



**National University of Computer and Emerging
Sciences**

Software Engineering

“Project Report”

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Degree Program: BS-CS

Section: D

Subject Name: Software Engineering

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Introduction:

Our project is an Event management system called Event Bloom. It is basically a web application built using React, Node js and MySQL. It provides several features to users like organizers, attendees and the admin. There is a feature to register an account and manage account information. An organizer can create a required event and post it ,whereas an attendee can register for an event etc. .

Project Rational:

The problem of inefficient event management Affects event organizers, attendees, and stakeholders involved in the planning and execution of events. The impact of which is increased stress for organizers, poor attendee experiences, miscommunication, and potential financial losses due to mismanagement. A successful solution would be a good Event Management System that streamlines the planning process, enhances communication, and improves overall event experiences for all parties involved thus we have created an Event Management System called Event Bloom using React ,Node js and MySQL.We will utilize agile methodology for software development, in this case it will be SCRUM. We have divided the project into 25 user stories that will be implemented in 3 sprints. The sprint will be properly planned and each sprint will be evaluated at the end to monitor the progress of the project.

Project Architecture:

This system is divided into three primary layers: **Presentation Layer (Frontend)**, **Business Logic Layer (Backend)**, and **Data Access Layer (Database)**.

1. Presentation Layer (React.js) Handles user interactions, displays data, and communicates with the backend.

Key Features:

1. **Event Creation/Management:** Organizers use forms to input event details (name, date, venue) via React components. Data is sent to the backend via API calls.
2. **Attendee Registration:** Users fill out registration forms, which trigger POST requests to the backend.

3. **Event Calendar:** Built with libraries like FullCalendar to display events fetched from the backend.

2. Business Logic Layer (Node.js) Processes requests, enforces business rules, and interacts with the database or third-party services.

Key Features:

1. **Authentication/Authorization:** Role-based access (organizers vs. attendees).
2. **Reporting & Analytics:** Aggregates data from MySQL (e.g., ticket sales, attendee demographics) and returns JSON for the frontend dashboard.
3. **Security:**Input validation and sanitization to prevent SQL injection.

3. Data Access Layer (MySQL)

1. **Role:** Stores and retrieves structured data.
2. **Database Schema:**
 - **Users Table:** user_id, email, password_hash, role (organizer/attendee).
 - **Events Table:** event_id, organizer_id, name, date, location, capacity.
 - **Registrations Table:** registration_id, event_id, user_id, ticket_type.

3.Integration with Node.js:Connection pooling for efficient database interactions.

Product Backlog:

Table 1: Product Backlog

ID	User Story	Estimate	Priority	Acceptance Criteria
1	As an event organizer, I want to create and manage events so that I can track all details in one place.	8 hours	1	Given I am an organizer, When I create an event with name, date, time, location, and description, Then the event is visible in my dashboard.
2	As an attendee, I want to register for events easily to secure my spot.	6 hours	2	Given I am an attendee, When I register using email and details, Then I receive a confirmation email.
3	As an attendee, I want to view an event calendar to see upcoming events.	7 hours	3	Given I am an attendee, When I view the calendar, Then I can filter events by date, category, or location.
4	As an organizer, I want to process payments securely to manage ticket sales.	12 hours	1	Given I am an organizer, When I process payments via multiple methods, Then I receive a success notification.
5	As an attendee, I want to receive event updates via email/SMS to stay informed.	6 hours	4	Given I am an attendee, When there are event updates, Then I receive notifications via email/SMS.
6	As an attendee, I want to submit feedback after events to share my experience.	5 hours	5	Given I am an attendee, When I submit feedback, Then it is recorded in the system.
7	As an organizer, I want to promote events on social media to increase visibility.	10 hours	3	Given I am an organizer, When I promote an event, Then details are shared on selected platforms and promotional materials (flyers/banners) are generated.
8	As an organizer, I want to manage venue details to ensure event logistics are ready.	9 hours	2	Given I am an organizer, When I add/edit/delete venue details, Then changes are reflected in the system.
9	As an organizer, I want to access a reporting dashboard to analyze event performance.	11 hours	1	Given I am an organizer, When I view the dashboard, Then I see metrics like ticket sales and attendee numbers.
10	As a user, I want to create and manage my account to access event history.	7 hours	4	Given I am a user, When I update my account, Then I can change personal info and password.
11	As an organizer, I want to scan tickets at the entrance for quick verification.	6 hours	3	Given I am an organizer, When I scan tickets, Then attendee identities are verified against the registration list.
12	As an attendee, I want reminders about events to avoid missing them.	4 hours	5	Given I am an attendee, When the event date approaches, Then I receive reminders via email/SMS.
13	As an organizer, I want to customize event pages to reflect my brand.	8 hours	2	Given I am an organizer, When I customize the event page, Then I can preview it before publishing.

14	As an attendee, I want to register multiple people at once to manage group attendance.	9 hours	4	Given I am an attendee, When I register a group, Then I receive confirmations for each attendee.
15	As an organizer, I want to manage a waitlist for sold-out events to maximize attendance.	7 hours	3	Given I am an organizer, When I enable a waitlist, Then I can notify waitlisted attendees if spots open.
16	As an organizer, I want to track sponsorships to manage contributions and benefits.	10 hours	2	Given I am an organizer, When I track sponsorships, Then I see benefits provided to each sponsor.
17	As an organizer, I want to check in attendees to track arrivals in real-time.	6 hours	3	Given I am an organizer, When I check in attendees, Then I see a real-time list of checked-in attendees.
18	As an organizer, I want to send post-event surveys to gather insights for future events.	5 hours	5	Given I am an organizer, When I send surveys, Then I collect feedback for analysis.
19	As an attendee, I want mobile access to event information to stay updated on-the-go.	8 hours	4	Given I am an attendee, When I access the system via mobile, Then I can view event details seamlessly.
20	As an attendee, I want to access event FAQs to find answers to common questions.	4 hours	5	Given I am an attendee, When I view FAQs, Then I can submit unanswered questions.
21	As an attendee, I want to connect with other attendees for networking.	7 hours	3	Given I am an attendee, When I view attendee lists, Then I can see profiles of registered attendees.
22	As an attendee, I want to view the event agenda to plan my schedule.	6 hours	4	Given I am an attendee, When I view the agenda, Then I see session titles, speakers, and times.
23	As an attendee, I want to request accessibility accommodations to ensure my needs are met.	5 hours	2	Given I am an attendee, When I request accommodations during registration, Then my request is recorded and addressed.
24	As an attendee, I want to view the cancellation policy to understand my options.	3 hours	5	Given I am an attendee, When I check the event page, Then I can easily find the cancellation policy.

