EVENT MANAGEMENT SYSTEM

1. Event Management System Using Python Flask

Flask. It automates the process of scheduling events, allocating resources, preventing duplicate bookings, and generating event reports. The system provides an easy-to-use interface that allows administrators to create events, manage resources, track event allocations, and validate overlaps to ensure efficient handling of event-related operations.

2. Abstract

The Event Management System enables users to add, edit, and delete events, manage various resources, prevent scheduling conflicts, and generate organized reports. Built using Flask, SQLAlchemy, Jinja2, and Bootstrap, the system ensures a smooth workflow for planning and managing events. Resource allocation is validated to prevent overlapping event timings. The system replaces manual planning, reduces human errors, and provides an intuitive platform for managing events efficiently.

3. Introduction

Event scheduling in manual systems often leads to issues such as double booking of resources, incorrect timings, and lack of centralized tracking. This project automates the event planning process by providing features such as event creation, resource allocation, conflict checking, and event report generation. The system ensures that each event is validated for time conflicts and resource availability. It stores all event details, maintains resource lists, and provides administrators with a complete overview of upcoming and past events. The web interface simplifies the management process and improves operational efficiency.

4. Objectives

- Provide an Event Management Module for adding, editing, and deleting event details.
- Implement a Resource Management Module to manage event resources.
- Validate event timings to prevent overlapping schedules.
- Allocate resources to events using a linked allocation module.
- Generate real-time event reports and summaries.
- Provide an easy-to-use web interface for administrators.

5. Tools and Technology used

Category	Tools and Technologies
Backend Framework	Python Flask
Frontend	HTML, CSS, Bootstrap
Database	MySQL
Forms	Flask-WTF
IDE/Editor	VS code

6. Modules Implemented

6.1 Event Management Module
- Create, edit, and delete events.
- Each event includes title, description, start time, and end time.
- Validations prevent duplicate event entries.
- Ensures end time is greater than start time.
- Provides a complete table view of all events.

6.2 Resource Management
- Add, edit, and delete resources
- Resources include name and type.
- Ensures duplicate resources are not created.
- Used during event allocation.

6.3 Resource Movement Module
- Links resources to events.
- Validates time conflicts:
- Prevents assigning the same resource to overlapping events.
- Ensures resource availability for selected event timings.
- Displays all allocations with event and resource details.

6.4 Reporting Module
- Generates combined reports containing:
  - Event details
  - Resource allocations
  - Dates & timings
- Provides a summary for administrators to monitor upcoming, ongoing, and completed events.
- Helps in planning and resource utilization..

7. Database Design
7.1 Entities and Fields:
Event Table

- event_id
- title
- start_time
- end_time
- description

Resource Table

- resource_id
- resource_name
- resource_type

Event_resource_allocation Table

- allocation_id
- event_id
- resource_id

7.2 Relationships:
- One event → many resource allocations
- One resource → allocated to many events
- Allocation table acts as a bridge between events and resources

The relational structure ensures accurate scheduling and prevents resource conflicts.

8. Flow of the Application
- User accesses the home dashboard.
- Navigate to **Events** → create, edit, delete events.
- Navigate to **Resources** → add, edit, delete resources.
- Navigate to **Event Allocation** → allocate resources to events.
- System checks for overlapping event timings.
- Navigate to **Reports** → view complete event & resource summary.

