KOCAELI UNIVERSITY

DEPARTMENT OF COMPUTER ENGINEERING

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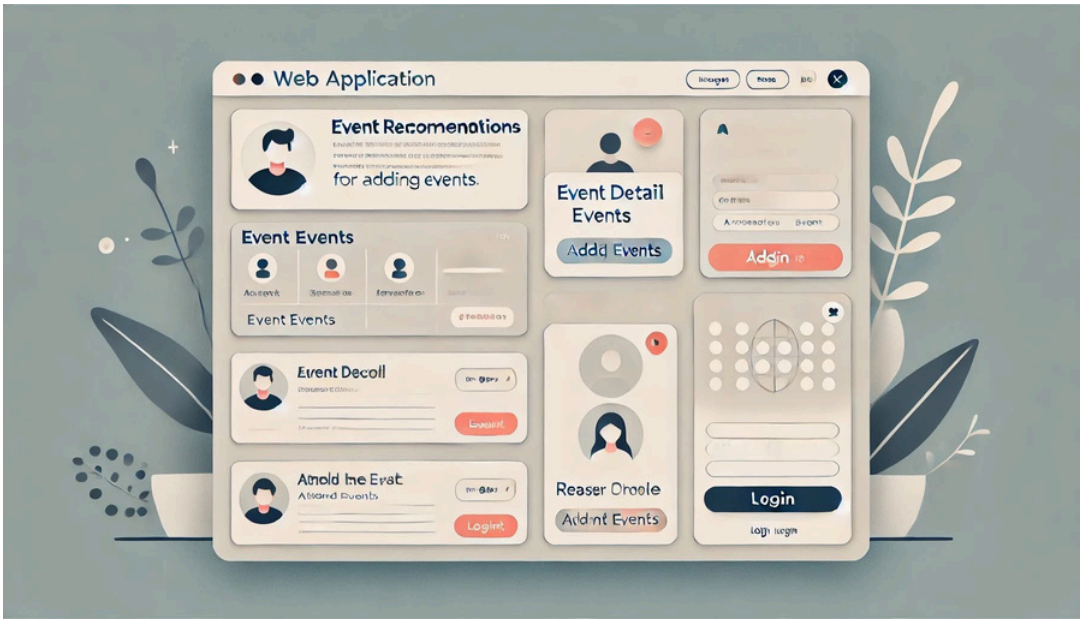
Smart Event Planning Platform



This project aims to develop a web-based Smart Event Planning Platform where users can create, participate and socially interact around events. Users will receive personalized event recommendations, be able to chat and track events on a map.

Objective:

- Gaining knowledge and skills in web programming,
- Development of web page creation, database design and management skills,
- Creating a dynamic and user-friendly web platform,
- Development of systems for real-time data processing and user interaction,
- Developing an intelligent program that provides rule-based personalized recommendations,
- Enriching the user experience with API integrations and functions such as maps and route planning,
- Strengthening teamwork and problem solving skills through the technical challenges involved in the project.

Programming Language: ASP.Net, Java Spring, React.js, Django. etc

Project Architecture

1. Frontend (User Interface)

An interface will be designed where users can view and participate in events and create their own events. Users will also have access to a chat window and an event map.

- Main Components:
  - Main Page Users recommended events that he can and where they can add their own activities.
  - Event Page: This is where they can view the details of the selected event and see participate.Chat It provides messaging between users.
  - User Profile: This is the profile page where users can view the activities they have participated in.
  - Admin Profile: The admin profile is an area used for the administration of the platform. Administrators can manage user accounts, review activities and delete or edit them when necessary.
  - Login Screen: The login screen is an area where users can log in to the platform or create a new account. Users can log in with a username and password; new users are also given the option to register and reset their password.

2. Backend (Server Side)

User and event data will be managed on the server side. Operations such as user transactions, event management and messaging will be performed here.

a.User Management:

- It includes login, registration, password reset and user verification functions.
- It provides features such as creating and updating user profiles, adding and updating interests.
- Authorization is done by defining user roles (user, admin).
- Users should be able to register by entering basic personal information such as username, password, first name, last name, date of birth, gender, e-mail address, phone number, interests and profile photo.
- Users should be able to log in with a username and password. Passwords should be stored securely and authentication should be performed.
- There should be a "forgot password" option for users to reset forgotten passwords.
- Users should be able to edit their personal profile pages, add profile pictures and update their basic information.

b.Event Management:

- Users Event creation, Update and deletionwill be
- able to perform their transactions.
- Event details (name, date, time, description, location, category) will be retrieved
- by users and added as an event.
  Admin will manage all events, approving, deleting or editing them.

c. Event Suggestion System:

- A rules-based system will be used, providing recommendations based on users'
- interests and participation history. Creates rule-based personalized activity
- recommendations based on the user's interests. The suggestion system is continuously updated to improve the user experience.

d. Conflict Algorithm:

- It is a system that checks whether the events that users want to attend overlap in terms of date and time.
- When the user creates an event, it automatically determines if existing events overlap.
- It informs the user about conflicting activities and offers alternative options.

d.Admin Panel:

- Admin users can manage the entire system.
- User management includes functions such as approving activity, reporting and
- adjusting system settings.
- Admin, in the systemall users and events details and intervene when necessary.
  Ensures continuous improvement of the system with functions to collect and manage user feedback

f. Messaging Panel:

- The messaging panel will be created separately for each event and all users participating in the event will be able to exchange messages in the same chat area.
- This chat area will be public and all participants will be able to see the messages sent.
- It will not be a group chat, but a general chat environment accessible to everyone participating in the event. The chat will not be in real time, so users will be able to access messages by refreshing the page or browsing the chat history.
- A separate chat history will be kept for each event and users will be able to review previous messaging.