Project Planner and Gantt Chart:

Figure 1: Work Breakdown Structure

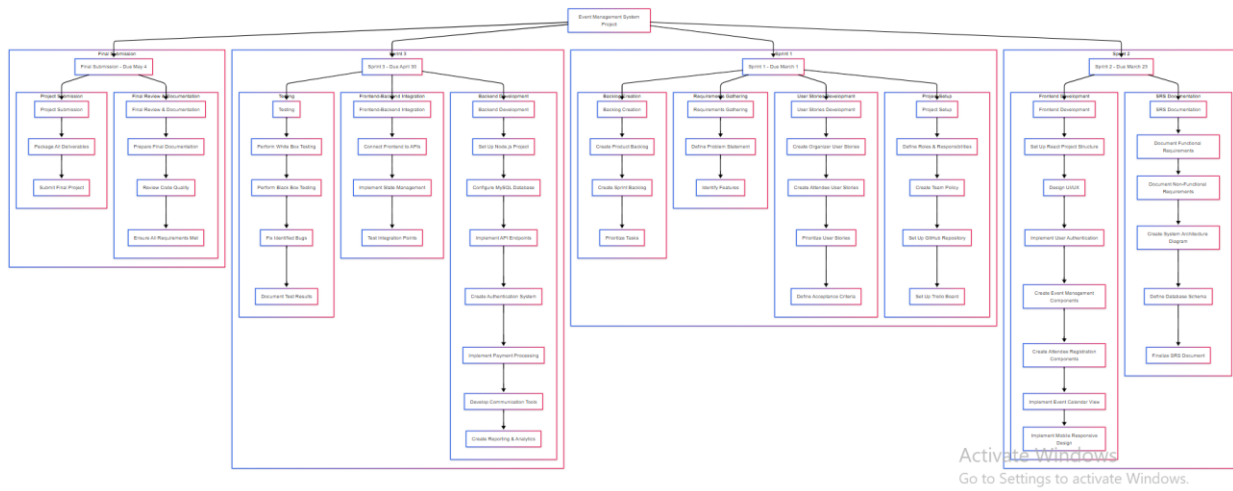


Figure 2: Gantt Chart

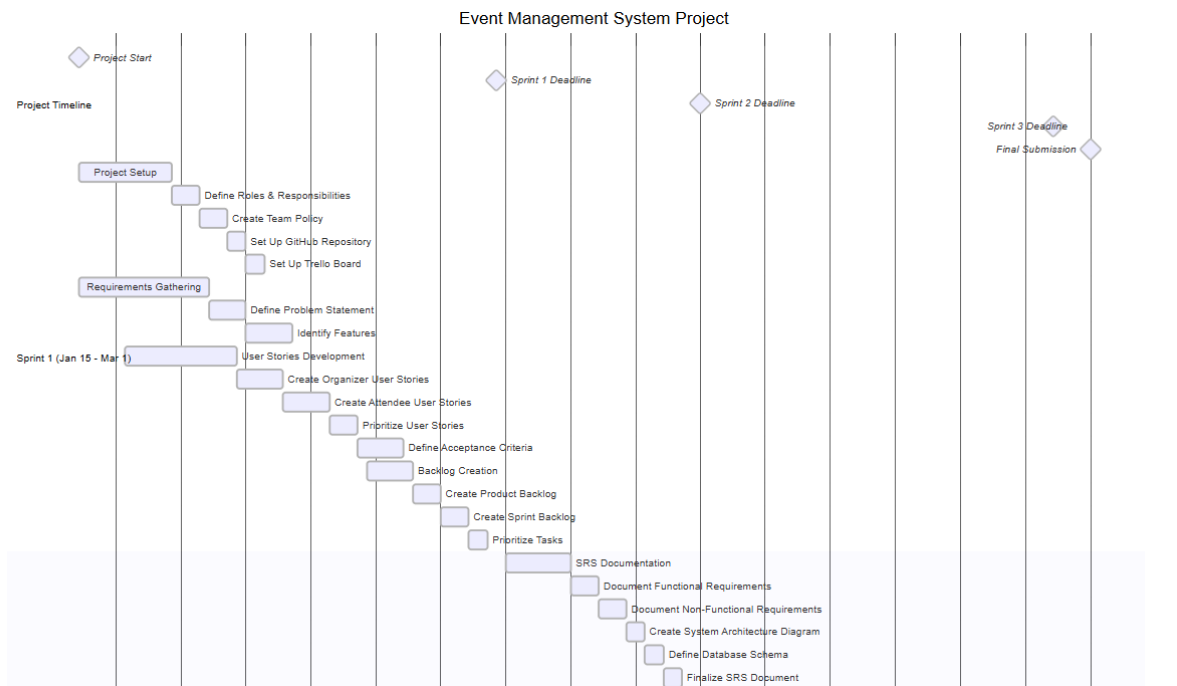


Figure 3: Gantt Chart

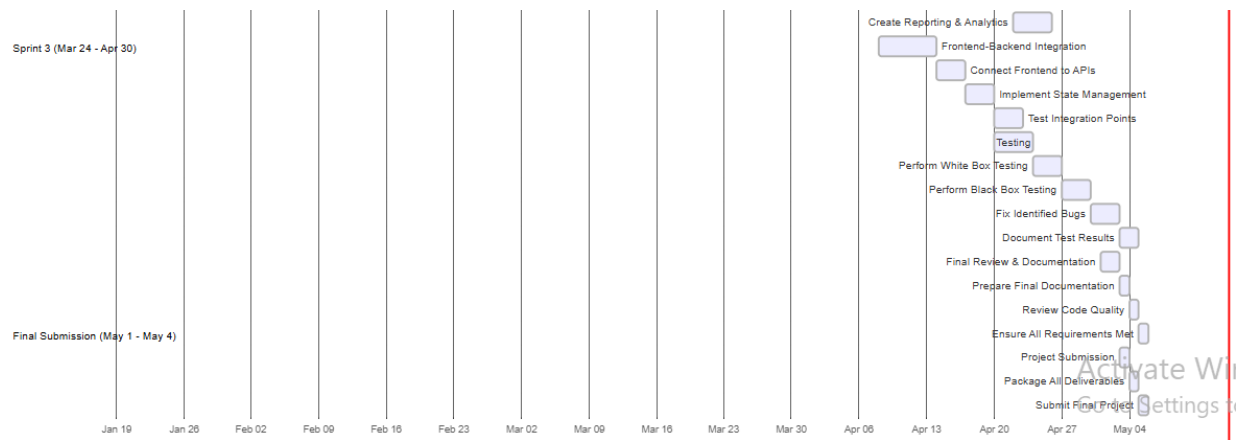
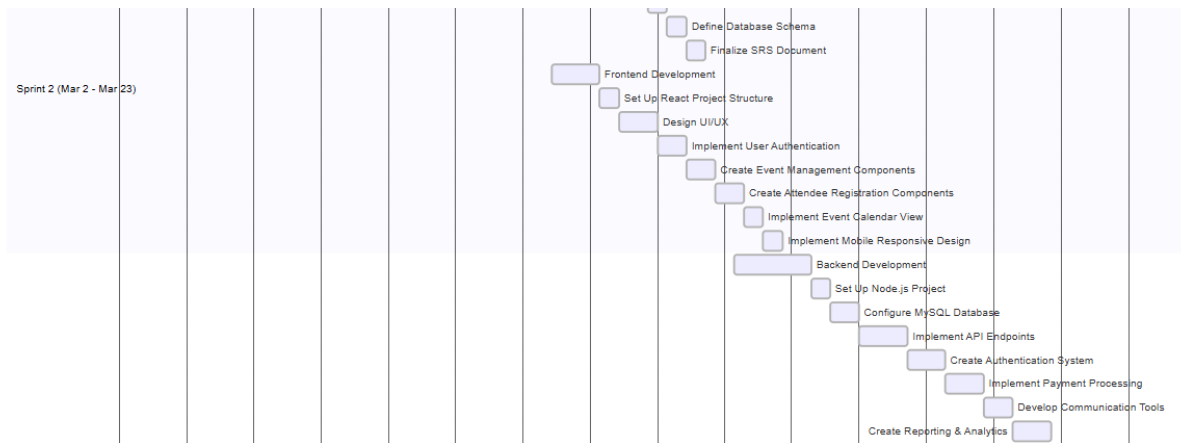


