedback. The business owner can modify and resubmit the request.

11. Use Case: **Tourism Office Adds New Business Listing**

- a. Actor(s): Tourism Office Staff
- b. Pre-condition:
 - i. The staff has the appropriate CMS access.
 - ii. The system is online and operational.
- c. Post-condition:
 - i. The new business listing is successfully added and published in the system.
- d. Main Success Scenario:
 - i. Logs into the CMS and navigates to the Business Listings Management section.
 - ii. Click the option to Add New Business Listing.
 - iii. Fills in the business details (name, category, address, contact information).
 - iv. Uploads relevant media (logo, images).

- v. Reviews the entered details and submits the listing.
- vi. The system saves the new business listing and marks it as "Unclaimed".
- vii. The system confirms that the listing has been successfully added and is now visible in the app.

12. Use Case: **Generate Analytics Reports**

- a. Actor(s): Tourism Office Staff
- b. Pre-condition:
 - i. The staff has the appropriate CMS access to generate reports.
 - ii. The system is online and operational.
- c. Post-condition:
 - i. The analytics report is successfully generated and available for viewing/export.
- d. Main Success Scenario:
 - i. Logs into the CMS and navigates to the Analytics & Reports section.
 - ii. Selects the desired report type (e.g., business activity, tourist engagement, user statistics).
 - iii. Applies filters (e.g., date range, location, category) if needed.
 - iv. Clicks Generate Report.
 - v. The system processes the request and displays the report.
 - vi. The staff can view, download, or export the report as needed.
- e. Alternative Scenarios:
 - i. No data available for the selected report type/date range (Step 2)
 - 1. The system notifies the staff that no data is available and suggests adjusting filters.

13. Use Case: **Tourist Submits an Issue Report**

- a. Actor(s): Tourist

- b. Pre-condition:
 - i. The tourist has an active account or access to the reporting feature.
 - ii. The business listing exists in the system.
 - iii. The system is online and operational.
- c. Post-condition:
 - i. The issue report is submitted and logged in the system for review.
 - ii. The tourist receives confirmation that their report has been sent.
- d. Main Success Scenario:
 - i. Opens the mobile app and navigates to the business listing in question.
 - ii. Click the "Report an Issue" button.
 - iii. Selects a report category (e.g., incorrect information, poor service, fraud).
 - iv. Provides additional details about the issue and, if needed, uploads supporting evidence (e.g., photos, screenshots).
 - v. Reviews the report and submits it.
 - vi. The system logs the report and sends a confirmation notification to the tourist.

14. Use Case: **Handle Issue Report (from Tourist App)**

- a. Actor(s): Tourism Office Staff
- b. Pre-condition:
 - i. A tourist has submitted an issue report regarding a business listing.
 - ii. The Business Listing CMS Manager has appropriate access to review reports.
 - iii. The system is online and operational.
- c. Post-condition:
 - i. The issue report is reviewed, and appropriate action is taken.

ii. If necessary, the business owner is notified to resolve the issue.

d. Main Success Scenario:

i. Logs into the CMS and navigates to the Issue Reports section.

ii. Views a list of submitted reports and selects an issue to review.

iii. Examines the reported issue details, including the tourist's feedback and any attached evidence (e.g., photos).

iv. Determines the appropriate action:

1. If valid, updates the business listing status (e.g., "Under Review") and notifies the business owner.

2. If invalid, dismisses the report and marks it as resolved.

v. Updates the report status accordingly.

vi. If necessary, follow up with the business owner for resolution.

vii. The system logs the action taken and notifies the reporter (tourist) about the outcome.

e.) : Tourism Office Staff

f. Pre-condition:

i. The CMS staff has an active, authorized account.

ii. The system is online and operational.

g. Post-condition:

i. If login is successful, the user gains access to the Tourism CMS Dashboard.

ii. If login fails, an error message is displayed with retry options.

h. Main Success Scenario:

i. Opens the Tourism CMS Login Page.

ii. Enters email/username and password.

iii. Clicks Login.

iv. The system verifies credentials.

- v. If valid, the system grants access to the Tourism CMS Dashboard.
- i. Alternative Scenarios:
 - i. Incorrect credentials (Step 4)
 - 1. The system displays an error message and allows retries.
 - ii. Multiple failed attempts (Step 4)
 - 1. The system temporarily locks the account and prompts a password reset.
 - iii. Tourism Office Staff forgot their password (Step 4)
 - 1. The system provides a "Forgot Password" option.

15. Use Case: **Tourist Submits Feedback/Review**

- a. Actor(s): Tourist
- b. Pre-condition:
 - i. The tourist has an active account or access to the review feature.
 - ii. The business listing or tourist spot exists in the system.
 - iii. The system is online and operational.
- c. Post-condition:
 - i. The feedback/review is submitted and logged in the system.
 - ii. The tourist receives confirmation that their review has been posted.
- d. Main Success Scenario:
 - i. Opens the mobile app and navigates to the business listing or tourist spot.
 - ii. Click the "Leave a Review" or "Rate this Place" button.
 - iii. Selects a rating (e.g., 1-5 stars) and writes a review (optional but encouraged).
 - iv. If needed, upload photos related to their experience.
 - v. Reviews their feedback and submits it.

vi. The system saves the review and displays it on the listing.

vii. The system confirms successful submission with a notification.

e. Alternative Scenarios:

i. The review violates community guidelines (e.g., offensive language, spam) (Step 6)

1. The system flags the review and prevents submission.

16. Use Case: **Tourist Views Business/Tourist Spot/Event Details**

a. Actor(s): Tourist

b. Pre-condition:

i. The business, tourist spot, or event exists in the system.

ii. The system is online and operational.

c. Post-condition:

i. The tourist successfully views the details of the selected business, tourist spot, or event.

d. Main Success Scenario:

i. Opens the mobile app or website.

ii. Navigates to the search bar or selects a category (e.g., Restaurants, Hotels, Attractions, Events).

iii. Searches for or selects a specific business, tourist spot, or event from the listings.

iv. The system retrieves and displays the detailed information

v. The tourist browses through the details and may interact with available options

e. Alternative Scenarios:

i. The searched business, tourist spot, or event does not exist or is not found (Step 3)

1. The system displays a "No results found" message and suggests similar listings.

17. Use Case: **Business Owner Logs into the Business Management CMS**

- a. Actor(s): Business Owner
- b. Pre-condition:
 - i. The business owner has an existing registered account.
 - ii. The system is online and operational.
- c. Post-condition:
 - i. If login is successful, the business owner gains access to the Business Management Dashboard.
 - ii. If login fails, an error message is displayed with retry options.
- d. Main Success Scenario:
 - i. Opens the Business CMS Login Page.
 - ii. Enters email/username and password.
 - iii. Clicks Login.
 - iv. The system verifies credentials.
 - v. If valid, the system grants access to the Business Management Dashboard.
- e. Alternative Scenarios:
 - i. Incorrect credentials (Step 4)
 - 1. The system displays an error message and allows retries.
 - ii. Multiple failed attempts (Step 4)
 - 1. The system temporarily locks the account and prompts a password reset.
 - iii. Business owner forgot their password (Step 4)
 - 1. The system provides a "Forgot Password" option.

18. Use Case: **Tourism CMS Staff Logs into the CMS**

- a. Actor(s): Tourism Office Staff
- b. Pre-condition:
 - i. The CMS staff has an active, authorized account.
 - ii. The system is online and operational.
- c. Post-condition:

- i. If login is successful, the user gains access to the Tourism CMS Dashboard.
 - ii. If login fails, an error message is displayed with retry options.
- d. Main Success Scenario:
- i. Opens the Tourism CMS Login Page.
 - ii. Enters email/username and password.
 - iii. Clicks Login.
 - iv. The system verifies credentials.
 - v. If valid, the system grants access to the Tourism CMS Dashboard.
- e. Alternative Scenarios:
- i. Incorrect credentials (Step 4)
 - 1. The system displays an error message and allows retries.
 - ii. Multiple failed attempts (Step 4)
 - 1. The system temporarily locks the account and prompts a password reset.
 - iii. Tourism Office Staff forgot their password (Step 4)
 - 1. The system provides a "Forgot Password" option.

19. Use Case: **Tourist Logs into the Tourism App**

- a. Actor(s): Tourist
- b. Pre-condition:
- i. The user has an existing registered account.
 - ii. The system is online and operational.
- c. Post-condition:
- i. If login is successful, the tourist gains access to the Tourism App Home Page.
 - ii. If login fails, an error message is displayed with retry options.
- d. Main Success Scenario:
- i. Opens the Tourism App Login Page.
 - ii. Enters email/username and password.
 - iii. Clicks Login.

- iv. The system verifies credentials.
 - v. If valid, the system grants access to the Tourism App's home page.
- e. Alternative Scenarios:
- i. Incorrect credentials (Step 4)
 - 1. The system displays an error message and allows retries.
 - ii. Multiple failed attempts (Step 4)
 - 1. The system temporarily locks the account and prompts a password reset.
 - iii. Tourist forgot their password (Step 4)
 - 1. The system provides a "Forgot Password" option.

20. Use Case: **Business Owner Manages Business Profile**

- a. Actor(s): Business Owner
- b. Pre-condition:
 - i. The business owner has an approved account with CMS access.
 - ii. The business is registered in the system.
 - iii. The system is online and operational.
- c. Post-condition:
 - i. The requested updates to the business profile are submitted for review.
 - ii. If approved, the updated information is reflected in the system.
 - iii. Main Success Scenario:
 - iv. Logs into the CMS using their business owner account.
 - v. Navigates to the Business Management section.
 - vi. Selects their business profile.
 - vii. Clicks Edit Profile to update business details
 - viii. Reviews changes and submits the update request.
 - ix. The system stores the request and notifies the Tourism Office for review.
 - x. The business owner receives a confirmation that the update request has been submitted.

xi. Once reviewed, the system notifies the owner whether the update was approved or rejected.

d. Alternative Scenarios:

- i. The update is rejected by the Tourism Office due to violation on community guidelines (Step 8)
 1. The system notifies the business owner with feedback, allowing them to edit and resubmit the request.

21. Use Case: **Business Owner Creates a Promotion**

a. Actor(s): Business Owner

b. Pre-condition:

- i. The business owner has an active account and is logged into the Business Management CMS.
- ii. The system is online and operational.

c. Post-condition:

- i. If the promotion is approved, it is published in the app's Promotions Section and Event Calendar (if applicable).
- ii. If the promotion is rejected, the business owner is notified with feedback and can revise and resubmit the promotion.

d. Main Success Scenario:

- i. Navigates to the Promotions Section in the Business CMS.
- ii. Clicks Create New Promotion.
- iii. Fills in promotion details (title, description, discount/offer details, terms & conditions).
- iv. Selects promotion duration (start and end dates).
- v. Uploads promotional images/media (optional).
- vi. Reviews the details and submits the promotion for approval.
- vii. The system confirms that the submission is under review.

e. Alternative Scenarios:

- i. Promotion is rejected by the Tourism Office (Step 7)
 1. The system notifies the business owner with feedback, allowing them to revise and resubmit.
22. Use Case: **Tourist Books an Accommodation**
 - a. Actor(s): Tourist
 - b. Pre-condition:
 - i. The tourist has access to the mobile application.
 - ii. The tourist is either a registered user or has provided the necessary details for guest booking.
 - iii. The accommodation and room are available for booking.
 - iv. The system is online and operational.
 - c. Post-condition:
 - i. If successful, the tourist secures the booking and receives a booking confirmation receipt.
 - ii. If unsuccessful, the process ends without confirming the booking.
 - d. Main Success Scenario:
 - i. Opens the mobile app and navigates to the Accommodation Directory.
 - ii. Searches for an accommodation by name or location.
 - iii. The system displays a list of matching accommodations based on the search criteria.
 - iv. Selects an accommodation from the list.
 - v. The system displays room rates and availability for the selected accommodation.
 - vi. Chooses a room and selects the booking option.
 - vii. Fills in the necessary booking details (e.g., check-in/check-out dates, guest details).
 - viii. The system prompts the tourist to complete the payment to confirm the booking.
 - ix. Completes the payment process.
 - x. The system generates a booking confirmation receipt, which is displayed on the Booking Confirmation Screen.

