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## INTERNET PROGRAMMING - I

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## Contents

Context.....	1
Target Demographics.....	1
Cultural Significance.....	1
Project Goals and Community Impact .....	2
Motivation.....	2
Fragmentation of Event Information.....	2
Digital Divide and Mobile Accessibility .....	2
Economic Accessibility .....	2
Problem Statement.....	3
Objectives .....	3
General Objective .....	4
Specific Objectives .....	4
Beneficiaries.....	4
Primary Beneficiaries .....	4
Secondary Beneficiaries.....	5
Feasibility Analysis .....	5
Technical Feasibility .....	5
Operational Feasibility .....	5
Functional Requirements.....	5
Core Functional Requirements .....	5
Software Requirements Specification (SRS) .....	6
System Overview .....	6
Software Environment .....	6
System Architecture.....	6
Existing System Overview .....	7
Problems of the Existing System.....	7
Information Fragmentation .....	7
Inconsistent and Outdated Information .....	7
Poor Search and Filtering Capabilities .....	8
High Data Consumption .....	8

Organizer Workload .....	8
Use Case Diagram for Existing System .....	8
Proposed System .....	9
System Architecture and Design Approach .....	9
Key Features of the Proposed System .....	9
Advantages of the Proposed System .....	10
Use Case Diagram for Proposed System .....	10
Conclusion and Future Enhancements .....	10
Conclusion.....	10
Future Enhancements.....	11

## Context

EVENT +舛 is a web-based event discovery platform developed as part of the *Internet Programming I* course. The project aims to address the widespread challenge of fragmented event information in Addis Ababa, Ethiopia, by providing a centralized digital space where users can easily discover free local community events. These events include cultural celebrations, educational workshops, social gatherings, artistic performances, and community-driven initiatives that are often underrepresented on mainstream commercial platforms.

The platform specifically targets **students and young professionals aged 18–35**, a demographic group that is highly active in community participation yet faces significant difficulties in accessing reliable event information. Addis Ababa, as Ethiopia's capital city with an estimated population of over five million people, serves as a dynamic environment for testing this platform due to its dense concentration of universities, cultural institutions, community organizations, and a rapidly growing technology-savvy population.

## Target Demographics

The primary users of EVENT +舛 are **students and young professionals between the ages of 18 and 35**, who collectively represent approximately 40% of Addis Ababa's population. This group is characterized by high mobile phone usage, active engagement on social media, and strong interest in educational, cultural, and networking events. However, they are also disproportionately affected by high data costs, limited internet connectivity, and the absence of centralized event information.

By focusing on this demographic, the platform addresses both accessibility and usability challenges while supporting social engagement, professional development, and cultural participation.

## Cultural Significance

EVENT +舛 places strong emphasis on Ethiopian cultural values and traditions. Many community events in Addis Ababa such as traditional music performances, cultural festivals, coffee ceremonies, and heritage workshops play a crucial role in preserving cultural identity and facilitating knowledge transfer between generations. Unfortunately, these events often receive limited promotion and are overshadowed by commercial or paid events on mainstream platforms.

By highlighting culturally significant events and incorporating Amharic elements, EVENT +舛 contributes to cultural preservation while making these experiences more accessible to younger generations and international residents.

## Project Goals and Community Impact

The primary goal of EVENT + is to create a **single, centralized platform** for discovering free local events in Addis Ababa. By simplifying event discovery, the platform aims to increase community participation, strengthen social connections, and promote cultural engagement across diverse groups.

In the long term, the platform is expected to:

- Increase attendance at cultural, educational, and community events
- Reduce the time users spend searching for event information
- Support local organizations by providing free and effective event promotion
- Strengthen social cohesion within the Addis Ababa community

## Motivation

The motivation behind EVENT + stems from a combination of technological, social, cultural, and educational factors. The current landscape of event promotion in Addis Ababa presents numerous challenges that discourage community participation and limit access to opportunities.

### Fragmentation of Event Information

Event information in Addis Ababa is widely dispersed across multiple platforms, including **Facebook Events, Telegram channels, WhatsApp groups, Instagram stories, institutional websites, and physical flyers**. Users must actively monitor several of these platforms to remain informed, which is time-consuming and inefficient. As a result, many individuals miss valuable opportunities simply because they are unaware of events taking place.

