**My RVs Application Design Document**

This document outlines the comprehensive design, layout, user interface (UI), user experience (UX) enhancements, and technical considerations for the "My RVs" contact tracking application. This serves as our collaborative blueprint for development.

**1. Core Application Principles**

* **Application Name:** My RVs
* **Purpose:** A contact tracker specifically designed for RVs.
* **Data Storage:** All data will be stored offline, locally on the device being used to enter the information.
* **Device Compatibility:** Primarily designed for smartphones, with the ability to transfer data to a computer via cable.
* **Development Environment:** VS Code for programming, GitHub for version control.
* **Coding Standards:** Logical and orderly code structure. CSS will have section numbers and names for clarity and maintainability.
* **Dependencies:** All external links and libraries used will be free.

**2. Application Views**

The application will feature four primary views. Navigation will be explicit, and no view will have a navigation button that navigates to itself.

**A. cardsView (Home Page)**

This will be the default home page when the application opens (after initial setup).

* **Header (Frozen):** This section will remain visible while the content below scrolls.
  + **Main Title:** "MY RV’s"
  + **Subtitle:** "Home"
* **Navigation & Actions (Horizontally Aligned):**
  + "Add RV" button: Navigates to formView to create a new RV entry.
  + "Map" button: Navigates to mapView.
  + **Gear Icon:** Aligned to the far right with the "MY RV's" title, navigates to settingsView.
* **Sorting:**
  + **Title:** "Sort by:"
  + **Options (Horizontally Aligned Radio Buttons):**
    - "Oldest to Newest" (Default selection)
    - "Newest to Oldest"
  + **Behavior:** RV contact cards will always sort upon entry to this view. If no specific sort is selected, it will default to "Oldest to Newest."
* **Filtering Options (Horizontally Aligned):**
  + **Title:** "Filter Options:"
  + **Permanent Options (Always #1 and #2):**
    - "All Areas" (Displays all RVs, no filtering applied).
    - "No Area" (Displays RVs explicitly marked with "No Area" - this will be the default for new/edit forms but is user adjustable).
  + **User-Defined Options:** These will populate alphabetically after "All Areas" and "No Area," based on unique "Area" names entered by the user (e.g., "Old Town," "Business," etc.).
* **Main Content: RV Contact Cards**
  + **Structure:** Each contact will have a dedicated card displaying:
    - **Left Side:** RV name and address.
    - **Middle Section:** Last contacted date and a calculated count of "days ago" from the current date.
      * **Visual Alert:** If "days ago" count is greater than 14, the number will turn **red**.
    - **Top Right Corner:** "Delete" button.
      * **Confirmation:** Clicking "Delete" will prompt a confirmation dialog: "Are you sure?"
    - **Bottom Right Corner:** The associated "Area" name.
  + **Interaction:** Clicking anywhere on an RV card (excluding the "Delete" button) will navigate to that specific RV's formView for editing.

**B. formView (Add/Edit RV)**

This view is used for creating new RV entries or modifying existing ones.