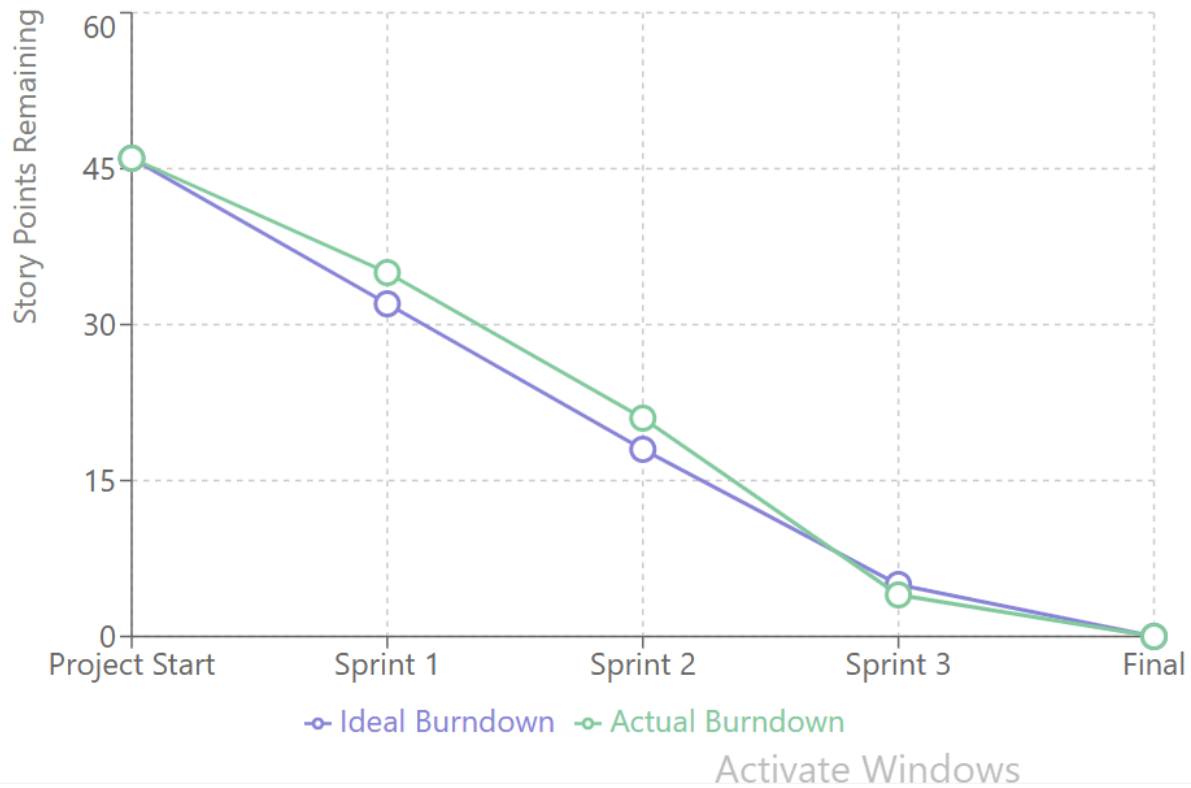
Figure 4: Gantt Chart



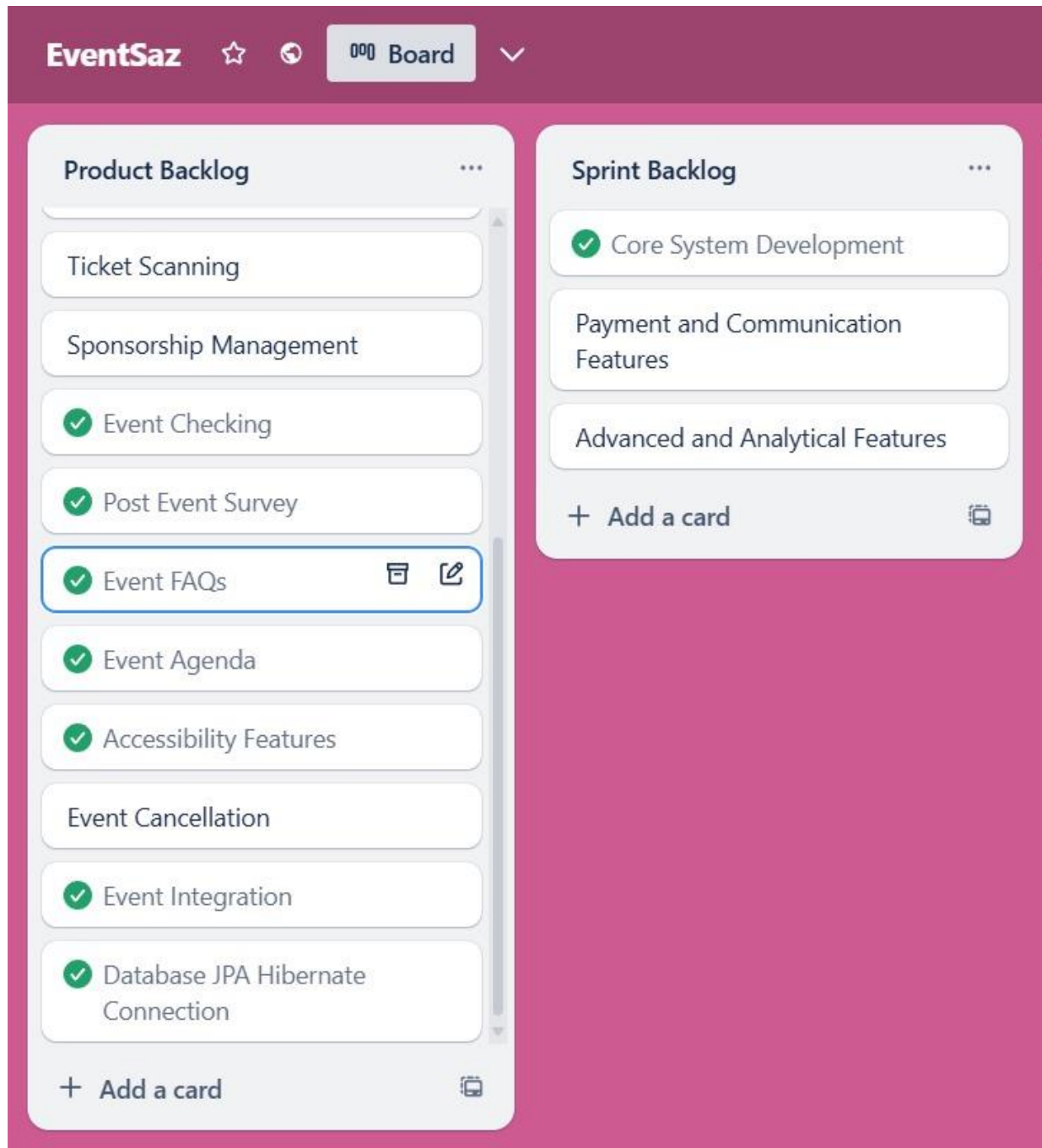
Product Burndown Chart:

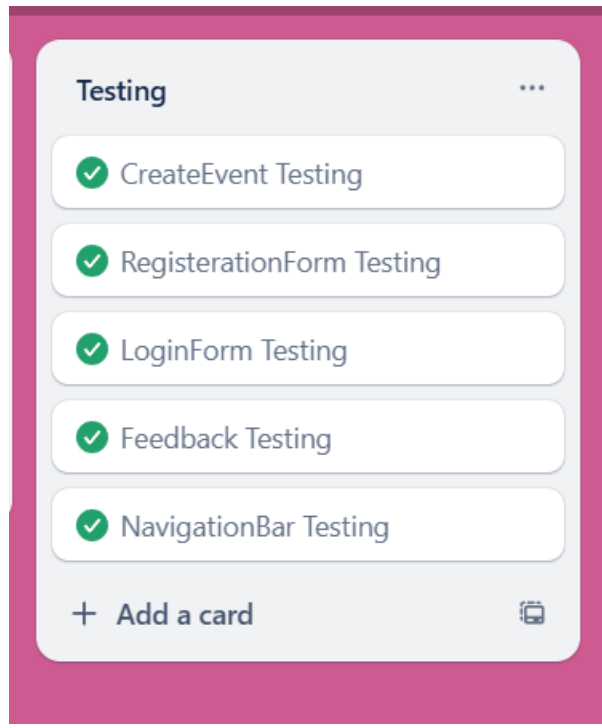
Figure 12: Product Burndown Chart

Event Management System - Product Burndown Chart



Trello Snapshots:

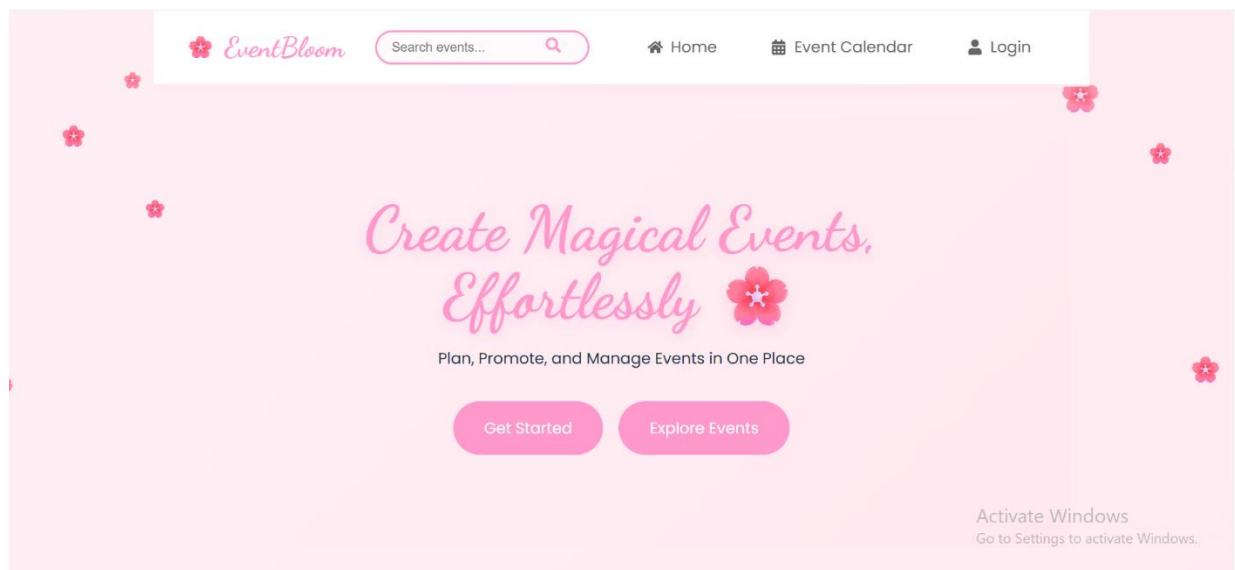




GUI of Project:

The first page is the Home Page of our Event Management system Event Bloom. It has the navigation bar present right above at the start of the page, as we scroll down further we have some main events being displayed and at the very bottom we have the feedback form button to submit feedback from the user .

Figure 3: Snapshot-2 Sprint-3



Upcoming Events 🌱

Spring Garden Party

15 March 2024 | Rose Garden

Register Now

Tech Conference 2024


20 April 2024 | Convention Center

Register Now

Activate Windows
Go to Settings to activate Windows.


Why Choose EventBloom?

Why Choose EventBloom?




Easy Scheduling

Drag-and-drop calendar for seamless planning.




Secure Payments

Integrated with Stripe/PayPal.



Social Promotion

One-click sharing to Instagram/Facebook.



Analytics Dashboard

Track ticket sales and attendance

Activate Windows
Go to Settings to activate Windows.

What Our Users Say

"EventBloom saved me hours of planning!"

Submit Feedback

FAQs Contact Privacy Policy

Follow us on social media!

Activate Windows
Go to Settings to activate Windows.

When the user clicks the login icon ,he can sign up as a new user or if he already has an account he can log in with his previous account. When signing up as a new member ,user can register either as an attendee or as a organiser ,an organiser can create events whereas an attendee can just register events.