### Digital Divide and Mobile Accessibility

Although internet penetration in Ethiopia is steadily increasing, many users face limitations related to data affordability, device capability, and network reliability. Most users rely on mobile devices, yet many existing platforms are not optimized for mobile use. High data consumption, complex interfaces, and slow loading times discourage frequent usage.

### Economic Accessibility

Many event discovery platforms prioritize paid events and commercial activities, limiting visibility for free community events. For students and young professionals with limited budgets, this creates economic barriers to participation. EVENT + is motivated by the desire to promote **free and accessible events**, ensuring that financial constraints do not prevent community engagement.

## Problem Statement

Despite the abundance of cultural, educational, and social events in Addis Ababa, a significant portion of the population particularly students and young professionals faces serious challenges in discovering and accessing information about these events. The root of the problem lies in the absence of a centralized, reliable, and culturally appropriate event discovery system.

Currently, event information is scattered across multiple digital platforms and physical locations. Users are required to check Facebook Events, numerous Telegram channels, various WhatsApp groups, institutional websites, and physical bulletin boards in universities, cafés, and community centers. This fragmented system makes it nearly impossible for users to stay consistently informed. As a result, many community members miss valuable opportunities for cultural participation, education, and social interaction.

A major issue associated with this fragmentation is the **time investment problem**. Informal user observations indicate that individuals spend approximately **2–3 hours per week** monitoring multiple platforms in an attempt to remain informed about community events. This time burden discourages participation and often leads to decision fatigue and information overload.

Another critical challenge is **mobile accessibility**. Although over 80% of internet users in Ethiopia rely on mobile devices, most existing platforms are not optimized for mobile use. They feature data-heavy interfaces, complex navigation, and slow loading times, particularly on 3G connections that are common in Addis Ababa. These technical limitations disproportionately affect users with limited internet budgets and older devices.

Economic barriers further compound the problem. Many event discovery platforms prioritize paid or commercial events, leaving free community activities under-promoted. For students and young professionals many of whom operate on limited budgets—this focus reduces access to affordable cultural and educational opportunities. Additionally, the high data consumption of existing platforms impacts approximately 40% of the target users, further restricting access.

From the organizers' perspective, the existing system is equally problematic. Event organizers must promote events across multiple platforms, adapt content formats for each medium, and manually update information when changes occur. This fragmented promotion process requires significant time and technical skills, reducing the effectiveness of outreach efforts and often resulting in inconsistent or outdated information.

Overall, the lack of a centralized event discovery system leads to reduced community engagement, weaker social connections, inconsistent information quality, and limited participation in culturally significant events. Addressing these challenges requires a unified, mobile-first, and culturally sensitive solution tailored specifically to the Addis Ababa context.

## Objectives

## General Objective

The primary objective of EVENT + is to design and develop a centralized, mobile-responsive web platform that aggregates free local event information in Addis Ababa and provides an accessible, user-friendly, and culturally appropriate solution for event discovery and participation.

## Specific Objectives

The specific objectives of the project are as follows:

1. To develop a mobile-first web application that functions effectively across a wide range of devices, including smartphones, tablets, and desktop computers.
2. To centralize event information related to cultural, educational, social, and community activities in Addis Ababa.
3. To implement advanced event discovery features, including filtering by category, date, and location.
4. To provide real-time search functionality that allows users to quickly locate relevant events.
5. To design a simple and intuitive user interface that requires no user registration.
6. To integrate an RSVP mechanism that enables easy communication between event attendees and organizers.
7. To promote Ethiopian cultural events by incorporating local context and culturally appropriate design elements.
8. To optimize the platform for low-bandwidth environments and minimal data usage.

## Beneficiaries

### Primary Beneficiaries

#### **Students and Young Professionals:**

Students gain access to free cultural events, educational workshops, and networking opportunities that complement formal education. Young professionals benefit from exposure to industry meetups, business events, and skill-building sessions that support career growth and work-life balance. International students also benefit by gaining structured access to Ethiopian cultural experiences, enabling social integration and cross-cultural understanding.

#### **Event Organizers:**

Cultural organizations, educational institutions, non-profit organizations, and religious groups benefit from a centralized and free promotion platform. EVENT + reduces marketing costs, increases event visibility, and simplifies communication with potential attendees through a standardized RSVP system.

## **Secondary Beneficiaries**

Local artists including musicians, performers, writers, and visual artists—gain increased exposure and audience reach. Educational institutions benefit from higher student engagement in extracurricular activities. Local businesses and venues experience increased foot traffic during events, contributing to economic activity.