* **Header (Frozen):**
  + **Main Title:** "MY RV’s"
  + **Subtitle:** "Add/Edit RV"
* **Navigation & Command Buttons:**
  + <: Navigates to the previous RV entry in the current sorted/filtered list. Prompts if no more cards are left.
  + Save: Saves current work on the form and remains on the formView.
  + Save & New: Saves the current form and opens a new, blank formView for a new entry.
  + Save & Close: Saves the current form and returns to the view from which formView was called (either cardsView or mapView).
  + Home: Navigates to cardsView.
  + Map: Navigates to mapView.
  + Cancel: Discards all unsaved data on the form and returns to the view from which formView was called.
  + >: Navigates to the next RV entry in the current sorted/filtered list. Prompts if no more cards are left.
  + **Gear Icon:** Navigates to settingsView.
  + **Unsaved Changes Prompt:** If changes have been made but not saved, navigating away via Home, Map, Save & Close, <, or > will trigger a confirmation dialog. The prompt will explicitly state: "You have unsaved changes. Do you want to **Save**, **Discard** changes, or **Cancel** and stay on the form?"
  + **Button Layout:** If the total number of buttons exceeds the width of the container, the navigation buttons (< and >) will be strategically moved to an optimal, decided-upon location to maintain a clean layout.
* **Form Fields:**
  + **Sizing:** Fields will be sized dynamically to accommodate data efficiently (e.g., First Name and Last Name fields may appear on a single horizontal line).
  + **Data Fields:**
    - First Name
    - Last Name
    - Address Number
    - Street Name
    - Phone (Cell): Auto-formats as typing (e.g., (XXX) XXX-XXXX).
    - Phone (Home): Auto-formats as typing.
    - Phone (Work): Auto-formats as typing.
    - Latitude: Will have a pop-up explanation detailing the simplest way to obtain it.
    - Longitude: Will have a pop-up explanation detailing the simplest way to obtain it.
    - **Auto-fill:** The application will explore auto-filling Latitude/Longitude based on the entered address if possible.
    - Area Name (User-defined, defaults to "No Area" for new entries).
  + **Contact Log (at the bottom of the form):**
    - **"First Contacted":** Date/Time stamp field and a corresponding Note field.
      * **Default:** Date/Time defaults to the current date/time until the user changes it.
      * **Date Picker:** A date picker UI element (calendar icon) will be provided for easy date selection.
    - **Adding More Contacts:** Once the initial contact is saved, an "Add RV Contact" button will become active on the form. Clicking it will add another Date/Time field (defaulting to current) and a Note field below the previous entry.
    - **Latest Contact:** The date of the *latest* contact entry will be used to calculate "days since last contacted" for the cardsView.
    - **Visual Alert:** If "days since last contacted" exceeds 14 days, the display will turn **red**.
  + **Default Population:** All default fields (including Date/Time) will populate *before* any "dirty" (changed) state validation is performed.

**C. mapView**

This view displays RV locations on a map.

* **Header (Frozen):**
  + **Main Title:** "MY RV’s"
  + **Subtitle:** "Map"
* **Navigation Buttons (Horizontally Aligned):**
  + "Add RV": Navigates to formView for a new entry.
  + "Home": Navigates to cardsView.
  + **Gear Icon:** Navigates to settingsView.
* **Filtering (No Sorting):** Similar filter options as cardsView (All Areas, No Area, user-defined areas).
* **Map Display:**
  + **Pins:**
    - **Blue Pin:** Represents geolocated RVs (where an address or Latitude/Longitude is provided and successfully mapped).
      * **Hover:** Hovering over a blue pin will display the RV's name and address.
      * **Click:** Clicking a blue pin will navigate to that specific RV's formView for editing.
    - **Red Pin:** Indicates RVs that have not been contacted for over 14 days.
    - **Violet Pin (Centered):** Used for RVs where an address cannot be found and no Latitude/Longitude has been entered. These pins will be centered on the map based on the default location from settingsView.
    - **No Located Pins:** If multiple pins are at the exact same location, they will "fan out" around the center point to prevent stacking and ensure visibility.
  + **Geolocation Priority:** Latitude and Longitude (if present in an RV's data) will override an address for map placement.
  + **Map Centering:**
    - The map will initially center based on the default City and State entered by the user in settingsView.
    - **Override:** If Latitude/Longitude are provided in settingsView, they will take precedence for map centering.
    - **Requirement:** The user *must* enter at least a City/State *or* Latitude/Longitude in settingsView for the map functionality to be usable.

**D. settingsView**

This view manages application default settings and initial setup.

* **Header (Frozen):** Similar frozen header as other views.
* **Settings Fields (Defaults/Map Centering/Auto-fill):**
  + City (Default city for new RVs, used for map centering).
  + State (Default state for new RVs, used for map centering).
    - **Validation:** Input will be forced to two capital letters (e.g., "CA" for California). Automatic conversion to uppercase will occur, and saving will be prevented if not exactly two letters.
  + Area (Default area name for new RVs).
  + Latitude (Map centering override, default latitude for new RVs).
  + Longitude (Map centering override, default longitude for new RVs).
* **First-Time Use Requirement:** A prominent line will be displayed: "The default city and state or latitude longitude must be entered before adding contacts."
* **Initial App Load:** The very first time the application is launched, it will open directly to settingsView to ensure initial setup. Subsequently, it will open to cardsView (Home).