xi. The use case ends when the tourist secures the booking and receives confirmation.

e. Alternative Scenarios:

i. No accommodations match the search criteria (Step 3):

1. The system notifies the tourist that no results match their search.

ii. The selected accommodation uses an external booking platform (Step 6):

1. The system redirects the tourist to the accommodation's external booking page.

2. The tourist completes the booking through the external platform.

23. Use Case: **Business Owner Views Booking Requests**

a. Actor(s): Business Owner

b. Pre-condition:

i. The business offers accommodations and has received at least one booking request.

ii. The business owner has CMS access to view bookings.

iii. The system is online and operational.

c. Post-condition:

i. The business owner successfully views the list of pending and confirmed bookings.

d. Main Success Scenario:

i. The business owner logs into the CMS.

ii. Navigates to the Bookings Management section.

iii. The system displays a list of pending, confirmed, and past bookings.

iv. The business owner selects a booking to view details.

v. The system displays guest information, booking dates, and payment status.

e. Alternative Scenarios:

i. No Active Bookings(Step 3)

1. The system displays a message stating that there are no bookings at the moment.

24. Use Case: Tourist Saves Favorite Businesses & Spots

a. Actor(s): Tourist

b. Pre-condition:

- i. The tourist is logged into their account on the app.
- ii. The system is online and operational.

c. Post-condition:

- i. The selected business, tourist spot, or event is saved under the tourist's "Favorites" section.

d. Main Success Scenario:

- i. The tourist browses businesses, tourist spots, or events in the app.
- ii. Selects a location they want to save.
- iii. Clicks the "Save to Favorites" button.
- iv. The system adds the location to the Favorites list.
- v. The tourist can access saved locations from their profile.

e. Alternative Scenarios:

- i. Item Already Favorited (Step 3)

1. The system notifies the user that the item is already in their Favorites.

25. Use Case: Business Owner Responds to Reviews

a. Actor(s): Business Owner

b. Pre-condition:

- i. The business listing has received at least one review from a tourist.
- ii. The business owner has CMS access to manage their business profile.
- iii. The system is online and operational.

c. Post-condition:

- i. The business owner's response is successfully posted and visible under the review.

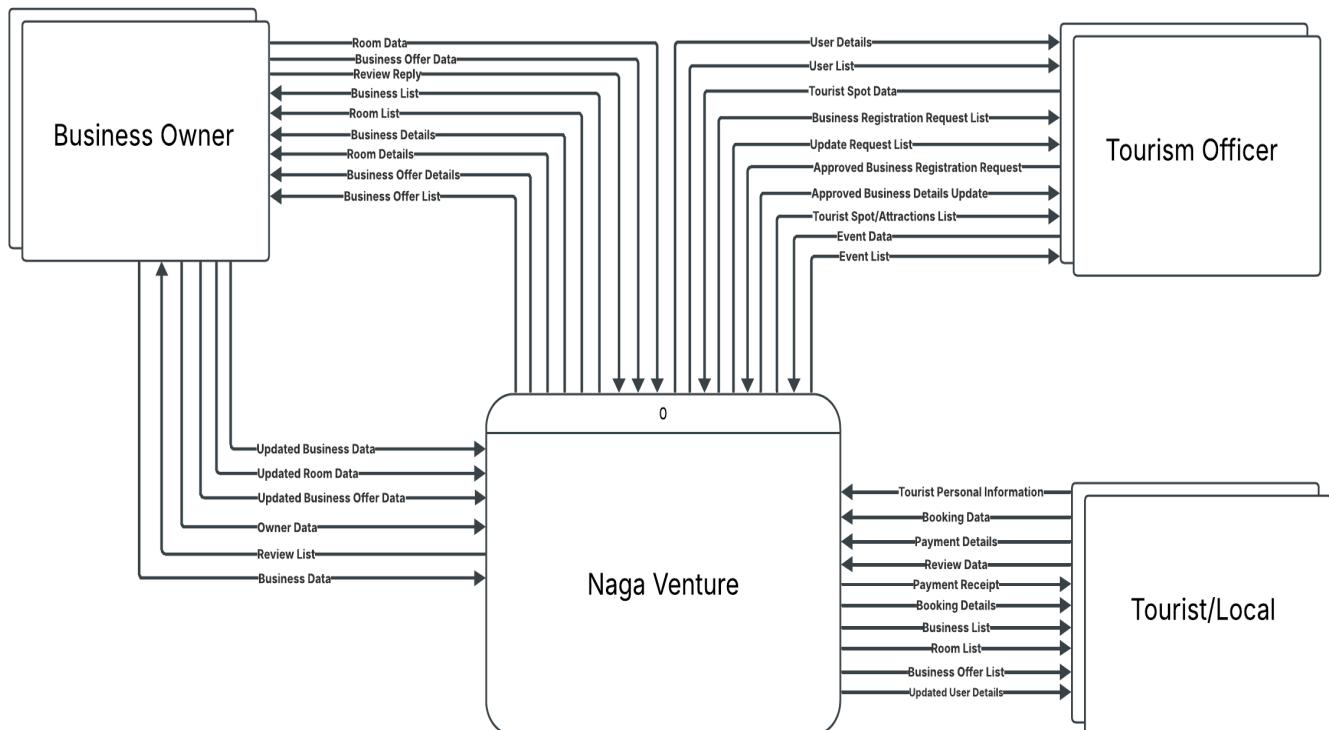
d. Main Success Scenario:

- i. The business owner logs into the CMS.

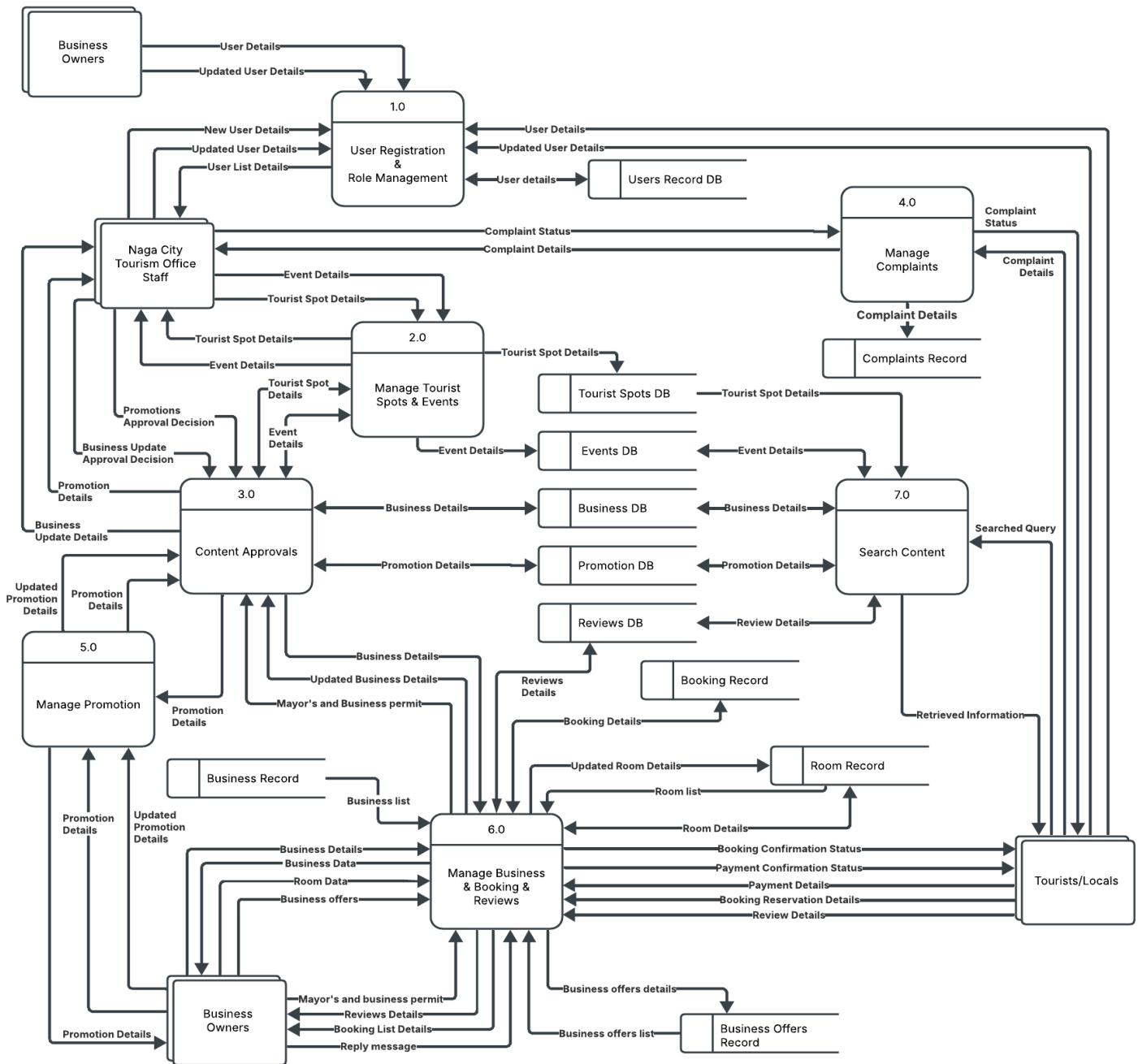
- ii. Navigates to the Reviews Management section.
- iii. Selects a review to respond to.
- iv. Types a response in the provided text field.
- v. Submits the response.
- vi. The system saves and displays the response under the review.
- vii. The system notifies the reviewer that the business has replied.