## **Feasibility Analysis**

### **Technical Feasibility**

EVENT + is developed using mature and widely supported web technologies, ensuring high technical feasibility. The platform relies on **HTML5** for semantic structure and accessibility, **CSS3** for responsive layout and visual design, and **JavaScript (ES5)** for interactivity and dynamic content handling. These technologies are supported by over 95% of modern web browsers, including Chrome, Firefox, Safari, and Microsoft Edge.

The decision to implement the platform as a **client-side web application** eliminates the need for complex backend infrastructure, databases, or server-side processing. This approach simplifies development and reduces potential technical risks. Event data is stored in **JSON format**, which is lightweight, human-readable, and easily parsed by JavaScript, making it suitable for frequent updates and maintenance.

### **Operational Feasibility**

Operational feasibility is ensured through a clearly defined project structure and development timeline. The project team consists of members responsible for frontend development, user interface design, JavaScript functionality, content coordination, and overall project management. Academic supervision and peer collaboration further enhance operational reliability.

The development process is divided into phases, including requirements analysis, interface design, implementation, testing, and deployment. This phased approach allows for continuous evaluation and improvement, ensuring timely completion within an academic semester.

Content management is also operationally feasible. Event information can be updated easily through JSON files without requiring advanced technical expertise. This allows community organizations to collaborate with the platform administrators to keep event listings current.

## **Functional Requirements**

Functional requirements define the specific behaviors and capabilities that EVENT + must provide to meet user and system needs. The following requirements are derived directly from the identified problems and project objectives.

### **Core Functional Requirements**

- **FR-001: Responsive Design**  
The system shall provide a responsive layout that adapts to desktop, tablet, and mobile devices, ensuring optimal viewing and interaction across screen sizes.
- **FR-002: Navigation System**  
The system shall include a mobile-friendly hamburger navigation menu with touch-optimized elements and smooth transitions.
- **FR-003: Event Listing and Filtering**  
The system shall display a list of events that can be filtered by category, date range, and location.
- **FR-004: Real-Time Search**  
The system shall allow users to search events by title, description, category, or organizer using real-time, case-insensitive search functionality.
- **FR-005: Event Detail Pages**  
The system shall provide detailed event pages containing images, descriptions, dates, locations, and organizer information.
- **FR-006: RSVP Functionality**  
The system shall allow users to RSVP for events through a simple form that generates a professional email to the event organizer.
- **FR-007: Featured Events**  
The system shall highlight selected events on the homepage to increase visibility.
- **FR-008: Pagination**  
The system shall display events in pages to improve performance and usability.

## Software Requirements Specification (SRS)

### System Overview

EVENT + is a client-side web application designed to operate entirely within the user's browser. This architectural decision ensures simplicity, scalability, and low operational cost while delivering a rich interactive experience.

### Software Environment

- **Frontend Technologies:** HTML5, CSS3, JavaScript (ES5)
- **Data Format:** JSON
- **Development Tools:** Visual Studio Code, Git, browser developer tools
- **Hosting Platform:** Static hosting services with HTTPS support

### System Architecture

The system follows a modular architecture where each web page is associated with a specific JavaScript file responsible for its functionality. Common components, such as navigation and utility functions, are shared across pages to ensure consistency and maintainability.

## Existing System Overview

The existing system for event discovery in Addis Ababa is not a single unified platform but rather a collection of disconnected digital and physical channels used independently by event organizers and attendees. These channels include social media platforms such as Facebook, Telegram, WhatsApp, and Instagram, as well as institutional websites, email newsletters, and physical notice boards located in universities, cafés, cultural centers, and religious institutions.

Each of these channels operates independently, with no shared data structure, standard format, or centralized management. Event organizers are responsible for creating, updating, and monitoring event information across multiple platforms. Users, in turn, must actively search and subscribe to several channels to remain informed.

Facebook Events is one of the most commonly used platforms; however, it primarily prioritizes paid and commercial events. Telegram and WhatsApp groups are widely used due to low data consumption, but they lack structure, searchability, and long-term accessibility. Instagram stories provide limited visibility due to their short lifespan, while institutional websites often contain outdated information and are not optimized for mobile devices.

Physical posters and flyers continue to play a role, particularly in universities and cultural spaces. However, these methods are limited in reach, difficult to update, and inaccessible to individuals who are not physically present at specific locations.