The image displays two screenshots of a web application interface, both featuring a pink background with cherry blossom graphics.

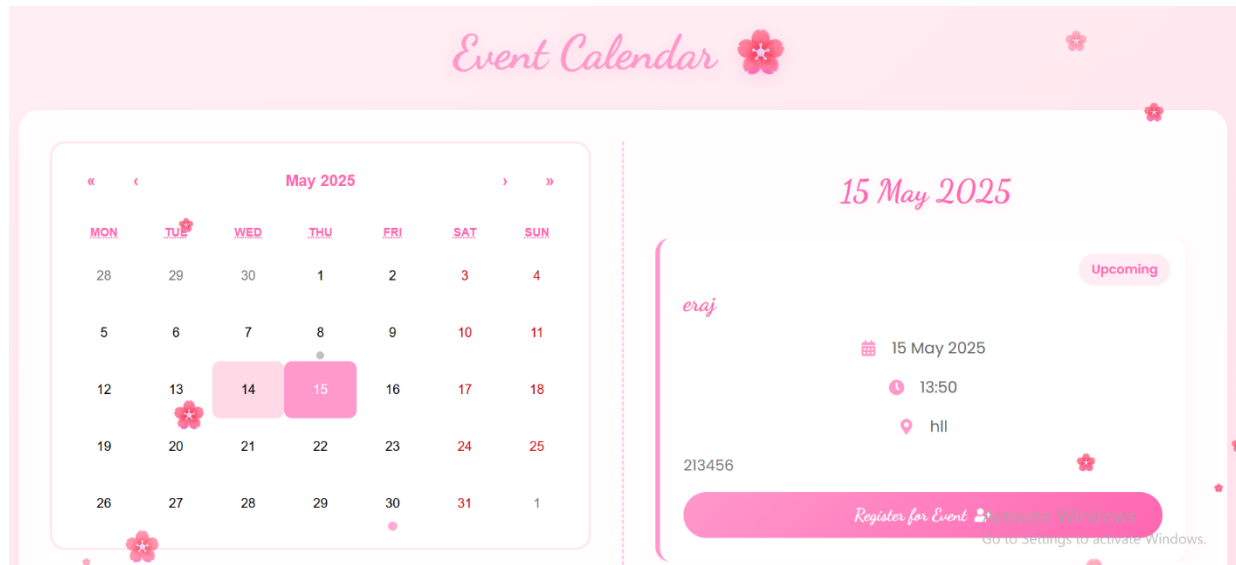
Top Screenshot: Join EventBloom

- Header: *Join EventBloom*
- Form Fields:
 - Full Name
 - Email
 - Password
- Buttons:
 - Attendee
 - Organizer
 - Register
- Footer: Activate Windows. Go to Settings to activate Windows.

