

WeatherNow Calendar Integration

Portfolio Assignment 02: UI/UX Design

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1 Summary of Requirements

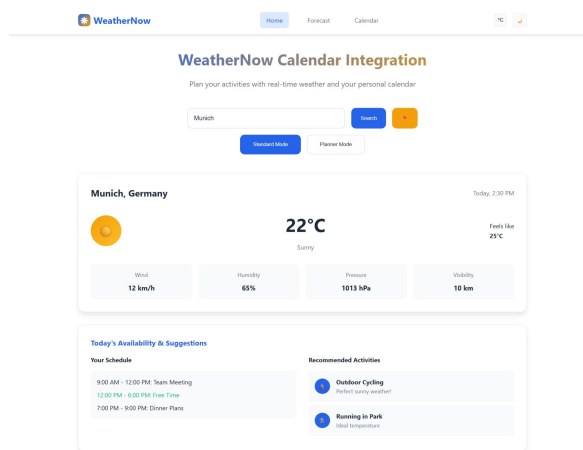
Based on our Requirements Document, WeatherNow Calendar Integration is a React.js web application that combines real-time weather data (via OpenWeatherMap API) with the user's Google Calendar (via Google Calendar API) to suggest context-aware activities. It must:

- Display current weather and a 5-day forecast for any city or geolocation.
- Integrate Google Calendar to detect free/busy slots for scheduling suggestions.
- Recommend personalized indoor or outdoor activities according to weather conditions and user availability.
- Provide a toggle between light and dark themes and a unit switch ($^{\circ}\text{C}/^{\circ}\text{F}$).
- Ensure responsive design across devices with accessible navigation to Home, Forecast, and Calendar views.
- Handle errors gracefully, including invalid input, permission denials, and API failures.

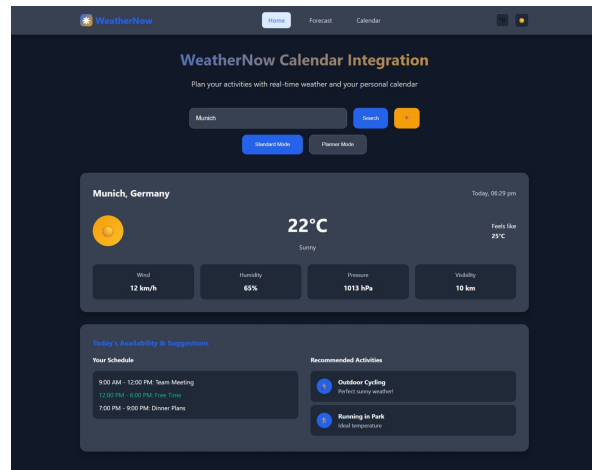
2 User Interface Design

This section presents mid-fidelity desktop and mobile mockups for the key screens: Home, Forecast, and Calendar. Each view is shown in light and dark variants, with mobile versions demonstrating responsive stacking and touch improvements.

2.1 Home Screen



(a) Desktop Light Mode



(b) Desktop Dark Mode

Figure 1: Home screen (desktop) with search, theme toggle, and summary of current weather and calendar suggestions.