From a systems perspective, the existing approach can be characterized as **decentralized, informal, and inconsistent**. There is no unified workflow for event creation, validation, publication, or user interaction. This lack of integration significantly reduces efficiency for both event organizers and attendees.

## Problems of the Existing System

The fragmented nature of the current event discovery system introduces several critical problems that negatively affect usability, accessibility, and community engagement.

### Information Fragmentation

Event information is scattered across numerous platforms, requiring users to search manually through multiple sources. This leads to incomplete awareness and missed opportunities. Users often rely on word-of-mouth or chance encounters to learn about events, which is unreliable and exclusionary.

### Inconsistent and Outdated Information

Because organizers must manually update multiple platforms, event details are often inconsistent. Changes to time, location, or content may be reflected on one platform but not others, resulting in confusion and frustration among attendees.

### Poor Search and Filtering Capabilities

Most existing platforms do not provide effective filtering options for free community events. Users cannot easily search by category, location, or date across platforms. Messaging apps such as Telegram and WhatsApp lack structured search mechanisms for historical events.

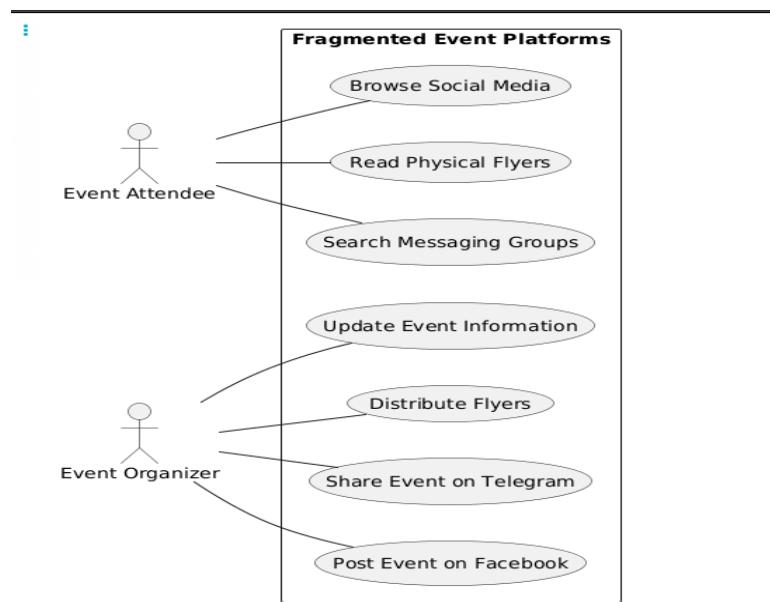
### High Data Consumption

Social media platforms are data-intensive and include advertisements, videos, and unrelated content. This creates a significant barrier for users with limited data plans, which is a common situation among students and young professionals in Addis Ababa.

### Organizer Workload

Event organizers face increased workload due to the need to manage multiple promotional channels. Smaller community organizations with limited technical expertise are particularly disadvantaged, leading to reduced visibility for their events.

## Use Case Diagram for Existing System



## Proposed System

The proposed system, EVENT +舛, is a centralized, mobile-first web platform designed to address the limitations identified in the existing event discovery system in Addis Ababa. Unlike the fragmented and informal methods currently in use, EVENT +舛 introduces a structured, user-centered approach to discovering and promoting free community events.

At its core, EVENT +舛 functions as a single access point where users can browse, search, and filter events based on their interests, location, and availability. The platform aggregates event information into a consistent format, ensuring accuracy, clarity, and ease of access. By eliminating the need to navigate multiple platforms, EVENT +舛 significantly reduces the time and effort required to discover relevant events.

## System Architecture and Design Approach

EVENT +舛 is implemented as a **client-side web application**, meaning all processing occurs within the user's browser. This design choice minimizes infrastructure complexity and operational costs while improving scalability. The system uses **HTML5** for semantic structure, **CSS3** for responsive and adaptive design, and **JavaScript** for dynamic content rendering and interactivity.

The platform follows a **mobile-first design philosophy**, recognizing that the majority of users access the internet via smartphones. All interfaces are optimized for touch interaction, small screens, and limited bandwidth environments. Desktop compatibility is maintained through responsive layout techniques such as flexible grids and media queries.