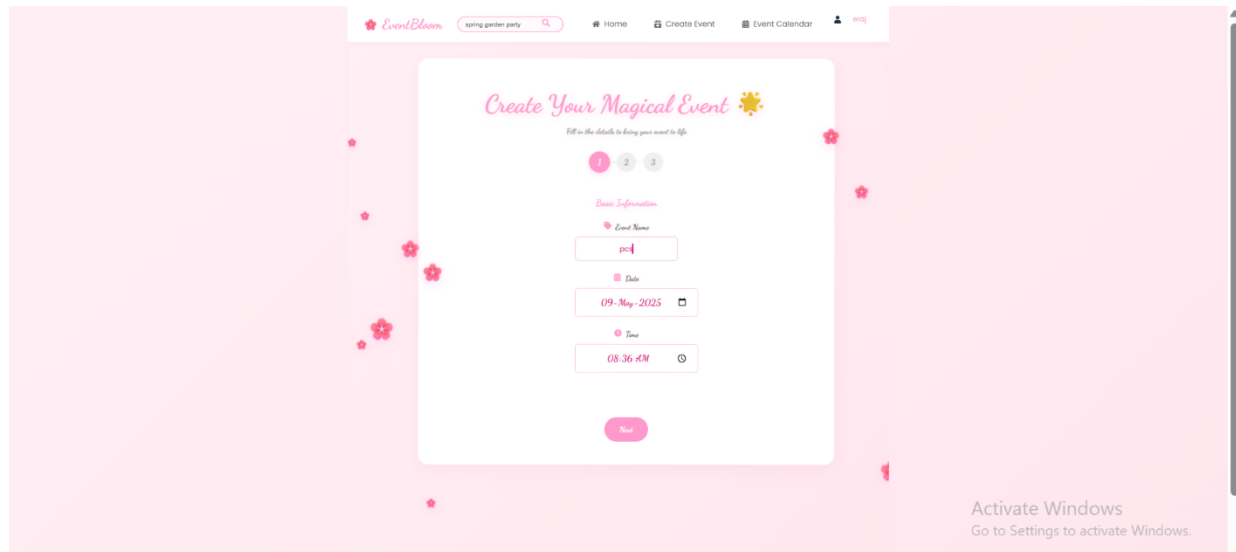
Bottom Screenshot: Welcome Back

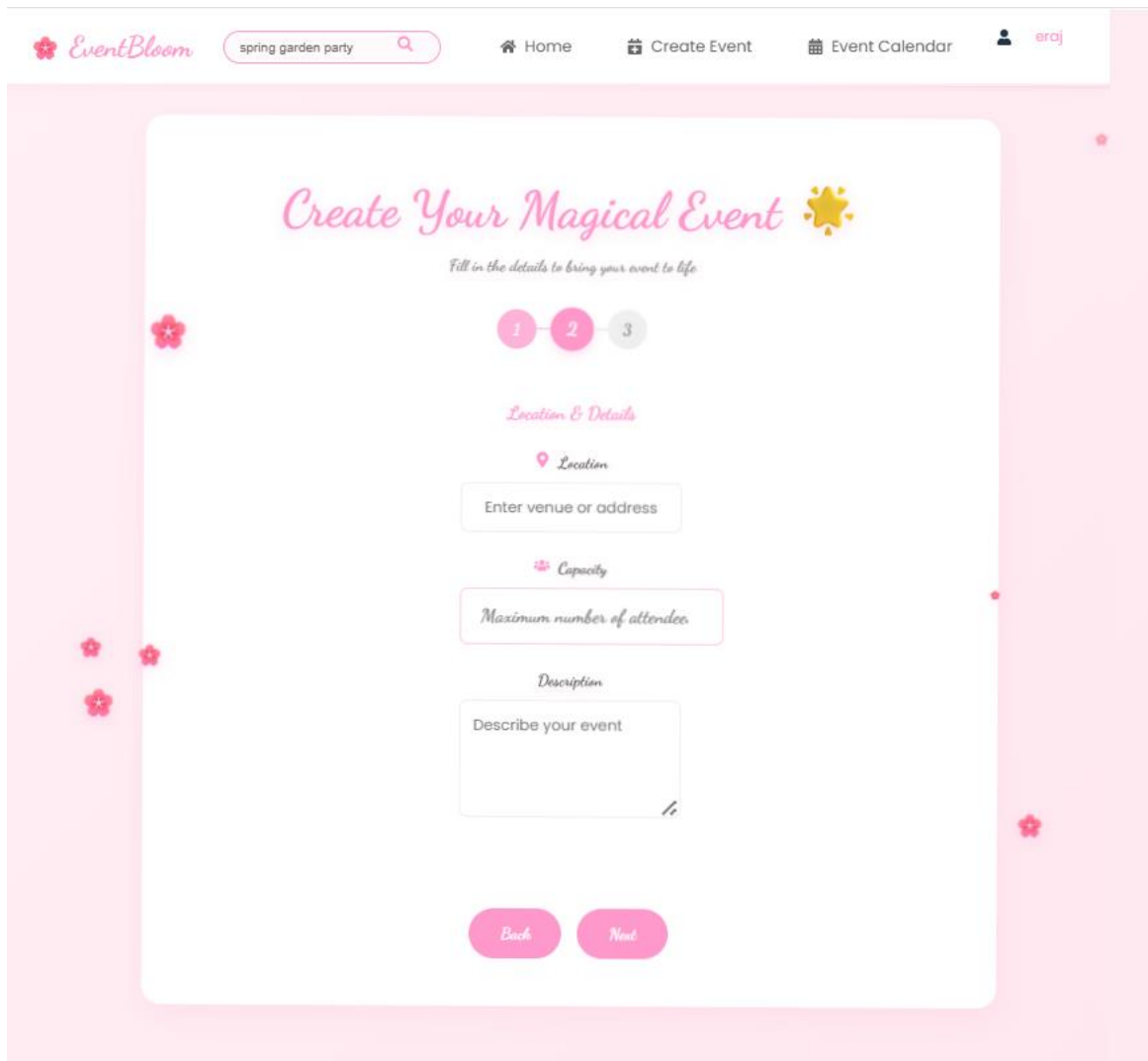
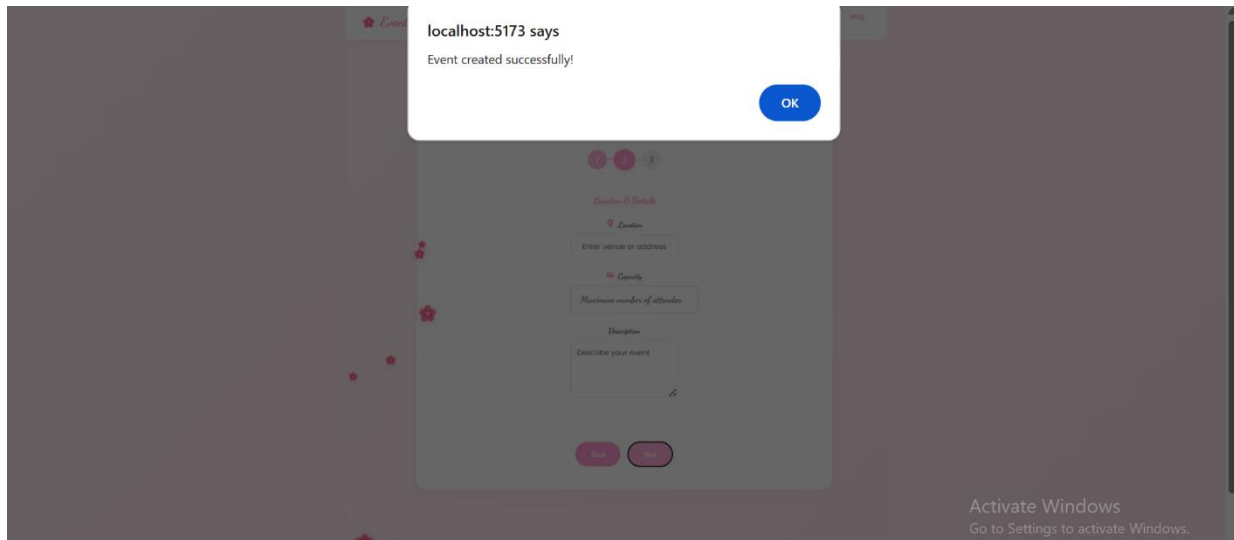
- Header: *Welcome Back*
- Form Fields:
 - Email (pre-filled with `eraj@gmail.com`)
 - Password (masked with dots)
- Buttons:
 - Login
- Footer: Don't have an account? [Register](#)
- Footer: Activate Windows. Go to Settings to activate Windows.

User can search for an event in the event calendar page by clicking the event calendar button ,it will show events as completed ,upcoming or ongoing ,it will mark them according to a color,the description of the events will be shown next to the calendar when clicked on the date ,the user can register for an event through it also .