Mobile View



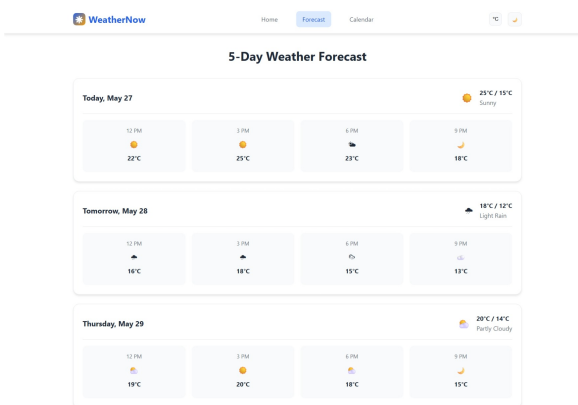
(a) Mobile Light Mode



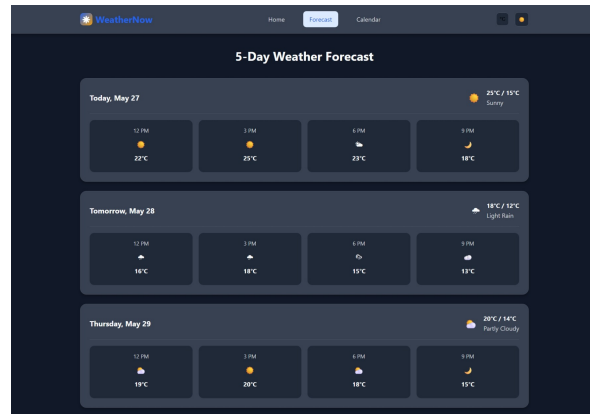
(b) Mobile Dark Mode

Figure 2: Mobile Home screen with vertical stacking, larger touch targets, and simplified header controls.

2.2 Forecast Screen



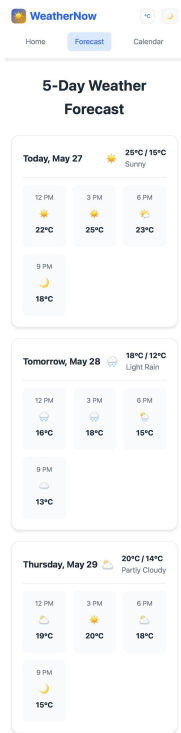
(a) Desktop Light Mode



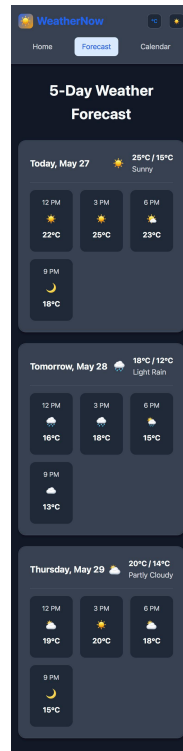
(b) Desktop Dark Mode

Figure 3: 5-day weather forecast (desktop) with interval cards, icons, and summary metric.

Mobile View



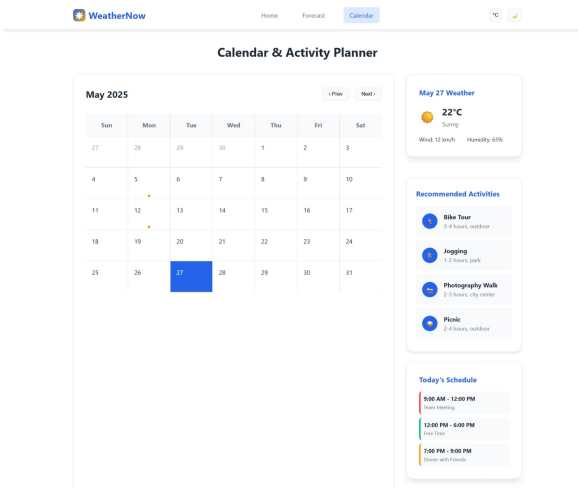
(a) Mobile Light Mode



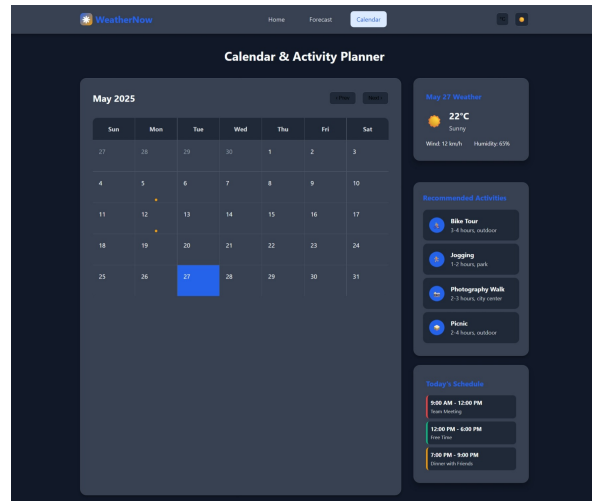
(b) Mobile Dark Mode

Figure 4: Mobile forecast with full-width stacked cards for each interval, optimized for scrolling.