IV. Data Flow Model (Notation Used)

A. Context Diagram

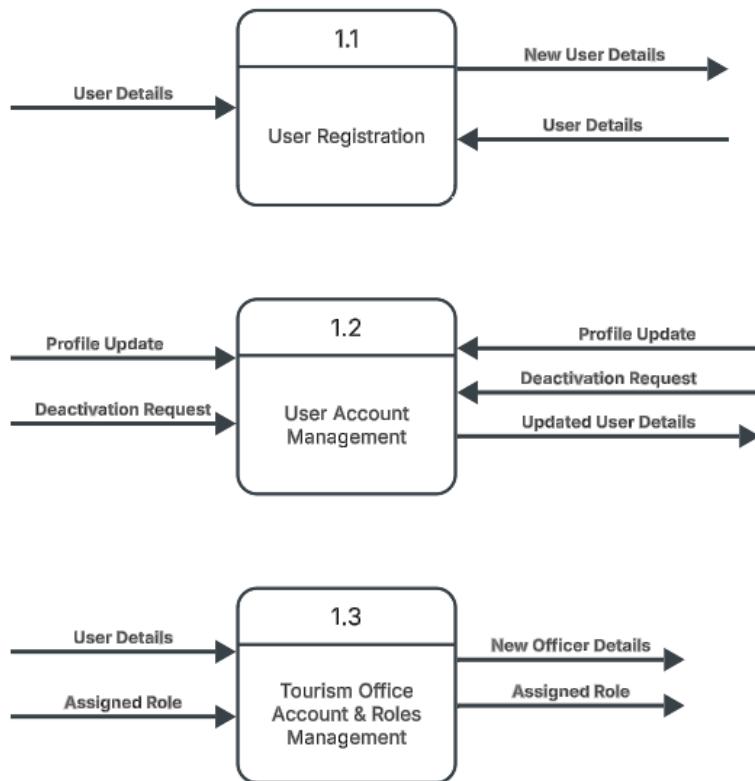


B. Level-0 Diagram

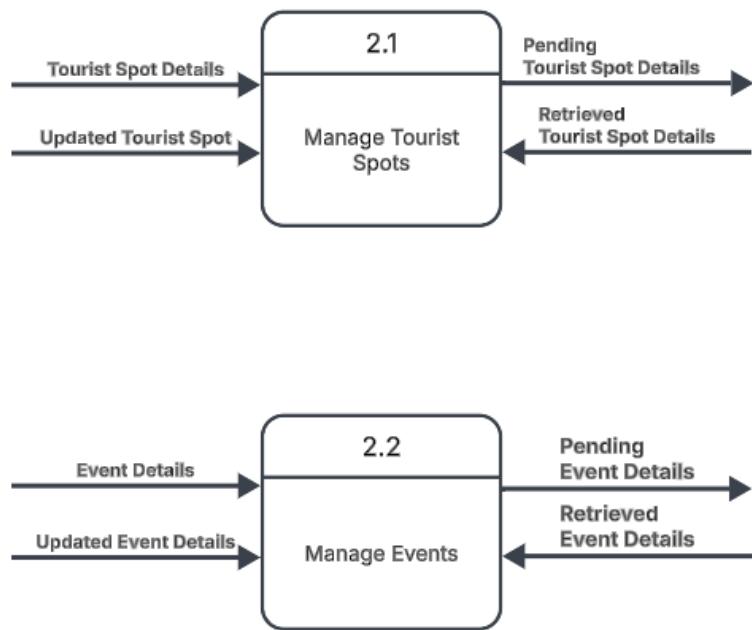


C. Child Diagrams

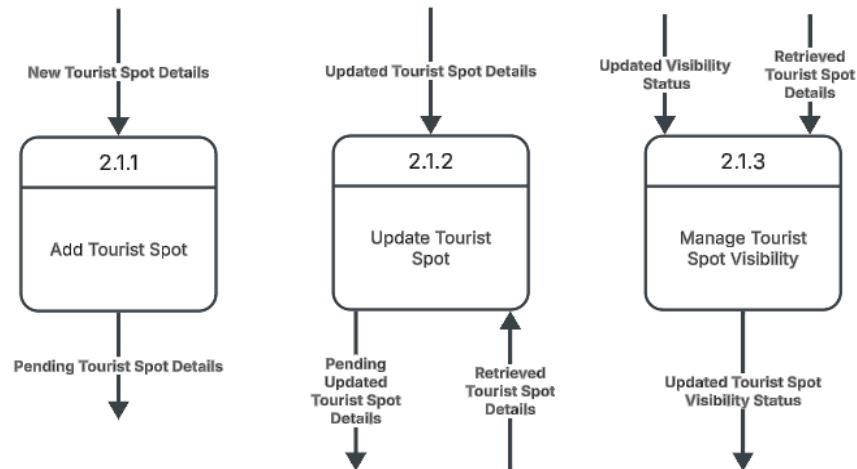
Process 1.0: User Registration & Role Management



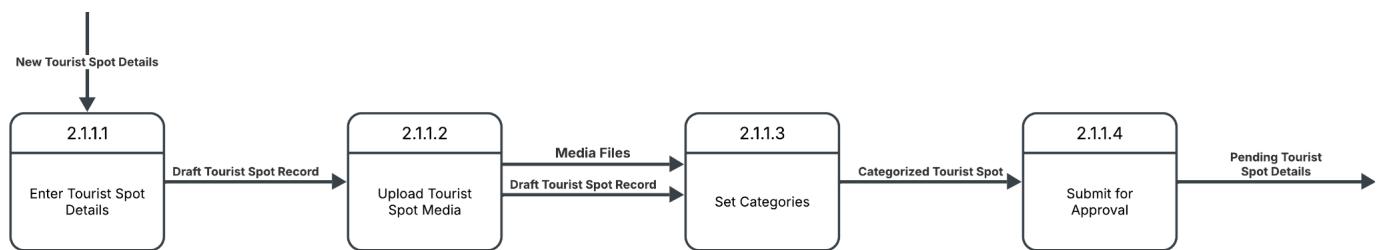
Process 2.0: Manage Tourist Spots and Events