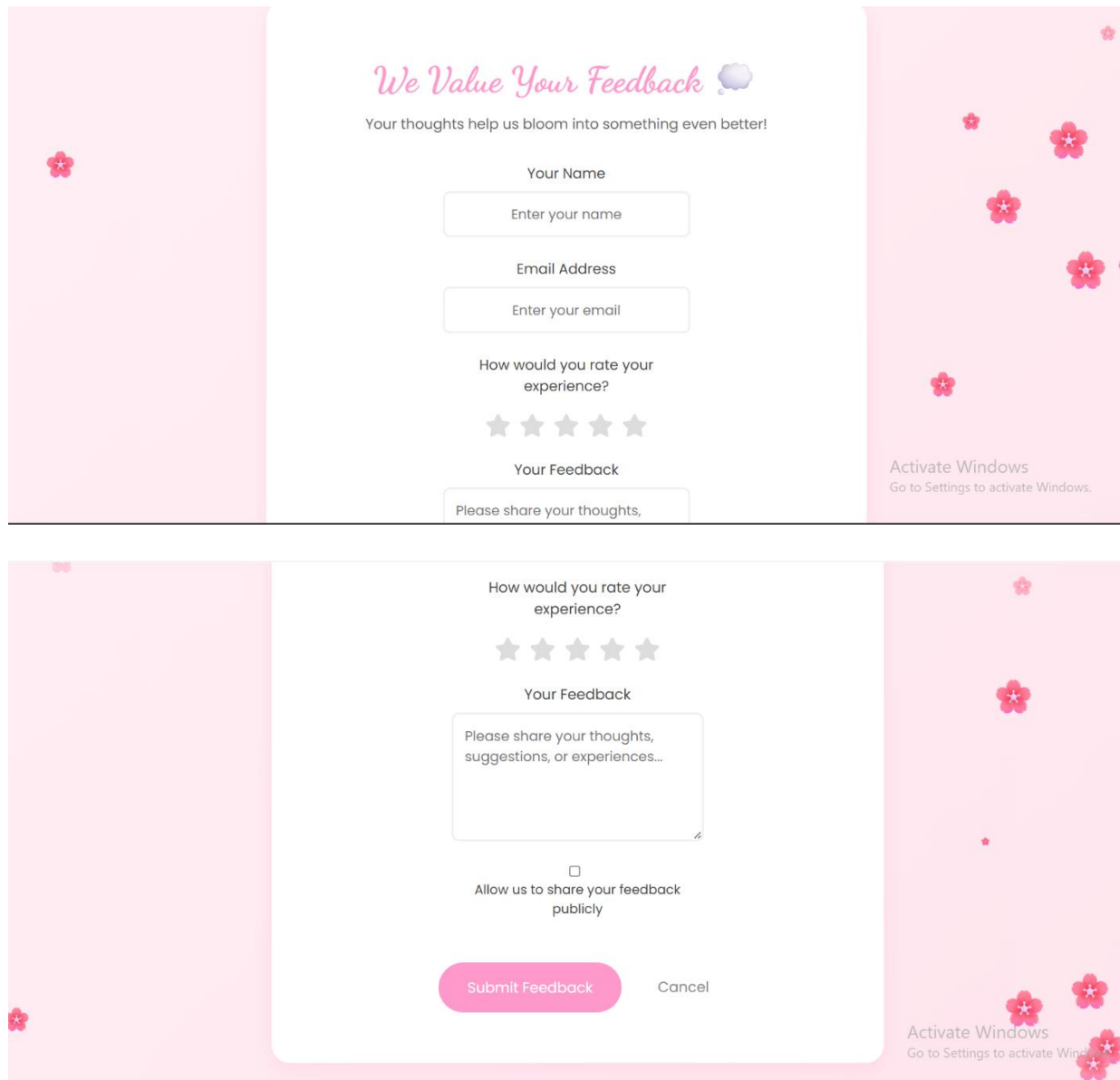


The user can register as an organizer to create an event ,when the event will be created it will be successfully updated on the explore events dashboard.



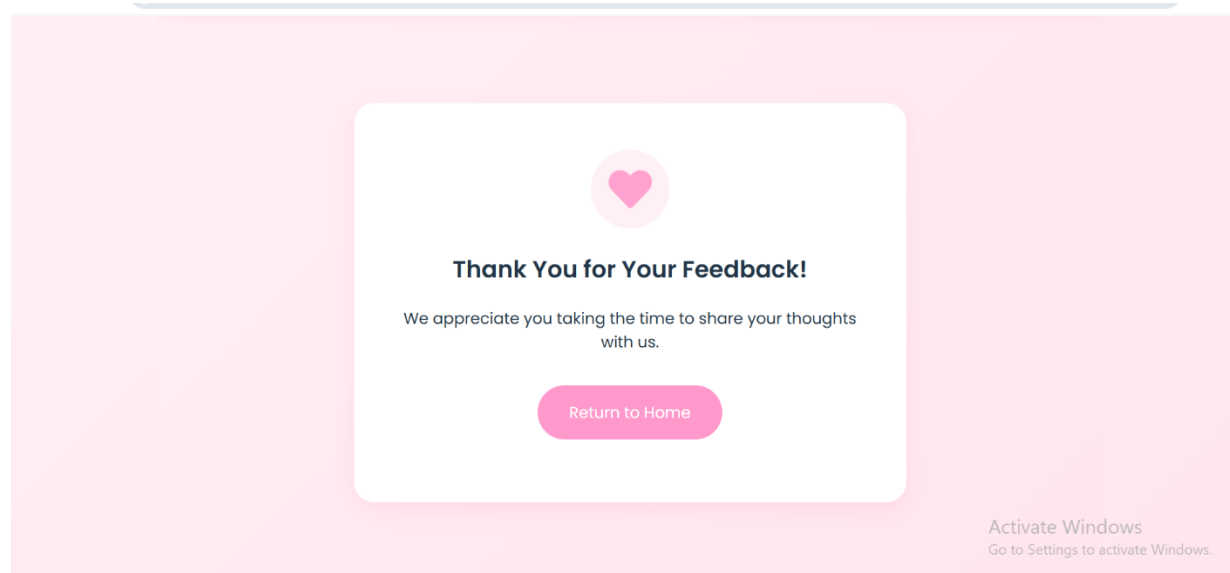


The user can give feedback by clicking on the feedback button present at the last of the homepage



The feedback form is presented on a light pink background decorated with small pink cherry blossom icons. The form is centered and contains the following elements:

- Title:** "We Value Your Feedback" in a pink script font, followed by a small blue thought bubble icon.
- Introductory Text:** "Your thoughts help us bloom into something even better!"
- Input Fields:** Two white rounded rectangular input fields. The first is labeled "Your Name" with the placeholder text "Enter your name". The second is labeled "Email Address" with the placeholder text "Enter your email".
- Rating Section:** Labeled "How would you rate your experience?", it features five gray star icons in a row.
- Feedback Text Area:** Labeled "Your Feedback", it contains a white rounded rectangular text area with the placeholder text "Please share your thoughts,".
- Submit and Cancel Buttons:** At the bottom, there is a pink rounded button labeled "Submit Feedback" and a plain gray button labeled "Cancel".
- Footer:** In the bottom right corner, there is a small gray box with the text "Activate Windows" and "Go to Settings to activate Windows."



All necessary validation checks have been applied.

Equivalent Class Partitions and Boundary Values:

User Story 1: Event Creation

User Story: As an organizer, I want to create events with details (name, date, time, location) to track them in one place.

Equivalence Class Partitions

Input/Output Event	Valid Equivalence Classes	Invalid Equivalence Classes
Event Name	Alphabetic, length ≥ 3	Non-alphabetic, length < 3
Date	Future date (YYYY-MM-DD)	Past date, invalid format (e.g., DD/MM)
Time	Valid 24h format (HH:MM)	Invalid format (e.g., 25:70)
Location	Non-empty string	Empty field
Description	Length ≥ 10 characters	Length < 10 characters

Boundary Value Analysis

Input	Boundary Value
Event Name	Length=3 (valid) / Length=2 (invalid)
Date	Tomorrow (valid) / Today (invalid)
Description	Length=10 (valid) / Length=9 (invalid)

User Story 2: Attendee Registration

User Story: As an attendee, I want to register using email and personal details to secure my spot.