Database Design

A relational database will be used in the project. Data such as events, users, participants and messages will be managed in different tables. The database will contain tables and project requirements.

There should be functional tables to cover. Tables should be associated with each other via key and should be normalized.

- Database Tables
  - Users: ID, username, password, email, location, interests, first name, last name, date of birth, gender, email address, phone number and profile photo
  - Events: ID, event name, description, date, time, duration, location, category.
  - Participants User ID, Activity ID (to track which activities a user participated in).
  - Messages : Message ID, Sender ID, Recipient ID, Message Text, Send Time. Points User ID, Points, Date Earned.

Main Functions and Features

Personalized Activity Suggestion System (Rule Based)

Personalized activity recommendations will be made based on users' interests, activity history and location. Recommendations will be presented within the framework of certain rules to enhance user experience.

Suggestion Rules:

- Alignment Rule: Events that match the user's stated interests will be suggested first. For
- example, if a user is interested in sports, sports events will be first in the suggestion list. Participation History Rule: Based on the type and frequency of activities the user has participated in the past, similar types of activities will be suggested. For example, a user who frequently participates in music activities will be recommended new music-related activities.
- Geolocation Rule: Events that are close to the user's geographic location will be recommended at a higher priority than those that are farther away. This allows users to find events within easy reach.

This rule-based recommendation system an important role in identifying activities that users may want to participate in. Thanks to the simplicity and speed of the system, recommendations can be presented to the user immediately, and rules can be improved and optimized over time.

Map and Route Planning

Users will be able to see the locations of events on the map and route suggestions that are most suitable for the events. This functionality will enhance the user experience and encourage participation in events.

1. Location Based Events:
   - Events locations Map on to be marked andusers will be able to find events easily.
   - On the detail pages of the events, the location of the event on the map is visualized.

- When users click on an event on the map, they will be able to see the details of the event (date, time, description).

2. Route Planning:
   - The most appropriate route suggestions will be made for users to reach the event
   - from their designated starting point.
   - Route suggestions will be calculated in real time using the API.
     Users will be able to get alternative route options for different modes of transportation (walking, driving, cycling, etc.).

Gamification System

Users will earn points for participating in activities and will incentivize their participation.

Main Components:

1. Scoring System:
   - Users will earn points based on their various activities. These activities may include:
     - Event Participation: Users will earn a certain number of points for each event they participate in. For example, they will receive 10 points for participating in an event.
     - Event Creation: Users will earn a certain number of points when they create a new event. There will be 15 points per event creation.
     - First Join: Users will receive bonus points for the first time they join the platform. For the first event participation, 20 points will be awarded.

2.Mathematics of Scoring:
   - Users' scores will be calculated in aggregate according to their activity. For example:
     - Number of events they attended: 5 events× 10 points= 50 points
     - Number of events they created: 2 events× 15 points= 30 points
     - First sign-up bonus: 20 points
   - Total Points= (Participation Points)+ (Creation Points)+ (Bonus Points)

Date and Time Overlap Algorithm

A system has been developed to avoid time conflicts when users participate in events. When a user wants to participate in an event, it is checked whether there is another event at the same time. This system enables users to participate in events in a more organized way and increases participation rates.

Main Components:

1. Time Overlap Algorithm:
   - When the user wants to participate in events, the system checks the start and end times of the events the user has already participated in.
   - The timeframe of the event the user wants to participate in is compared with the available events.

Algorithm Functioning:

- Control of Current Activities : Get a list of activities the user has participated in the past.
- Getting the Time of the New Event: The start and end times of the event that the user
- wants to participate in are determined.
  Time Overlap Check: The time periods between the user's current activities and the new activity are compared.
    - If any of the existing activities overlap with the new activity, a notification is sent to the user.
- Notification to the User: If a conflict , the user will be informed about the available events and will not be able to select the event they wish to attend.

User Interface:

- When the user selects the event they want to attend, they will receive a notification if there is a time conflict.
- If there is a conflict, alternative activity suggestions are presented along with the user's current activities.

Messaging System

A messaging system has been developed to increase information exchange and interaction about the events. This system allows users to ask questions about the events, share their experiences and interact with other participants.

Main Components:

- User Communication:
  Users can use messaging on the event page to ask questions, make suggestions or meet other participants. Messages will be visible on the event page, increasing interaction between participants.
- Notifications:
  Users will receive push notifications when they receive a new message. These notifications enable the user to respond to messages quickly and increase engagement. Notifications will be displayed in a user-friendly way on the web platform.
- Message History
  Users will be able to see past interactions related to activities by accessing their previous messaging. Message history allows users to easily access previous discussions and information.

8. Conclusion

This project offers a comprehensive application development process that combines modern technologies such as web programming, database management, rule-based recommendation system and communication. It will create an innovative solution for planning and managing social events by providing a strong infrastructure in terms of both technical and user experience.

Project Requirements

1. User registration, login, password reset and profile update.
2. Functions for creating, updating, deleting and participating in events.
3. Rule-based personalized recommendation system.
4. System to detect time conflicts between events.
5. Use of messaging functionality
6. Showing the activities on the map and suggesting the most suitable routes.
7. Earning points and achievements based on users' participation in activities and displaying them on the profile page.
8. Admin privileges for user and event management; approving and editing events.
9. Creating the interface and design structure (Frontend)
10. User authentication, authorization, data security and encryption methods.

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