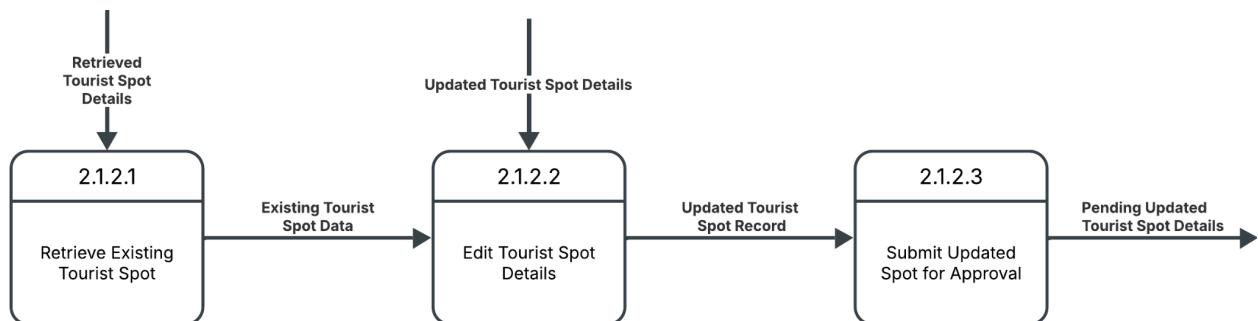
Process 2.1: Manage Tourist Spots



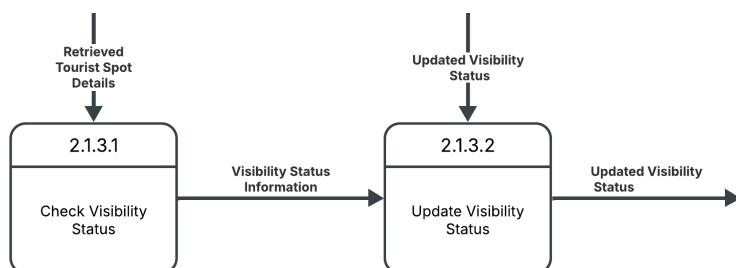
Process 2.1.1: Add Tourist Spot



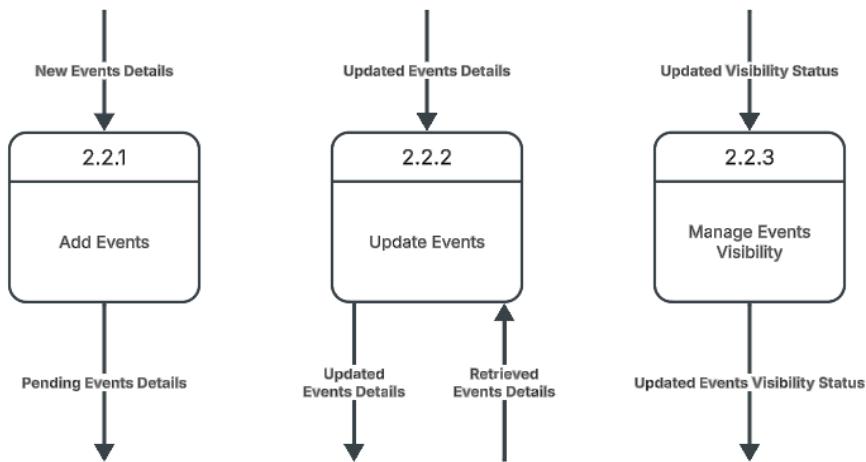
Process 2.1.2: Add Tourist Spot



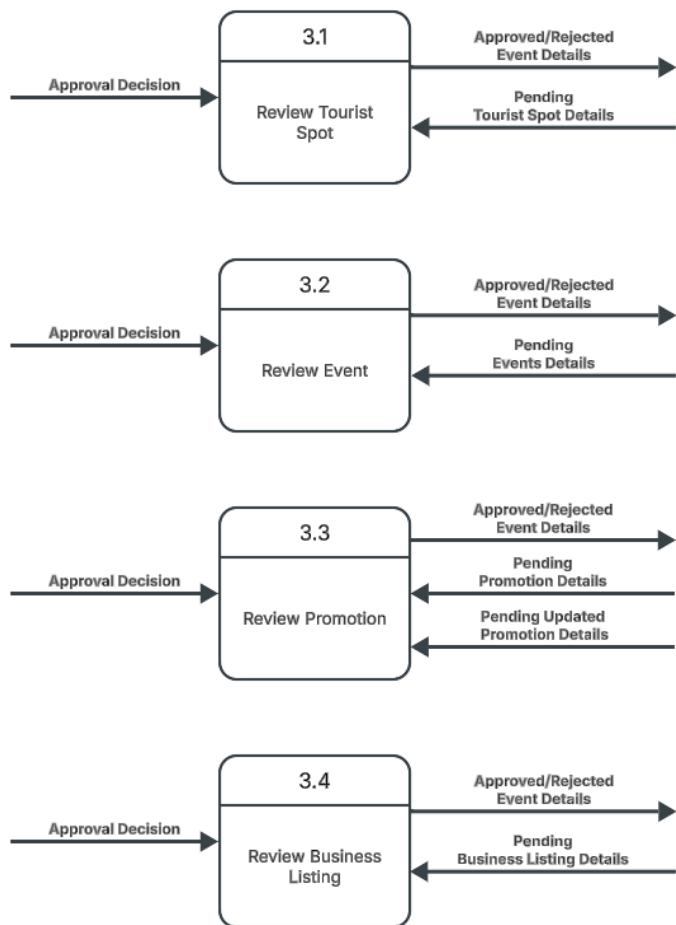
Process 2.1.3: Add Tourist Spot



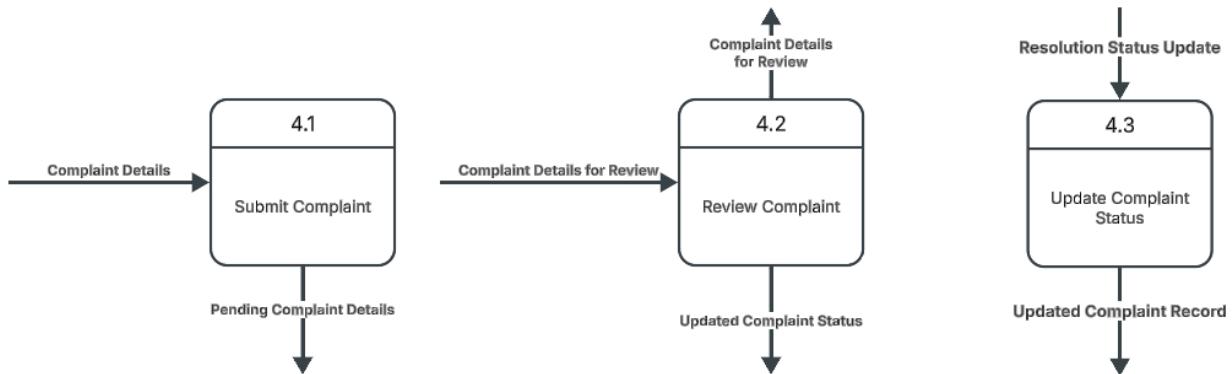
Process 2.2: Manage Events



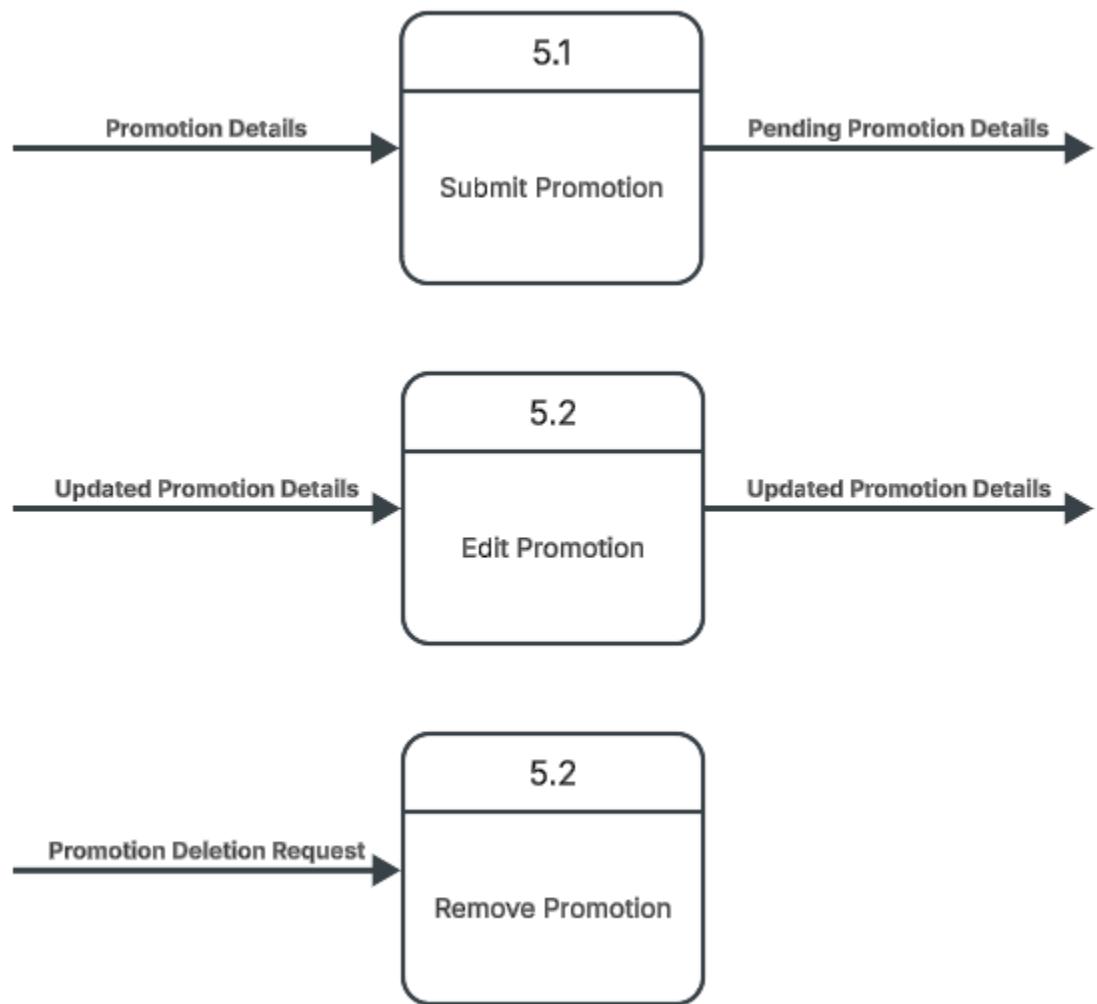
Process 3: Content Approvals



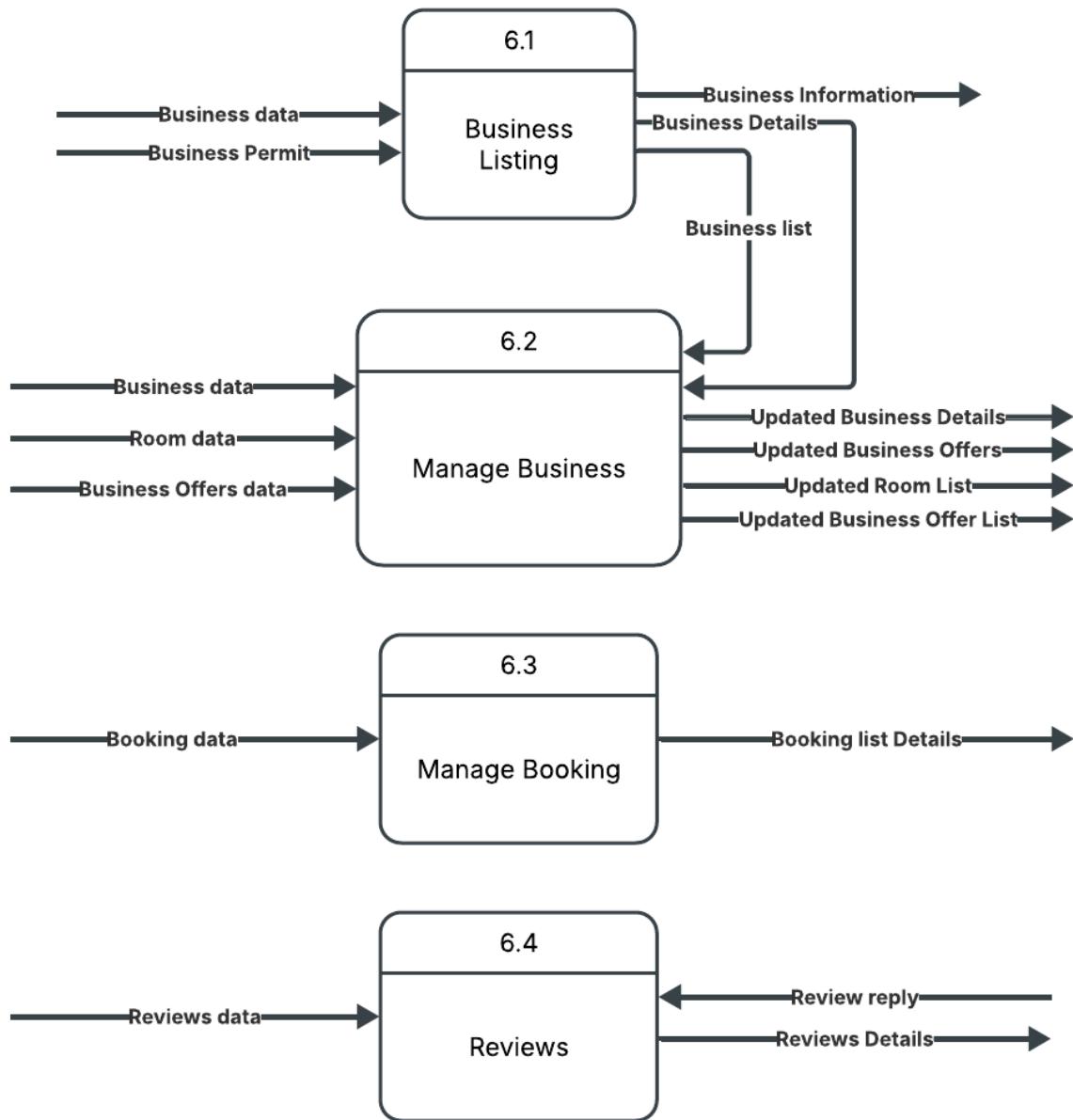
Process 4.0: Manage Complaints



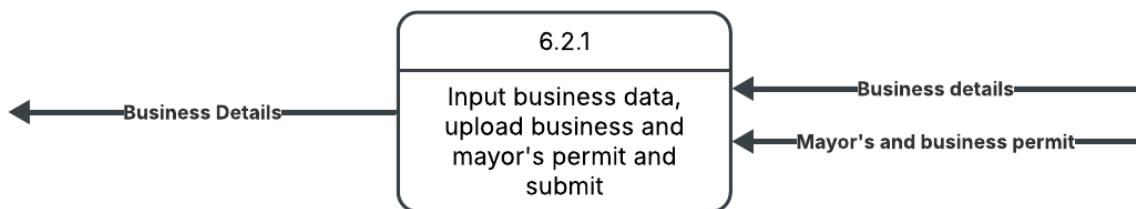
Process 5.0: Manage Promotion



Process 6.0: Manage Business, Booking & Reviews



Process 6.2.1: Manage Business



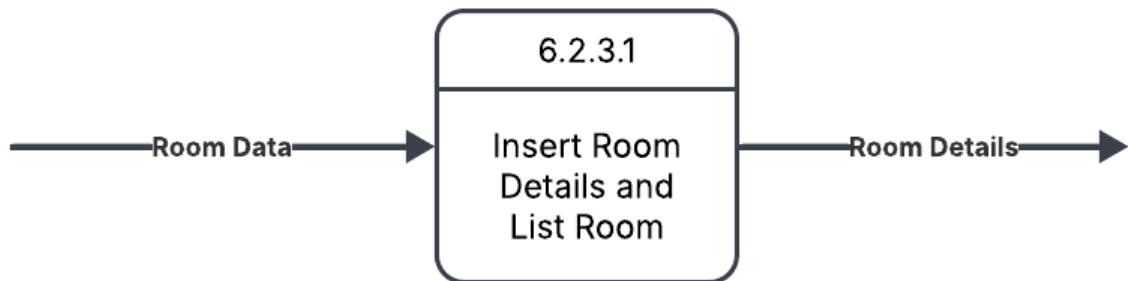
Process 6.2.2: Update Business Profile



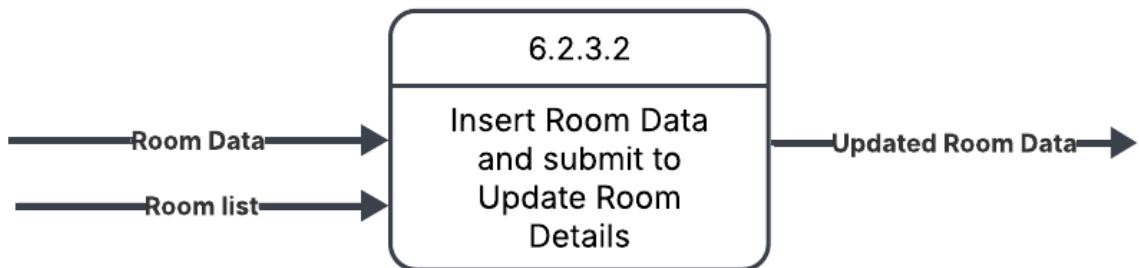
Process 6.2.3: Manage Room



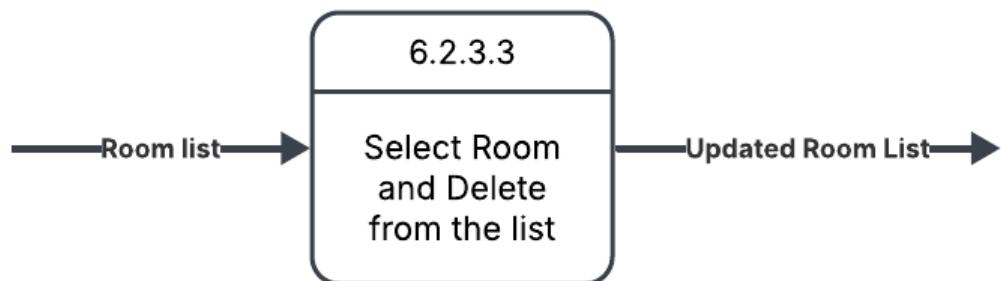
Process 6.2.3.1: Add Room



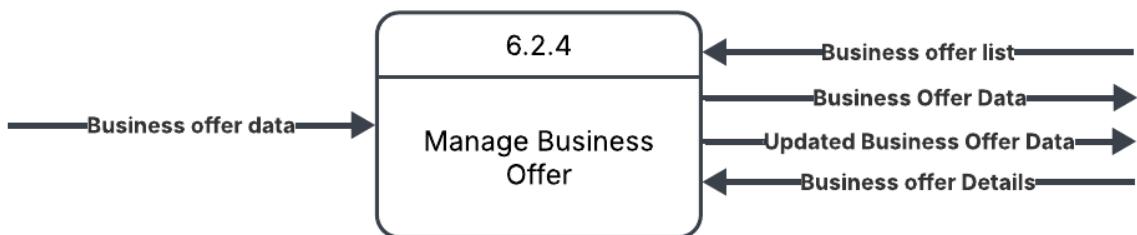
Process 6.2.3.2: Update Room



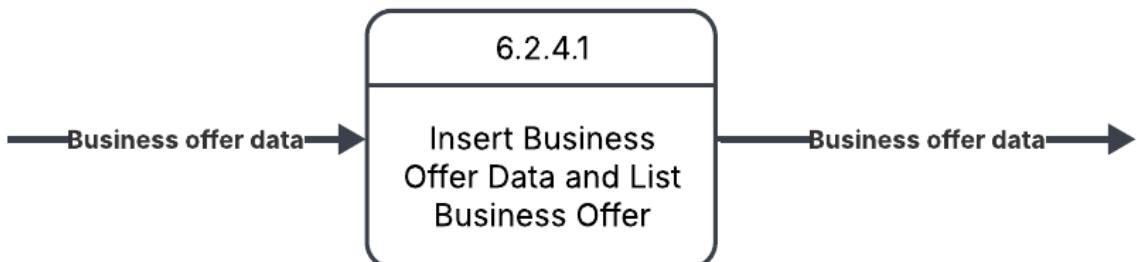
Process 6.2.3.3: Delete Room



Process 6.2.4: Manage Business Offer



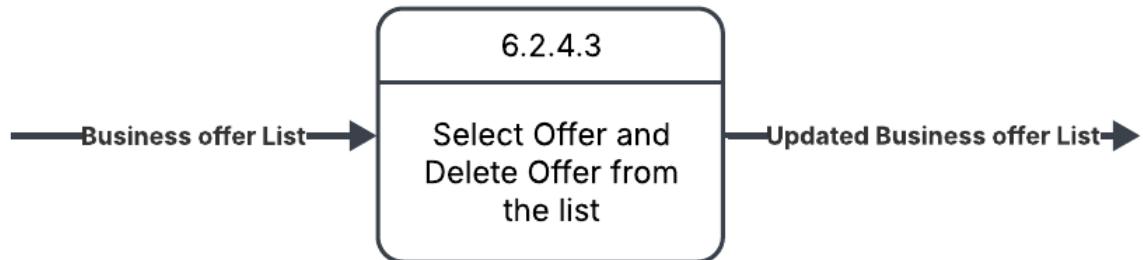
Process 6.2.4.1: Add Business Offer



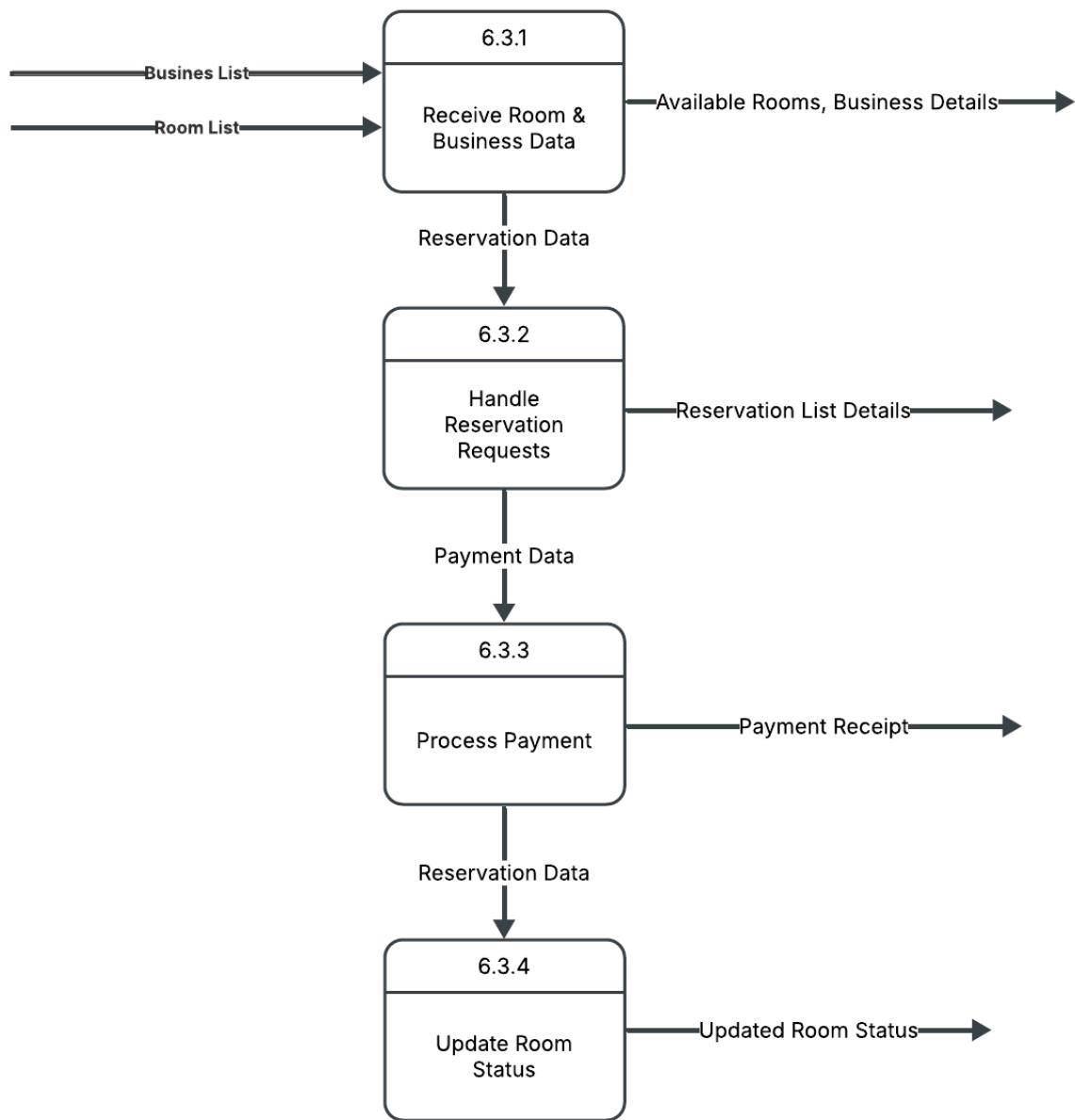
Process 6.2.4.2: Update Business Offer



Process 6.2.4.3: Delete Business Offer



Process 6.1.3: Manage Booking



Process 6.1.4: Reviews

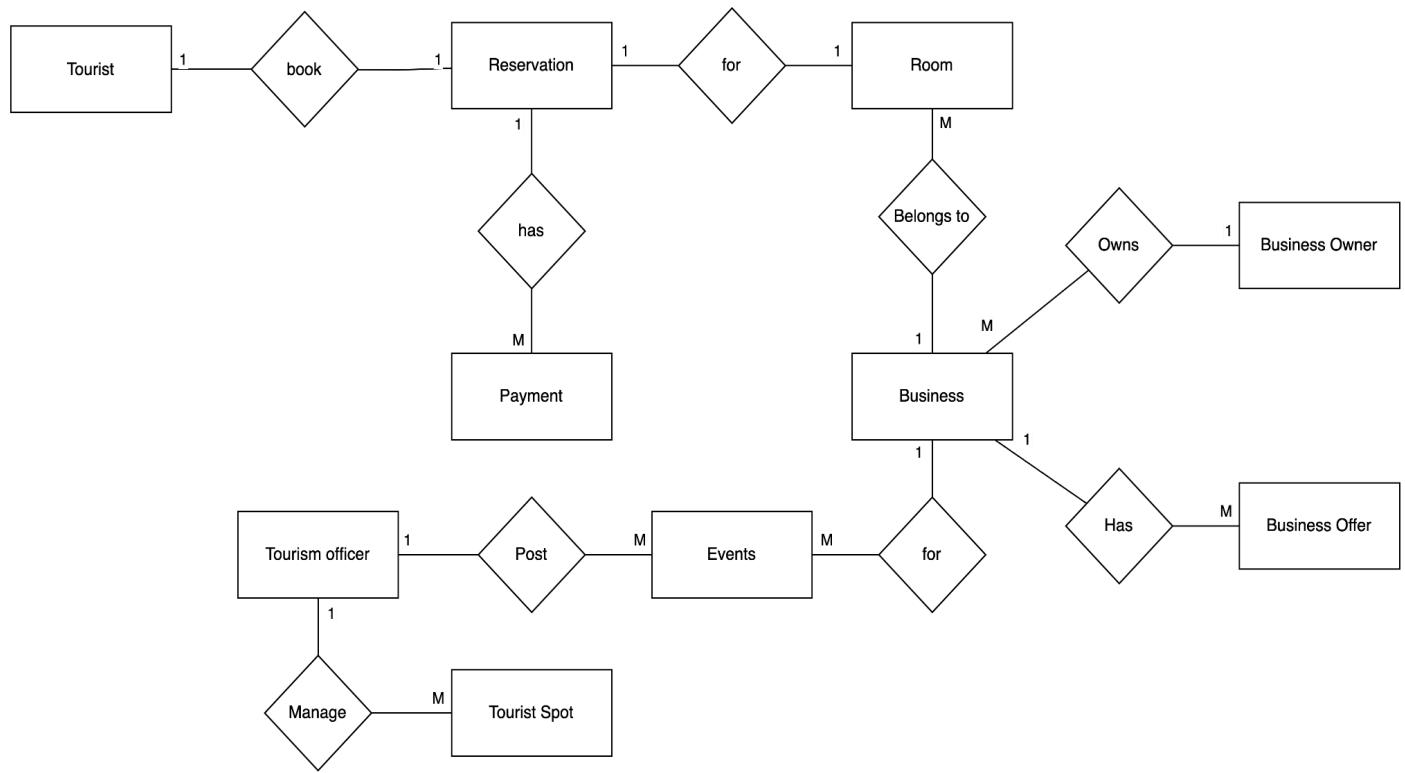
V. Data Model

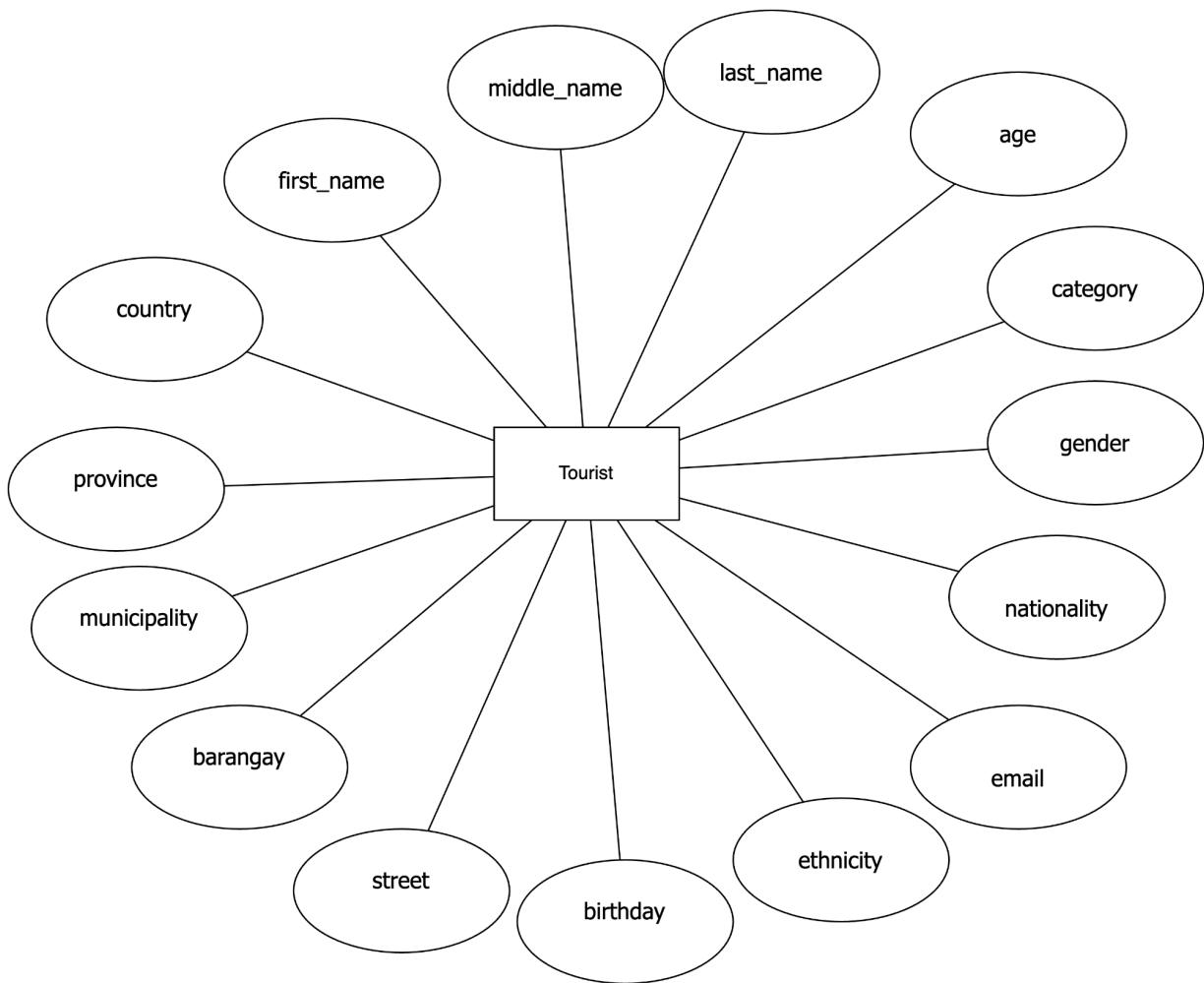
A. Data Dictionary

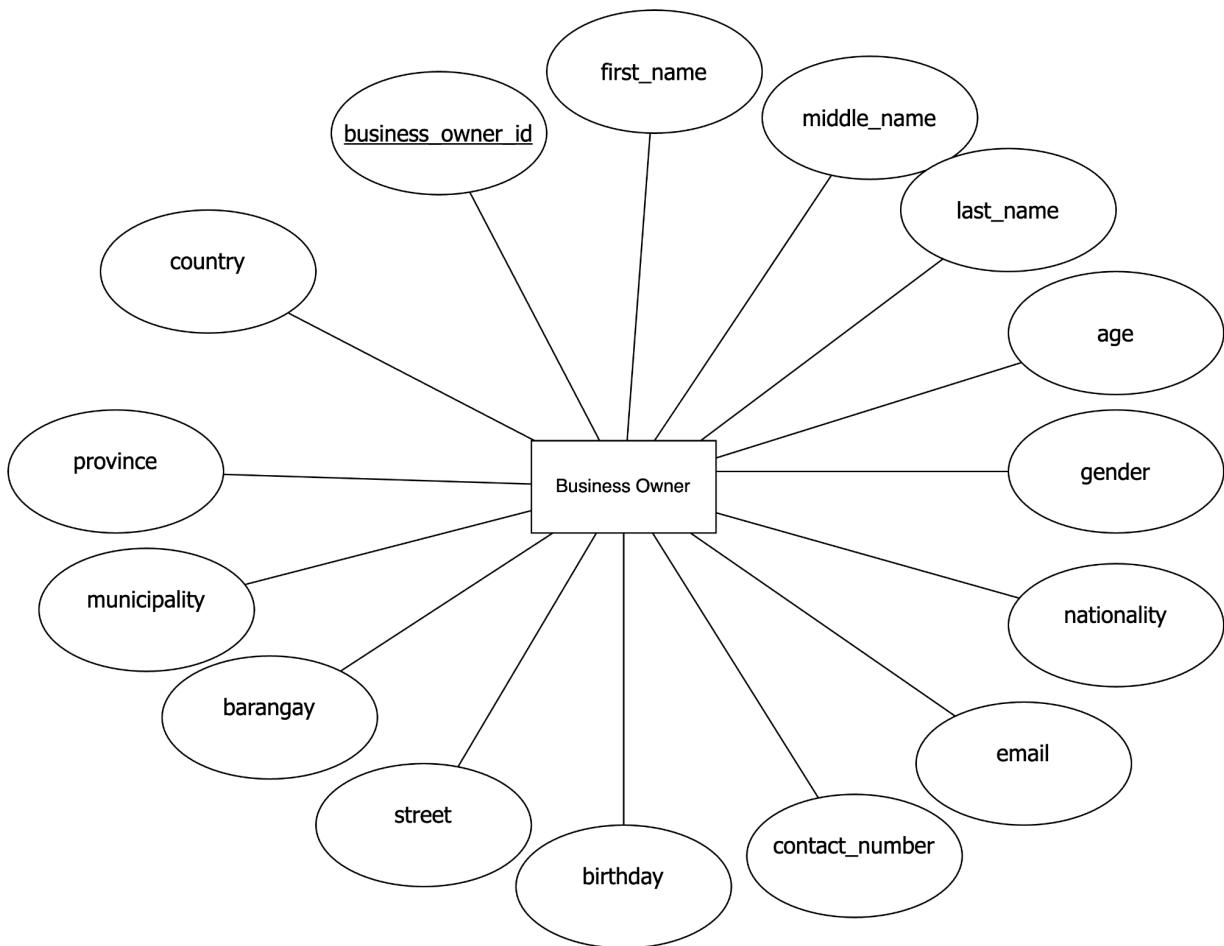