Equivalence Class Partitions

Input/Output Event	Valid Equivalence Classes	Invalid Equivalence Classes
Email	Contains "@" and ".com"	Missing "@" or ".com"
Name	Alphabetic, length ≥ 3	Non-alphabetic, length < 3
Phone Number	10 digits (e.g., 1234567890)	< 10 digits, non-numeric characters
Payment Method	Valid card (16 digits)	Invalid card (15 digits), non-numeric

Boundary Value Analysis

Input	Boundary Value
Phone Number	Length=10 (valid) / Length=9 (invalid)
Payment Card	Length=16 (valid) / Length=15 (invalid)

User Story 3: Event Calendar

User Story: As an attendee, I want to view a calendar to filter events by date, category, or location.

Equivalence Class Partitions

Input/Output Event	Valid Equivalence Classes	Invalid Equivalence Classes
Date Filter	Valid date range (start \leq end)	Start date $>$ end date
Category	Predefined category (e.g., "Music")	Non-existent category
Location	Predefined location (e.g., "Hall A")	Non-existent location

Boundary Value Analysis

Input	Boundary Value
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Date Filter	Start = end date (valid)
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User Story 4: Payment Processing

User Story: As an organizer, I want to securely process payments for ticket sales.

Equivalence Class Partitions

Input/Output Event	Valid Equivalence Classes	Invalid Equivalence Classes
Card Number	16 digits, valid Luhn algorithm	15 digits, invalid Luhn, non-numeric
Expiry Date	Future month/year (MM/YYYY)	Past date, invalid format (MM/YY)
CVV	3 digits (Visa/Mastercard)	2 digits, non-numeric

Boundary Value Analysis

Input	Boundary Value
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Expiry Date	Current month (valid if future) / Last month (invalid)
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CVV	Length=3 (valid) / Length=2 (invalid)
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User Story 5: Communication Tools

User Story: As an attendee, I want to receive event updates via email/SMS.

Equivalence Class Partitions

Input/Output Event	Valid Equivalence Classes	Invalid Equivalence Classes
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Notification Type	Email or SMS selected	No method selected
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Message Length	≤ 500 characters	> 500 characters
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Boundary Value Analysis

Input	Boundary Value
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Message Length	500 characters (valid) / 501 (invalid)
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User Story 6: Feedback Submission

User Story: As an attendee, I want to submit feedback after events to share my experience.

Equivalence Class Partitions

Input/Output Event	Valid Equivalence Classes	Invalid Equivalence Classes
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Rating	1-5 stars	0 or 6 stars
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Comment	≤ 1000 characters	> 1000 characters
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Boundary Value Analysis

Input	Boundary Value
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Rating	1 (valid) / 0 (invalid)
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Comment	1000 characters (valid) / 1001 (invalid)
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User Story 7: Event Promotion

User Story: As an organizer, I want to promote events on social media to increase visibility.

Equivalence Class Partitions

Input/Output Event	Valid Equivalence Classes	Invalid Equivalence Classes
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Social Platform	Facebook/Twitter selected	No platform selected
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Promotional Text	≤ 200 characters	> 200 characters
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Boundary Value Analysis

Input	Boundary Value
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Promotional Text	200 characters (valid) / 201 (invalid)
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User Story 8: Venue Management

User Story: As an organizer, I want to manage venue details to ensure logistics are ready.

Equivalence Class Partitions

Input/Output Event	Valid Equivalence Classes	Invalid Equivalence Classes
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Venue Name	Non-empty string	Empty field
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Capacity	≥ 10 attendees	< 10 attendees
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Boundary Value Analysis

Input	Boundary Value
-------	----------------

Capacity	10 (valid) / 9 (invalid)
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User Story 9: Reporting Dashboard

User Story: As an organizer, I want to access a dashboard to analyze event performance.

Equivalence Class Partitions

Input/Output Event	Valid Equivalence Classes	Invalid Equivalence Classes
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Date Range	Start date \leq end date	Start date $>$ end date
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Boundary Value Analysis

Input	Boundary Value
-------	----------------

Date Range	Start = end date (valid)
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User Story 10: User Account Management

User Story: As a user, I want to update my account info and password.

Equivalence Class Partitions

Input/Output Event	Valid Equivalence Classes	Invalid Equivalence Classes
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New Password	8-12 chars, uppercase + symbol	Length < 8 , no uppercase/symbol
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Email Update	Valid format (user@domain.com)	Missing "@" or ".com"
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Boundary Value Analysis

Input	Boundary Value
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New Password	Length=8 (valid) / Length=7 (invalid)
--------------	---------------------------------------

TESTING RESULTS :

```
> proj@0.0.0 test
> jest
```

```
PASS src/Tests/LoginForm.test.jsx
```

```
  LoginForm - ECP and BVA Tests
```

- ✓ ECP: shows error on invalid email (84 ms)
- ✓ ECP: logs in with valid credentials (27 ms)
- ✓ BVA: password length 5 characters (21 ms)
- ✓ BVA: password length 6 characters (17 ms)
- ✓ ECP: empty email and password fields (19 ms)

```
Test Suites: 1 passed, 1 total
```

```
Tests: 5 passed, 5 total
```

```
Snapshots: 0 total
```

```
Time: 1.9 s
```

```
● PS D:\father\OneDrive - Aga Khan Development Network\Desktop\proj> npm test
```

```
> proj@0.0.0 test
> jest
```

```
PASS src/Tests/LoginForm.test.jsx
```

```
PASS src/Tests/RegistrationForm.test.jsx
```

```
Test Suites: 2 passed, 2 total
```

```
Tests: 18 passed, 18 total
```

```
Snapshots: 0 total
```

```
Time: 2.476 s
```

```
Ran all test suites.
```

```
○ PS D:\father\OneDrive - Aga Khan Development Network\Desktop\proj> █
```

LoginForm	84	50	100
LoginForm.jsx	84	50	100
RegistrationForm	95.45	90.9	100
RegistrationForm.jsx	95.45	90.9	100
SubmitFeedback	58.73	59.09	50
SubmitFeedback.jsx	58.73	59.09	50

Test Suites: 3 failed, 1 passed, 4 total			
Tests: 17 failed, 18 passed, 35 total			
Snapshots: 0 total			
Time: 10.596 s			
Ran all test suites.			

Coverage report

All files

70.48% Statements (337/396) 67.94% Branches (53/78) 61.9% Functions (26/42) 74.5% Lines (334/353)

Press *n* or *j* to go to the next uncovered block, *b*, *p* or *k* for the previous block.

Filter:

File	Statements	Branches	Functions	Lines
Homepage	<div><div></div></div> 50%	17/34	66.66%	4/6
LoginForm	<div><div></div></div> 84%	21/25	50%	3/6
RegistrationForm	<div><div></div></div> 95.45%	42/44	90.9%	20/22
SubmitFeedback	<div><div></div></div> 58.73%	37/63	59.09%	26/44

IMPROVEMENTS:

1. We can implement encryption techniques on users data for data safety and integrity
2. We can integrate our application with strip API for more efficient and better facilities.
3. We can integrate with google calendar and Gmail so that user can get and receive notifications according to our user stories.