**3. User Interface (UI) & User Experience (UX) Enhancements**

* **Consistency:** A consistent visual style (colors, fonts, button shapes, spacing) will be maintained across all four views for a cohesive and professional feel.
* **Clear Hierarchy:** Font sizes, weights, and spacing will be used effectively to clearly differentiate titles, subtitles, buttons, and content, guiding the user's eye.
* **Button Placement:** Navigation and command buttons will have clear, predictable placement (e.g., top-right for settings, bottom for primary actions). Thoughtful arrangement will be used for formView's potentially numerous buttons.
* **Radio Buttons for Sorting:** This is an effective choice for mutually exclusive sorting options.
* **Filter Options Display:** For user-defined filter options, a horizontal scrollable list will be considered if they become numerous, to prevent wrapping and maintain cleanliness.
* **Card Design (cardsView):** Adequate padding around text and elements within each card will ensure readability. The "days ago" count and its red alert color will be prominent. The "Delete" button will be clearly visible but designed to minimize accidental presses.
* **Form Field Layout (formView):** Related fields will be grouped. All input fields will be clearly labeled. The "Add RV Contact" button will be visually distinct and appear only when relevant. The Lat/Long pop-up explanation will be concise and easy to understand.
* **Map Interactions (mapView):** Pin colors will be distinct and easily identifiable (blue for located, red for overdue, violet for unlocated). Hover information will appear and disappear quickly. Clicking a pin will feel natural and directly lead to the contact's form.
* **Settings Input:** Each setting field will be clearly labeled, with hints provided where necessary (e.g., "Enter your default city here").

**UI/UX Enhancements (Incorporated Suggestions):**

1. **Visual Feedback for Actions:**
   * **Saving:** A brief visual indicator (e.g., a small, temporary "Saved!" message or a subtle green flash on the button) will appear when "Save," "Save & New," or "Save & Close" is clicked, reassuring the user of success.
   * **Loading:** For mapView or cardsView (if significant data loading occurs), a small spinner or "Loading..." message will be displayed to prevent the user from thinking the app has frozen.
2. **Date Picker for Contact Dates:** A date picker UI element (calendar icon) will be provided for all date fields, making data entry faster and reducing errors.
3. **Search Bar on cardsView:** A dedicated search bar will be implemented on cardsView to allow users to quickly find an RV by name, address, or notes, complementing the filtering options.
4. **Confirmation Dialog for "Save & Close" / Navigation away from dirty form:** The prompt for unsaved changes will explicitly state: "You have unsaved changes. Do you want to **Save**, **Discard** changes, or **Cancel** and stay on the form?"
5. **Phone Number Auto-Formatting:** As the user types, phone numbers will automatically format (e.g., (XXX) XXX-XXXX or XXX-XXX-XXXX).
6. **State Field Input Validation:** The State field will be strictly limited to two capital letters. Input will be automatically converted to uppercase, and validation will prevent saving if it's not exactly two letters.

**4. Technical/Implementation Considerations**

* **Unique RV Identifier:** Each RV entry will have a unique identifier (e.g., a UUID) for internal data management (editing, deleting, linking). This will be an internal field, not visible to the user.
* **Date/Time Handling:** Dates will be stored as timestamps (e.g., milliseconds since epoch) for easier calculations and to avoid localization issues. They will be formatted for display in the UI.
* **Local Storage API Choice:** IndexedDB is the preferred local storage API for robust, structured data storage, given the offline data requirement. We will confirm this choice during initial setup.

**5. Finalized Button Color Scheme**

* **Primary Action Buttons (e.g., "Save", "Add RV", "Home", "Map"):**
  + **Background:** Blue (#007BFF)
  + **Text:** White (#FFFFFF)
* **Destructive Action Buttons (e.g., "Delete"):**
  + **Background:** Red (#DC3545)
  + **Text:** White (#FFFFFF)
* **Secondary Action/Neutral Buttons (e.g., "Cancel", "Save & New", "Save & Close", Navigation < and >):**
  + **Background:** Desaturated Blue (#E0F2F7)
  + **Text:** Dark Gray or Black (#343A40 or #000000)
* **Gear Icon (Settings):**
  + **Color:** Dark Gray or Black (#343A40 or #000000) for clear contrast against a light background.
* **Hover/Active States:** Subtle visual changes (e.g., slightly darker background, border change) will be implemented for hover and active states to provide crucial user feedback.

This document now serves as our comprehensive guide. Please copy and save it.