1. Business Owner = Full Name + Gender + Age + Birthday + Nationality + Contact Information + Address
 - 1.1. Full Name = Last Name + First Name + [Middle Name]
 - 1.2. Gender = ("Male", "Female", "Others")
 - 1.3. Age = (18-99)
 - 1.4. Contact Information = Email + Contact Number
 - 1.5. Address = Country + Province + Municipality + Barangay
2. Tourist = Full Name + Contact Information + Nationality + Ethnicity + Category + Gender
 - 2.1. Full Name = Last Name + First Name + [Middle Name]
 - 2.2. Ethnicity = ("Bicolano", "Non-Bicolano", "Foreigner")
 - 2.3. Category = ("Children", "Adult", "Senior Citizen")
 - 2.4. Nationality = ("Filipino", "Chinese", "Others")
 - 2.5. Gender = ("Male", "Female", "Others")
 - 2.6. Age = (18-99)
 - 2.7. Contact Information = Email + Contact Number
3. Tourism Officer = Full Name + Position + Contact Information + Address
 - 3.1. Full Name = Last Name + First Name + [Middle Name]
 - 3.2. Contact Information = Email + Contact Number
 - 3.3. Address = Country + Province + Municipality + Barangay + [Street]
4. Reservation = Guest Name + Number of Guest + Date of Stay + Status + Origin Type
 - 4.1. Guest Name = Last Name + First Name + [Middle Name]
 - 4.2. Date of Stay = Check-in Date + Check-out Date
 - 4.3. Status = ("Pending", "Cancelled", "Checked-out", "Checked-in", "Confirmed")
 - 4.4. Origin Type = ("Foreign", "Oversees", "Domestic")
5. Business = Business Name + Category + Business Type + Amenities + Description + Permits + Contact Information + Address
 - 5.1. Category = ("Accommodation", "Shop")