2.3 Calendar & Planner Screen



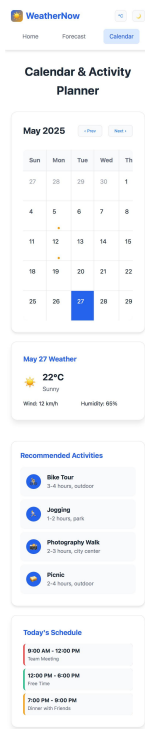
(a) Desktop Light Mode



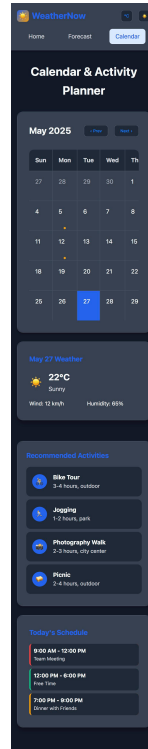
(b) Desktop Dark Mode

Figure 5: Calendar view (desktop) showing selectable dates, event slots, weather overlay, and suggested activities.

Mobile View



(a) Mobile Light Mode



(b) Mobile Dark Mode

Figure 6: Mobile calendar with bottom tab navigation, single-column layout, and compact event display.

3 Navigation Flow

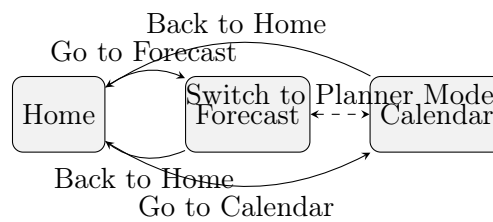


Figure 7: User navigation illustrating consistent, intuitive flow between screens.

4 Design Decisions and Rationale

This section explains the reasoning behind key UI conventions and patterns chosen to meet user needs and requirements.

4.1 Hierarchy and Layout

We use a clean header with persistent tabs to ensure users can quickly switch between Home, Forecast, and Calendar (addressing clarity and discoverability). Information is grouped within card components for weather summaries, forecast intervals, and calendar events, creating a clear visual hierarchy and supporting glanceable insights.

4.2 Theming and Customization

A light/dark mode toggle respects individual preferences and environmental lighting conditions (enhancing readability and reducing eye strain). The unit switch (°C/°F) supports regional user expectations, improving usability across different markets.

4.3 Responsive Behavior

Layouts adapt from a two-column desktop view to a single-column mobile view at breakpoints of 768px and 480px. On mobile, cards are full-width with increased touch target sizes (minimum 44×44px), and navigation shifts to a bottom tab bar for ergonomic access.

4.4 Error Handling and Accessibility

Inline alerts and toast notifications provide immediate feedback for invalid city inputs or API issues, maintaining user trust. All interactive elements include ARIA labels and logical tabindex ordering, ensuring operability via assistive technologies and keyboard navigation. Color contrast ratios exceed WCAG 2.1 AA thresholds for readability.

5 Evaluation Against Criteria

5.1 Clarity and Completeness of the Design

Each screen is presented with labeled visuals and accompanied by descriptive captions and explanatory text. The Home, Forecast, and Calendar views are understandable in isolation and in context, illustrating all core functionalities.

5.2 Consistency and Structure of Navigation

The navigation diagram (Fig. 7) shows a consistent, intuitive flow. Primary tabs remain in a fixed header on desktop and a bottom bar on mobile, reinforcing user goals and minimizing cognitive load.

5.3 Visual and Interaction Design Quality

Cards, whitespace, and typography have been used to emphasize content hierarchy. Established UI patterns (tabs, cards, toggles) ensure familiarity. Interaction elements are clearly indicated with bold buttons and icons, providing affordances for user actions.

5.4 Connection to Requirements and User Needs

Design rationale sections map directly to user stories and requirements: theme toggles satisfy preference needs (US6), calendar integration addresses scheduling stories, and errors are handled per US7. Recommendations panels link weather data to actionable items, reflecting user-centric functionality.

Acknowledgement of AI Technologies

This document was drafted and refined using GPT-4o based on outlines and reviewed by all authors.