## Key Features of the Proposed System

The proposed system introduces several features that directly address the problems of the existing system:

- **Centralized Event Repository:**  
All event information is stored in a structured JSON format, ensuring consistency and ease of updates.
- **Advanced Search and Filtering:**  
Users can filter events by category (cultural, educational, social), date, and location, allowing quick discovery of relevant opportunities.
- **Detailed Event Pages:**  
Each event has a dedicated page containing full descriptions, schedules, venue details, and organizer contact information.
- **RSVP Mechanism:**  
Users can confirm attendance through a simple RSVP form that generates an email to the event organizer, enabling communication without requiring user accounts.

- **No Registration Requirement:**  
The system removes barriers to entry by allowing full functionality without user login or account creation.
- **Accessibility and Localization:**  
The interface is designed to be accessible to users with disabilities and culturally appropriate for Ethiopian users.

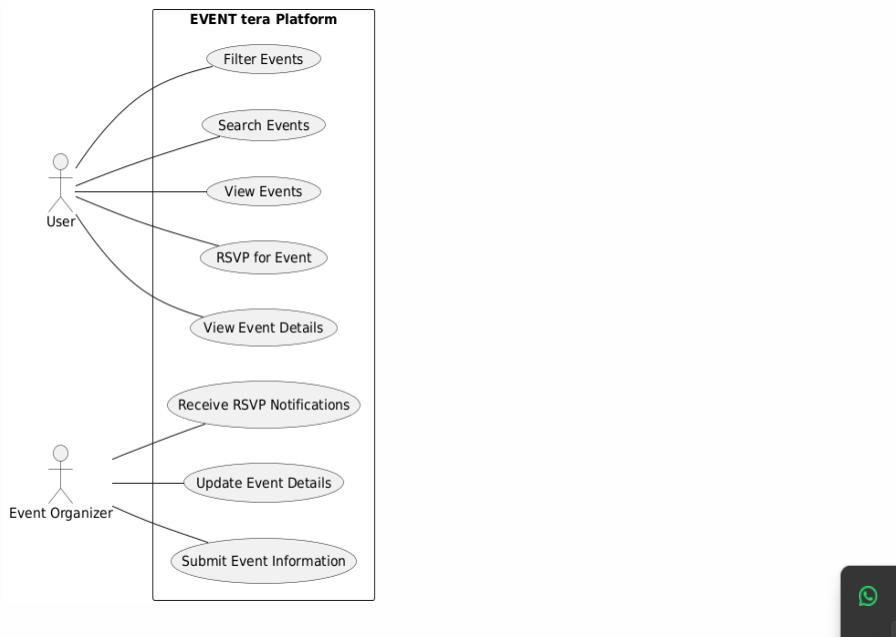
## Advantages of the Proposed System

Compared to the existing system, EVENT +舛 offers:

- Reduced information fragmentation
- Lower data consumption
- Improved accessibility and usability
- Increased visibility for free community events
- Simplified event promotion for organizers

These advantages contribute to higher participation rates and stronger community engagement.

## Use Case Diagram for Proposed System



## Conclusion and Future Enhancements

### Conclusion

EVENT +舛 successfully demonstrates how a centralized, mobile-first web platform can address real-world challenges related to community event discovery in Addis Ababa. By replacing

fragmented and inefficient systems with a unified solution, the platform enhances accessibility, promotes cultural participation, and supports community engagement.

The project meets its academic objectives by applying core web development principles in a meaningful and socially relevant context. It showcases the effective use of HTML5, CSS3, and JavaScript to create a responsive, accessible, and performance-optimized application tailored to local needs.

From a social perspective, EVENT +舛 contributes to increased visibility of free community events, encourages participation among students and young professionals, and supports local organizers by simplifying event promotion. The platform reinforces cultural identity through its localized design and focus on Ethiopian community activities.

## Future Enhancements

While EVENT +舛 achieves its current objectives, several enhancements can be implemented in future iterations:

1. **Multilingual Support:**  
Adding full Amharic and Afaan Oromo language options to increase accessibility.
2. **Backend Integration:**  
Introducing a backend system and database to support real-time updates and user-generated content.
3. **User Accounts (Optional):**  
Allowing optional user profiles for saved events and personalized recommendations.
4. **Push Notifications:**  
Implementing browser or SMS notifications for upcoming events.
5. **Organizer Dashboard:**  
Providing organizers with analytics on event views and RSVPs.

These enhancements would further improve usability, scalability, and long-term sustainability.