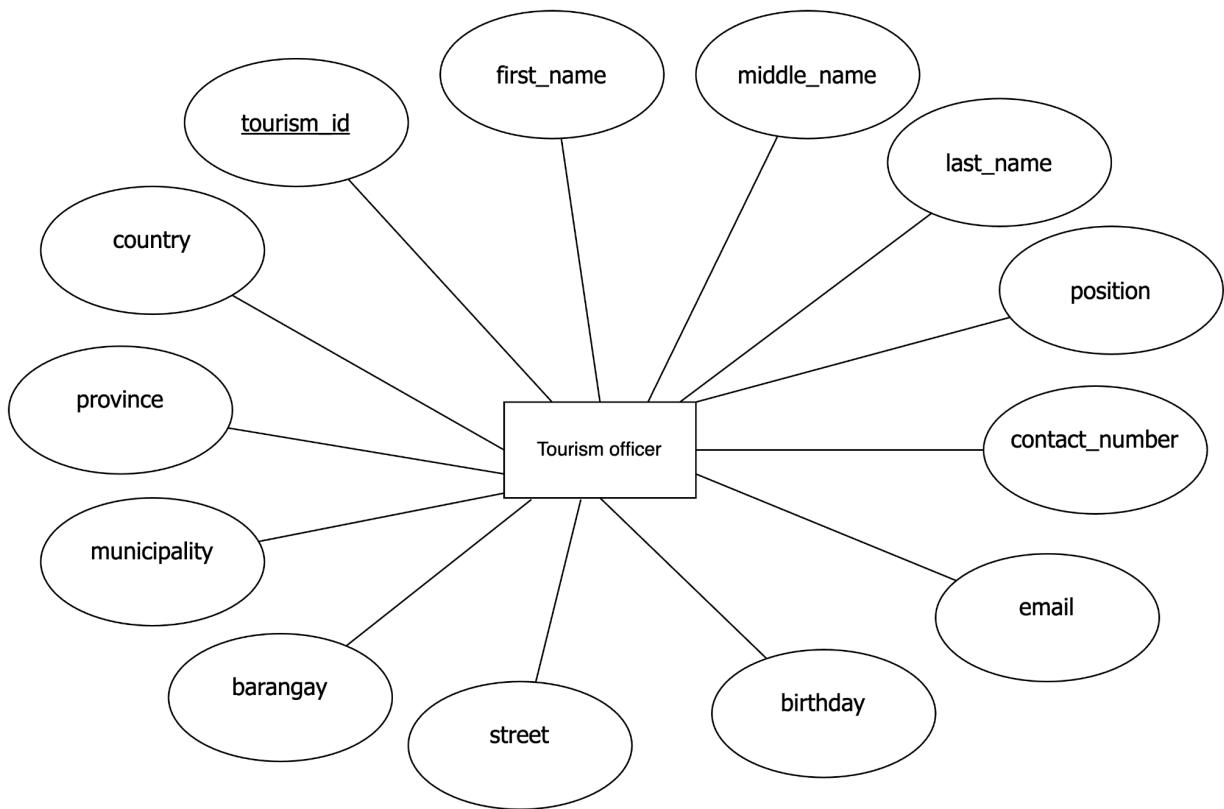
- 5.2. Business Type = ("Hotel", "Inn", "Guest House", "Resort", "Souvenir", "Convenience Store", "Restaurant", "etc.")
 - 5.3. Permits = Business Permit + Mayor's Permit
 - 5.4. Contact Information = Business Email + Business Contact Number
 - 5.5. Address = Province + Municipality + Barangay + [Street]
6. Room = Room Number + Capacity + Amenities + Room Type + Room Size + Price + Room Image
- 6.1. Capacity = [Number]
 - 6.2. Amenities = ["Aircon", "Free WIFI", "TV", "etc."]
 - 6.3. Room Type = ["Single Room", "Couple Room", "Family Room", "Deluxe"]
 - 6.4. Room Size = ["Small", "Medium", "Big"]
 - 6.5. Room Image = [".png", ".jpeg", "etc."]
7. Business Offer = Name + Type + Price + Description
- 7.1. Type = ["Coffee", "Food", "etc."]
8. Tourist Spot = Name + Description + Location + Category + Approval Status + Visibility Status + Images + Rating
- 8.1. Location = Province + Municipality + Barangay + Street
 - 8.2. Category = ("Historical", "Catholic Churches", "Places of Worship", "Museum", "Urban", "Sports and Recreation")
 - 8.3. Approval Status = ("Pending", "Approved", "Rejected")
 - 8.4. Image = [".png", ".jpeg", "etc."]
 - 8.5. Rating = (1.00-5.00)
9. Event = Event ID + Event Name + Description + Event Start Date + Event End Date + Address
- 9.1. Address = Country + Province + Municipality + Barangay + [Street]
10. Payment = Reference Number + Payment Method + Payment Type + Balance + Amount Paid
- 10.1. Payment Method = ["GCash"]
 - 10.2. Payment Type = ["Full", "Partial"]