9. Advantages of the System

- **Avoids double booking** through automated conflict checks.
- **Streamlines scheduling** with real-time validation.
- **Improves accuracy** by eliminating manual entry errors.
- **Enhances resource utilization** by providing allocation history.
- **Boosts efficiency** through easy navigation and data presentation.
- **Ideal for organizations** managing multiple events and resources.
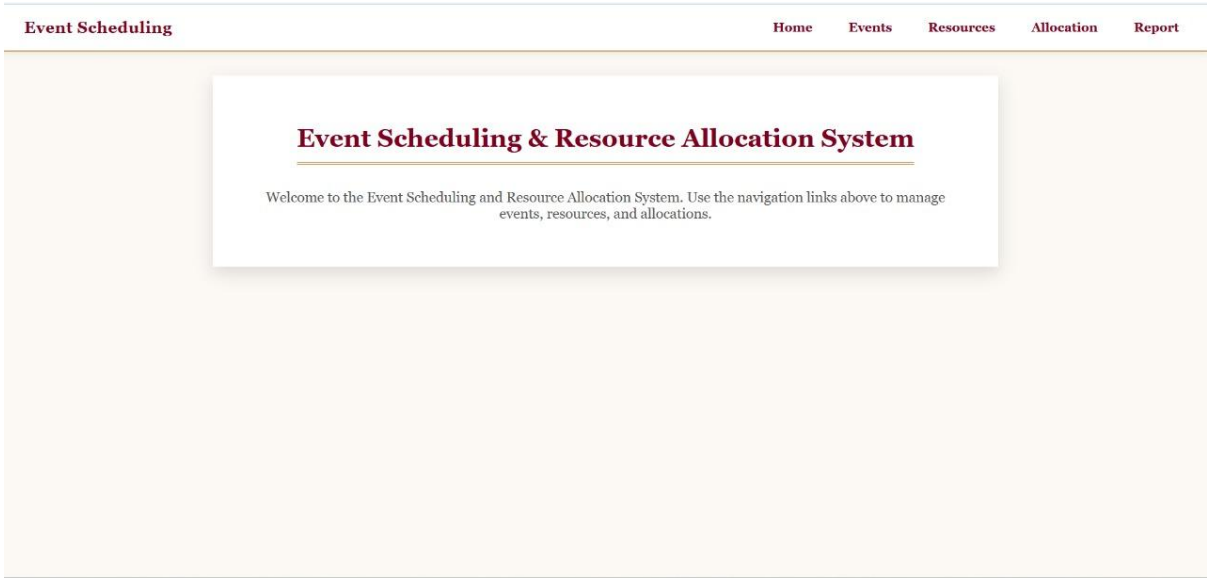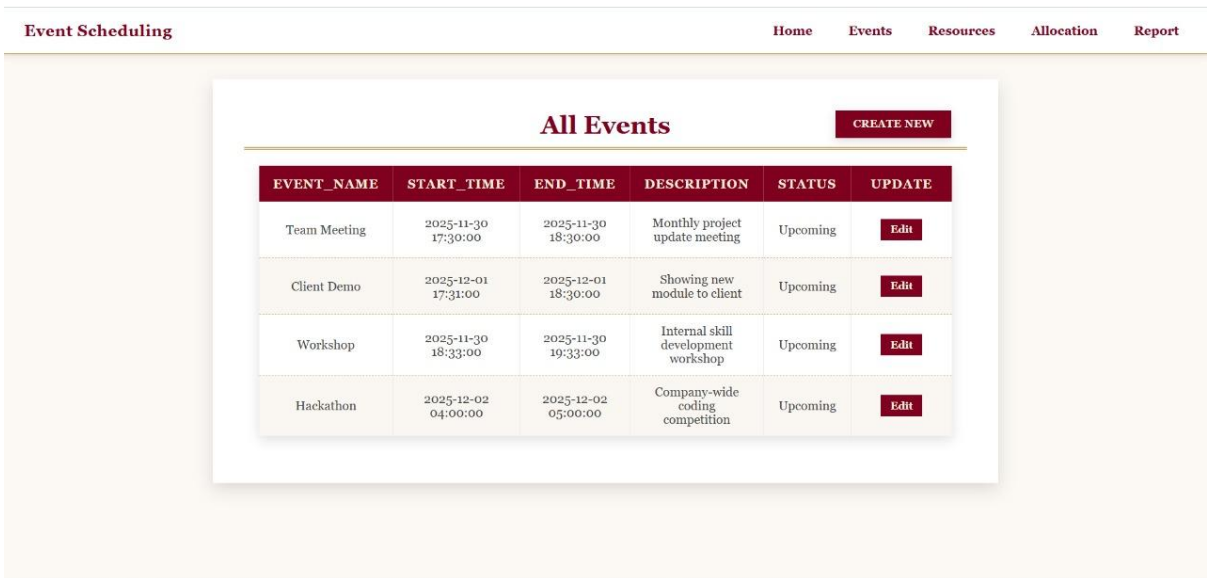
10. Screenshots