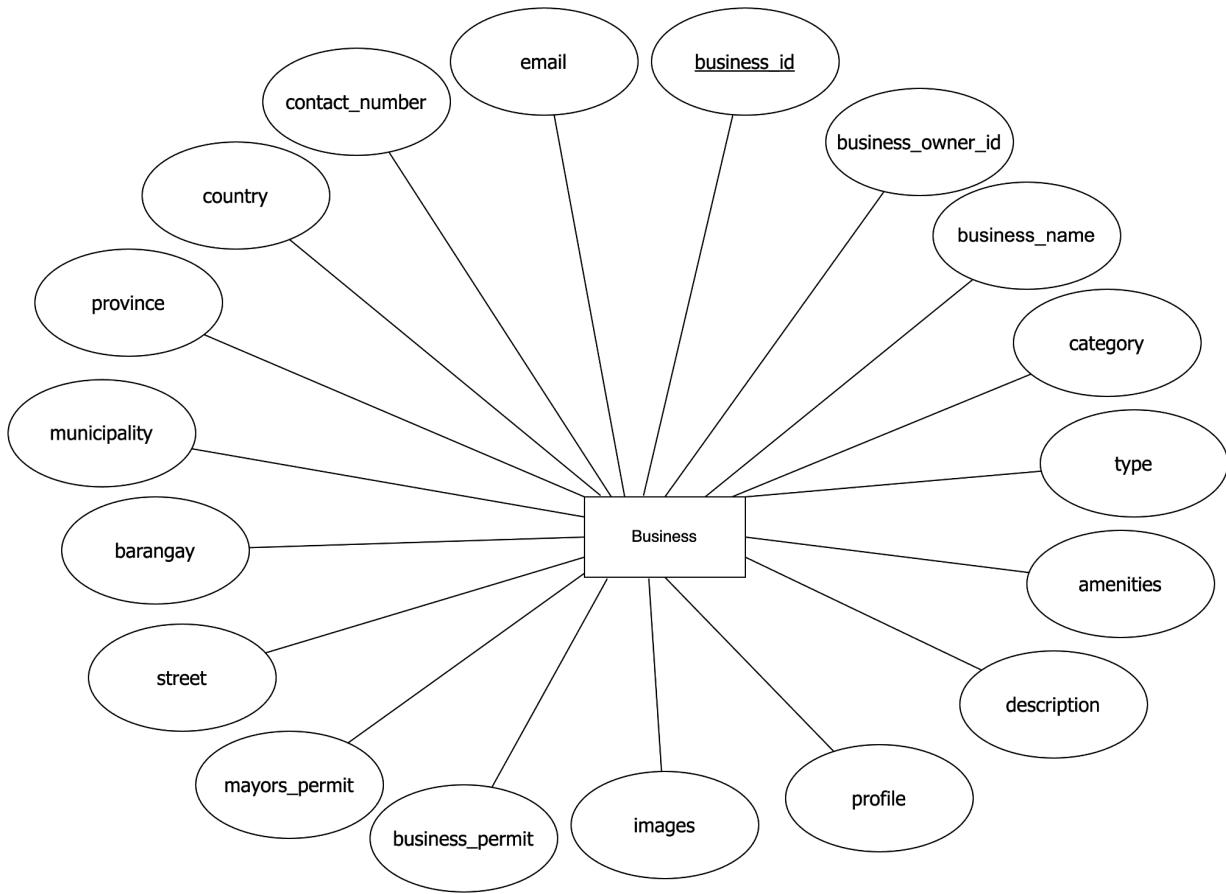
B. Database Design
Logical Data Model (Chen Notation)

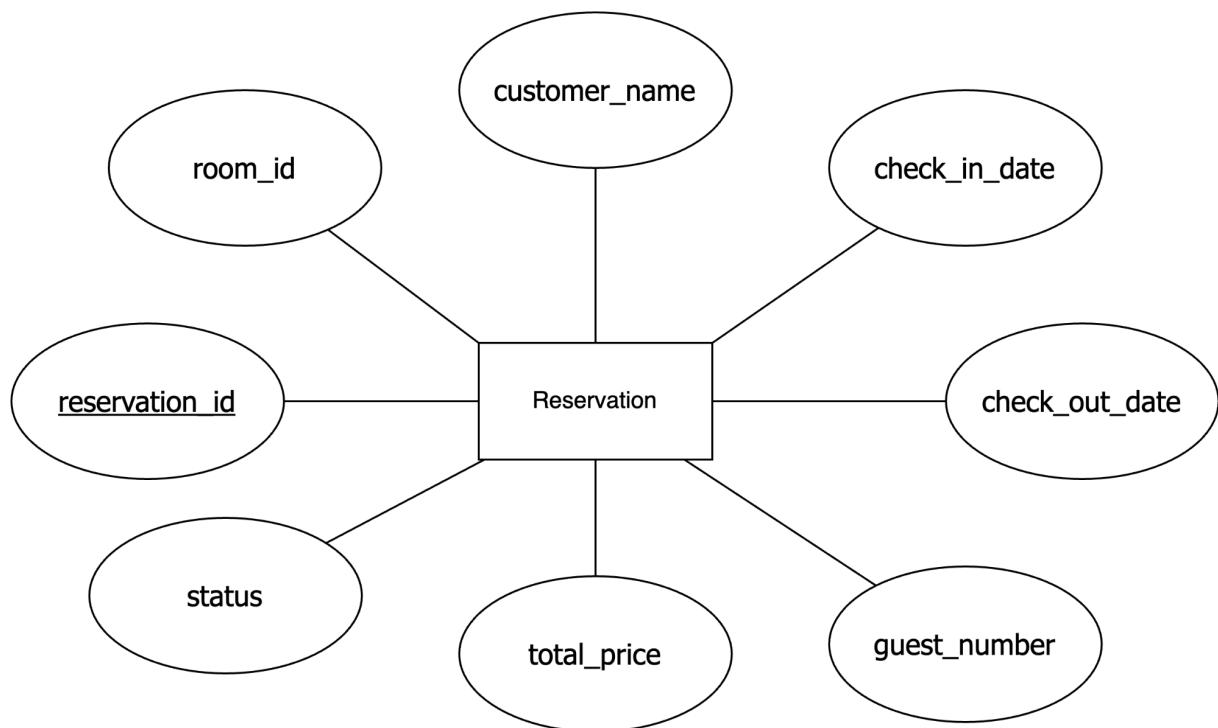
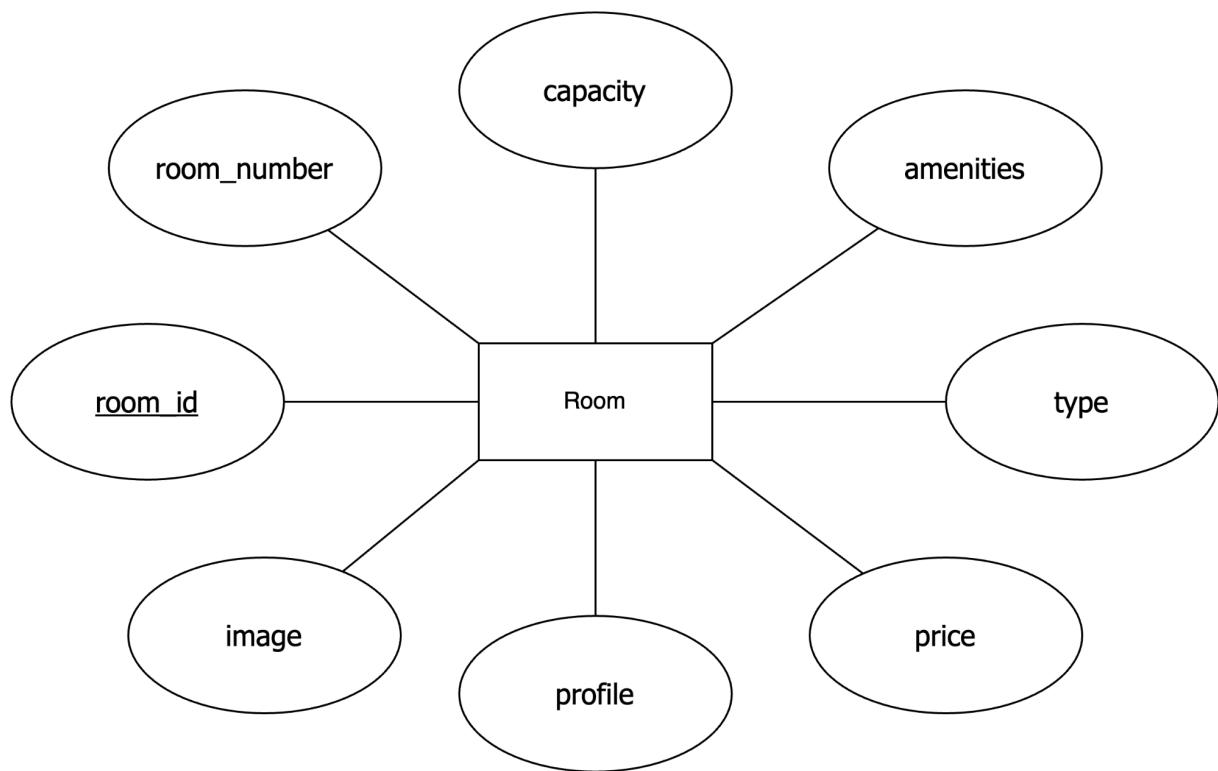


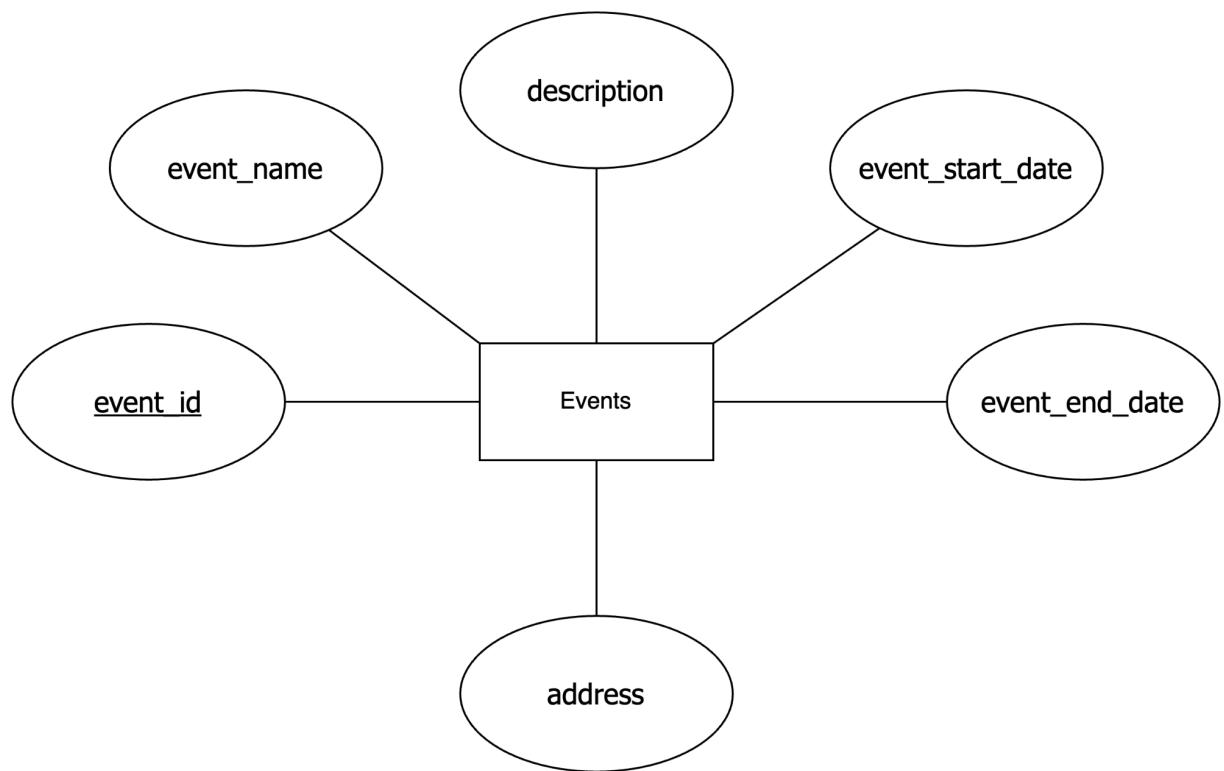
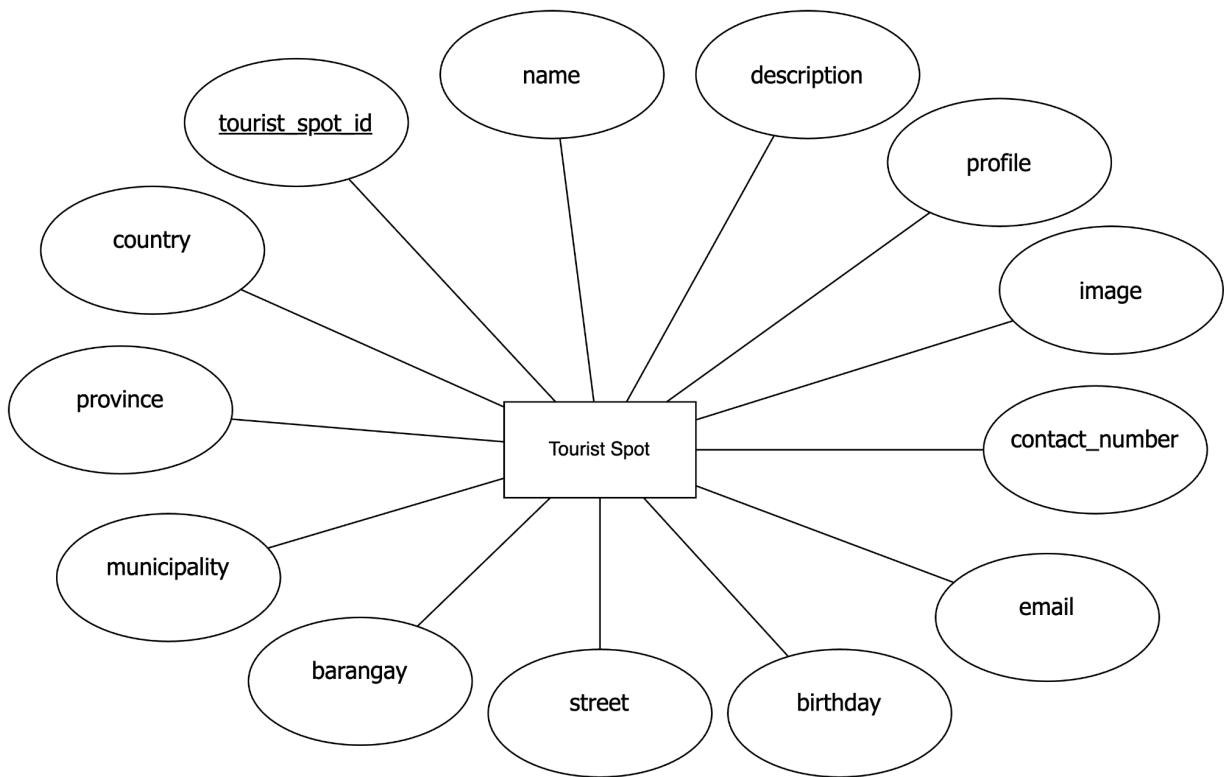