Figure 1: Home Page

Figure 2: All Events

Figure 3: Create New Event

Figure 4: Edit Event

All Resources

CREATE NEW

RESOURCE NAME	RESOURCE TYPE	UPDATE
Conference Room A	Room	Edit
Laptop	Equipment	Edit
Projector	Equipment	Edit
Auditorium	Room	Edit

Figure 5: All Resources

Create New Resource
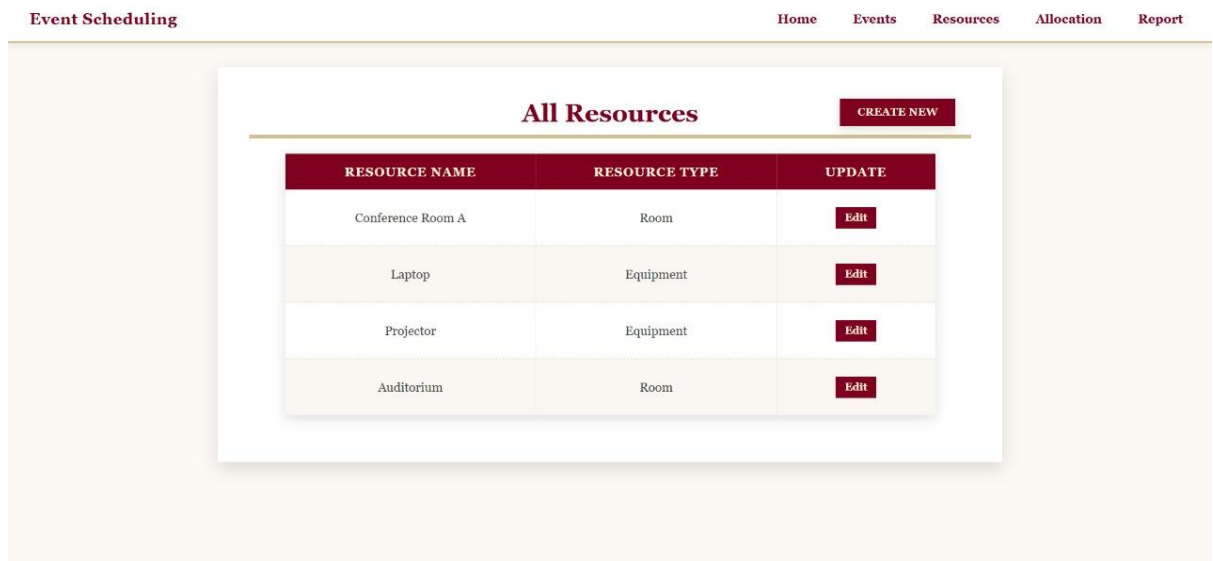
BACK

Resource Name:

Resource Type:
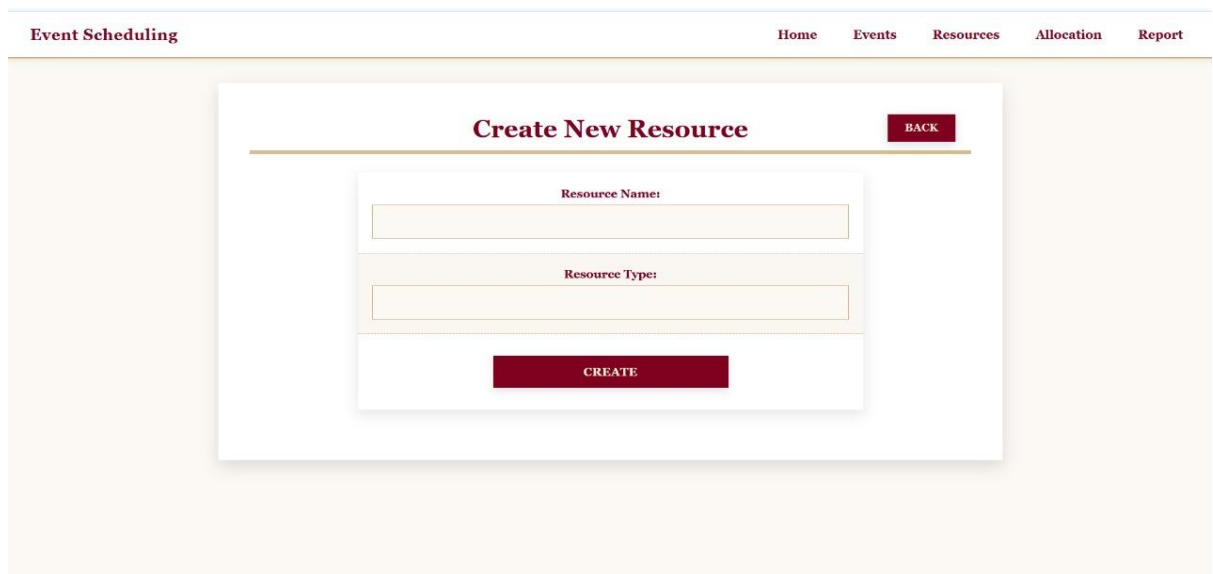
CREATE

Figure 6: Create New Resources

Figure 7: Update Resources

Figure 8: All Allocations

All Reports

RESOURCE	UTILIZING HRS FOR COMPLETED EVENT	UPCOMING BOOKING
Conference Room A	0 hrs 0 mins	1. Team Meeting 2. Client Demo
Laptop	0 hrs 0 mins	1. Workshop 2. Hackathon
Projector	0 hrs 0 mins	No Upcoming Bookings
Auditorium	0 hrs 0 mins	No Upcoming Bookings
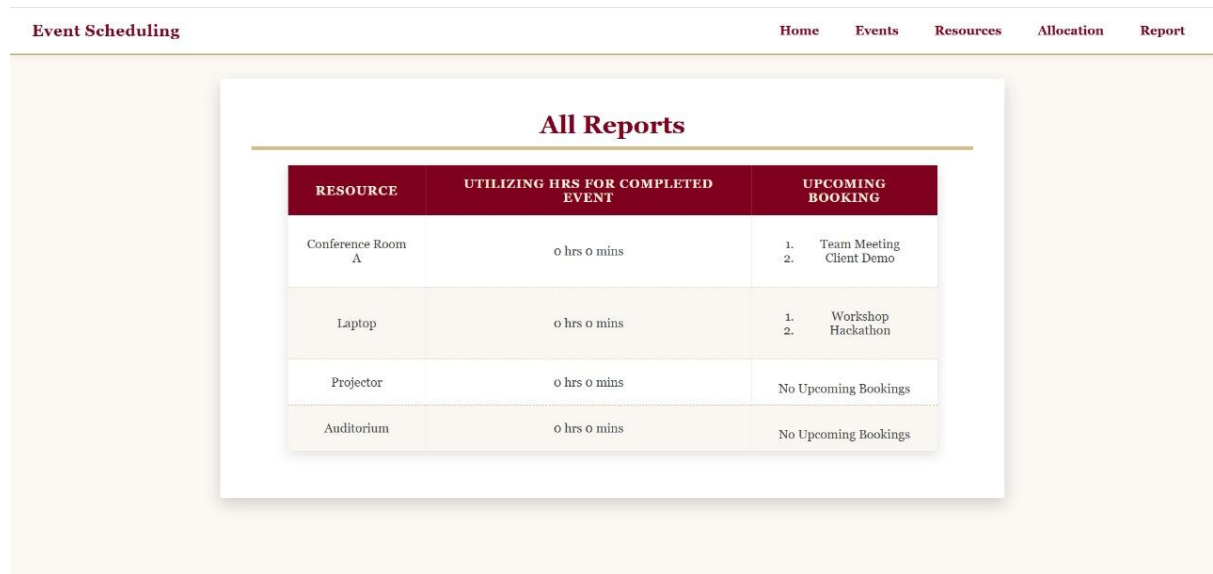
Figure 9: All Reports

11. Conclusion

The Event Management System offers a complete and automated solution for planning and organizing events. It prevents scheduling conflicts, manages resources effectively, and provides detailed reporting tools. The platform improves operational efficiency, accuracy, and transparency in event handling. This project demonstrates the importance of using web-based systems to simplify complex event scheduling tasks, making it suitable for institutions, offices, and organizations.