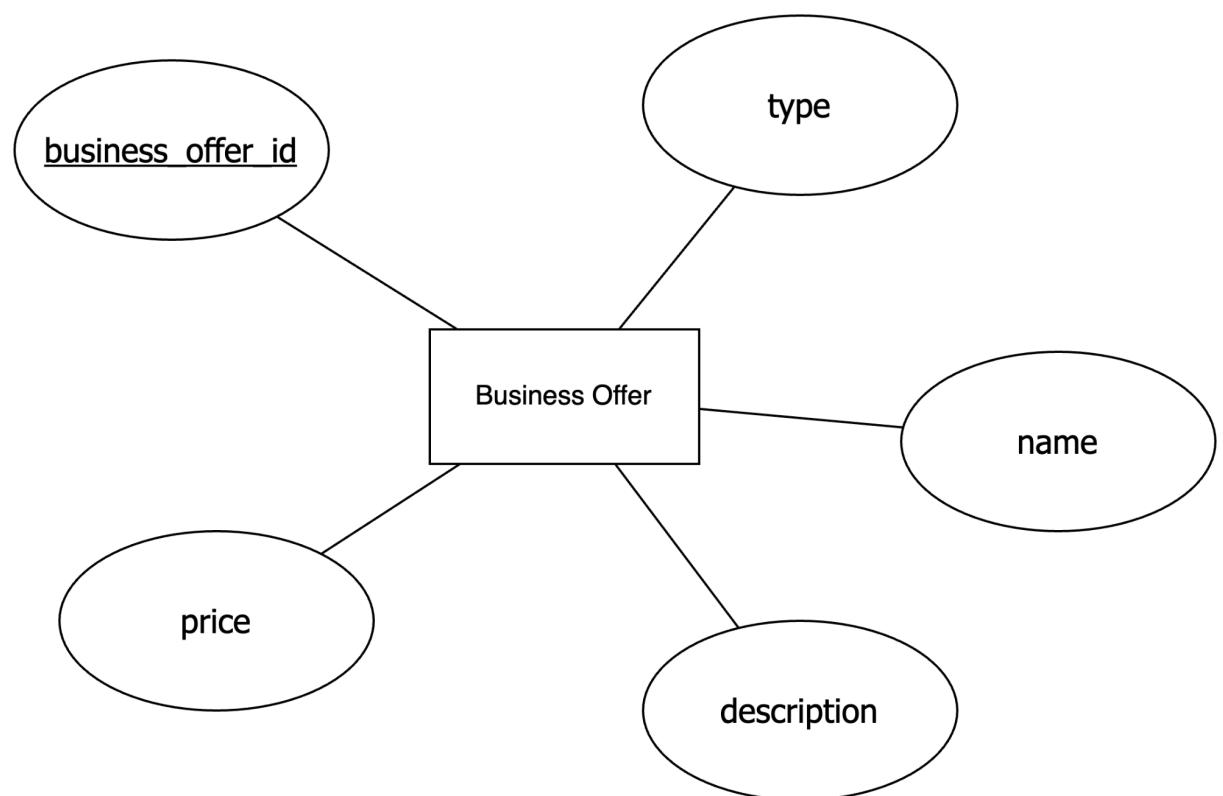
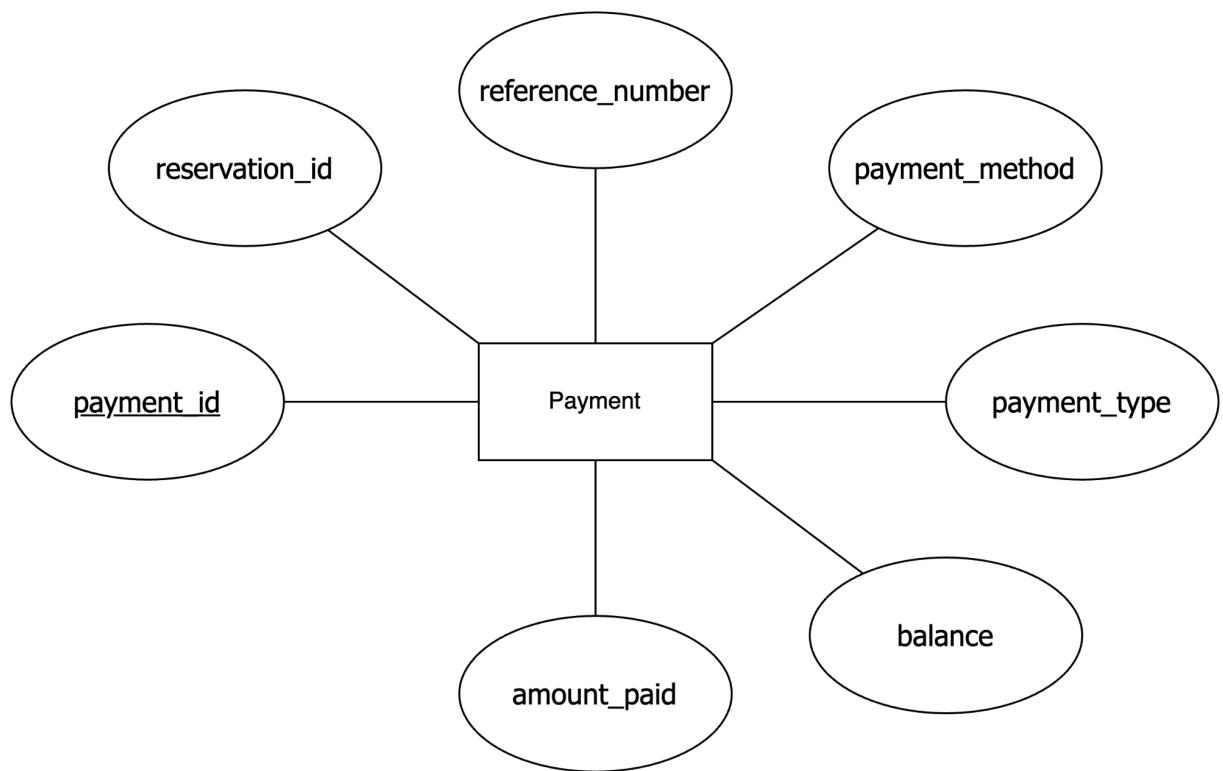




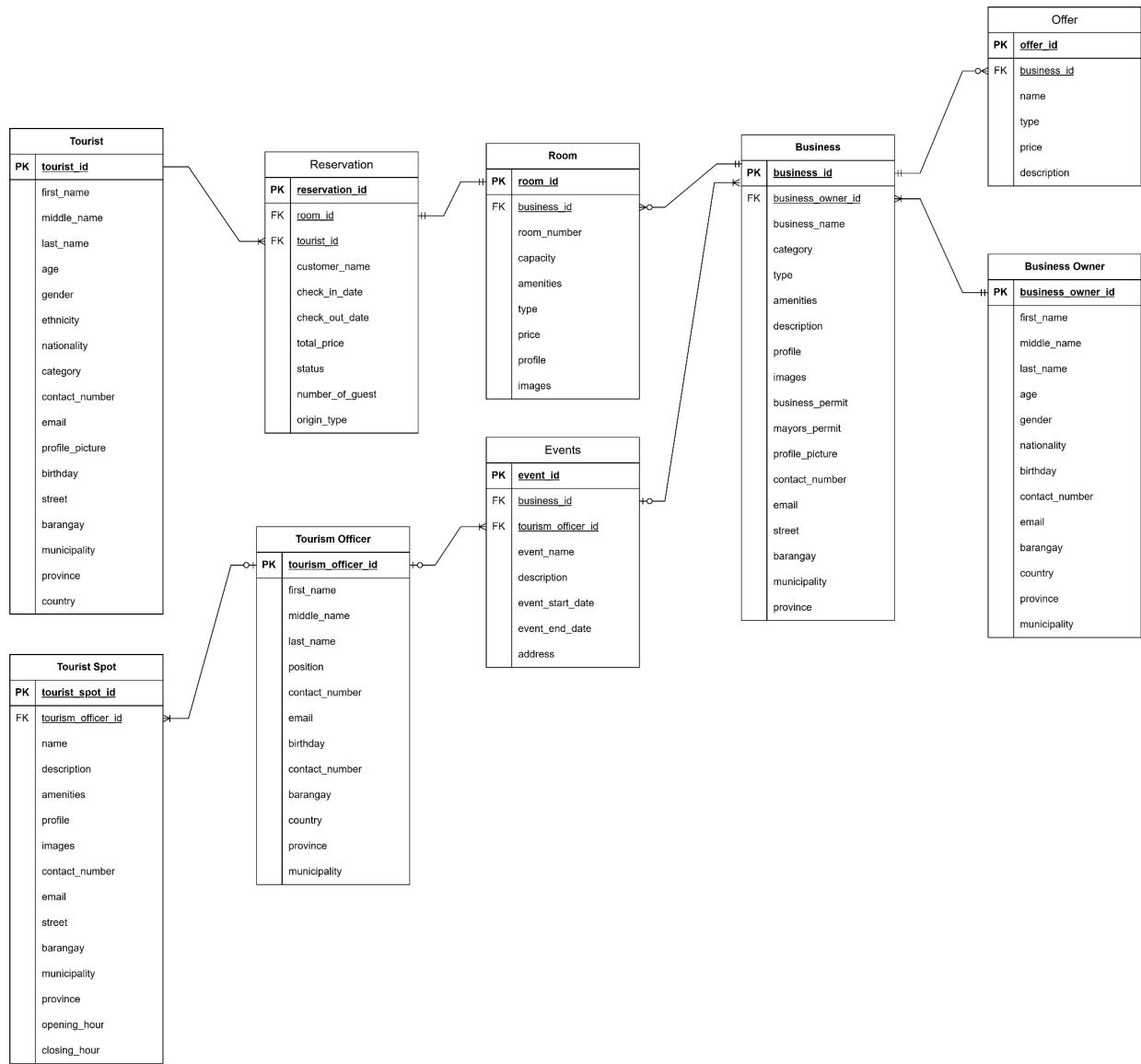








Physical Data Model (Crow's foot Notation)



VI. Architectural Design

