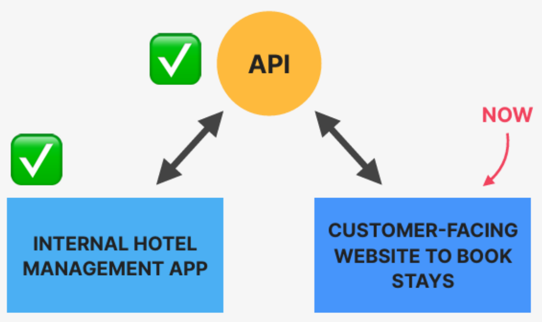
THE PROJECT: **THE WILD OASIS WEBSITE**

THE WILD OASIS


API
NOW
INTERNAL HOTEL MANAGEMENT APP
CUSTOMER-FACING WEBSITE TO BOOK STAYS

- 👉 **Remember:** "The Wild Oasis" is a small boutique **hotel** with 8 luxurious wooden cabins
- ✅ We built their application to manage everything about the hotel: **bookings**, **cabins** and **guests**
- ✅ We also build the **API** using Supabase
- 👉 Now they need a **customer-facing website** where guests can learn about the hotel, browse all cabins, reserve a cabin, and create and update their profile
- 👉 Updating data in the internal app should update the website, so we use the same DB and API
- 👉 **We are hired again** 😎 🎉

👨‍💼 PROJECT **REQUIREMENTS** FROM THE BUSINESS

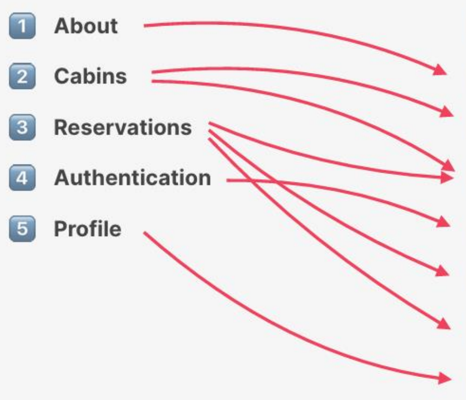
👉 Users of the app are potential guests and actual guests

👉 Guests should be able to learn all about the Wild Oasis Hotel	**ABOUT**
👉 Guests should be able to get information about each cabin and see booked dates 👉 Guests should be able to filter cabins by their maximum guest capacity	**CABINS**
👉 Guests should be able to reserve a cabin for a certain date range 👉 Reservations are not paid online. Payments will be made at the property upon arrival. Therefore, new reservations should be set to "unconfirmed" (booked but not yet checked in) 👉 Guests should be able to view all their past and future reservations 👉 Guests should be able to update or delete a reservation	**RESERVATIONS**
👉 Guests need to sign up and log in before they can reserve a cabin and perform any operation 👉 On sign up, each guest should get a profile in the DB	**AUTHENTICATION**
👉 Guests should be able to set and update basic data about their profile to make check-in at the hotel faster	**PROFILE**

TECHNOLOGY **DECISIONS**

👉 **Framework**	NEXT.JS	*The most popular React meta-framework. Handles routing, SSR, data fetching and even remote state management (in a way...), therefore replacing many tools we had to include before*
👉 **UI State management**	Context API	*We might still need global UI state in a Next.js app. For that, we can use the Context API, Redux, or any of the other solutions. In this case the Context API will be enough.*
👉 **DB / API**	supabase	*We'll use the data and API we already built in the first "Wild Oasis" project. If you skipped that project, please go back to the "Supabase" section to set everything up*
👉 **Styling**	tailwindcss	*Modern way of writing CSS. Extremely easy to integrate into Next.js. Most styles and markup will be pre-written anyway in this project.*

FEATURES + PAGES



FEATURE CATEGORIES

1. About
2. Cabins
3. Reservations
4. Authentication
5. Profile

NECESSARY PAGES

1	Homepage	`/`
2	About page	`/about`
3	Cabin overview	`/cabins/`
4	Cabin detail	`/cabins/:cabinId`
5	Login	`/login`
6	Reservation list	`/account/reservations`
7	Edit reservation	`/account/reservations/edit`
8	Update profile	`/account/profile`

Notes on Project Organization in Next.js

- **Organizing Components**
  - **Co-locating components**: Keeping a component inside its related page folder.
  - **Issue with co-location**: If needed elsewhere, a central **components folder** is still required, leading to an inconsistent structure.
  - **Preferred approach**: A dedicated **_components** folder to store reusable UI elements while opting it out of routing.
- **Next.js Routing and Private Folders**
  - Any folder in **app/** can become a route unless opted out.
  - **Fix for unwanted routes**: Prefix folder names with _ (e.g., _components) to make them private.
  - Private folders do not create routes and remain at the top of the file structure.
- **Creating Additional Folders**
  - **_styles/** → Contains global styles (e.g., globals.css).
  - **_lib/** → Stores helper functions like API connections (e.g., Supabase functions).
  - **public/** → Stores static assets (e.g., images, logos).
- **Alternative Structure**
  - Option to create a **src/** folder at the root to store **app/** and **_components/**.
  - Avoided for simplicity in small to medium projects.
- **Import Aliases in Next.js**
  - Prevents long relative imports (../../components/...).
  - Uses @/ as an alias for the root (@/app/...).
  - Simplifies imports across deeply nested structures

Tailwind CSS Setup in Next.js

- **Tailwind Installation**
  - Installed automatically during create-next-app setup.
  - tailwind.config.js file is already generated.
- **Activating Tailwind**
  - Import globals.css in the layout component:

js

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import "@/styles/globals.css";

  - globals.css contains Tailwind's base styles (@tailwind base;, @tailwind components;, @tailwind utilities;).
- **Applying Tailwind Styles**
  - Uses **utility classes** directly in className prop.
  - No need for separate CSS files.
- **Example Styling**
  - Background color: bg-blue-800
  - Text color: text-gray-50
  - Minimum height: min-h-screen
- **Customizing Tailwind Theme**
  - Defined custom colors from colors.json in tailwind.config.js.
  - Used extend property to add new color values.
  - Example usage:

css

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bg-primary-950

text-primary-100

- **Tailwind IntelliSense**
  - Provides auto-completions for Tailwind classes.

    - Requires **Tailwind CSS IntelliSense** extension in VS Code.
- **Installing Heroicons**
    - Run:

sh

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npm install @heroicons/react

    - Used for adding icons with Tailwind styling.

- **Next.js Metadata Handling**:
    - Metadata, like the **title** and **description**, should be exported using a **metadata object** to avoid hardcoding in the HTML head.
    - **Title**: Exporting a **title** from a layout file sets the page title for all pages, unless overridden by individual pages.
        - **Example**: A global title "The Wild Oasis" appears on all pages by default.
        - To override, **metadata** can be defined on individual pages, e.g., on the **Cabins** page: title: 'Cabins'.

```
export const metadata = {
  title: {
    template: "%s Wild oasis",
    default: "Welcome to Wild oasis",
    description:
      "Luxurious cabin hotel located in the Italian Dolomites",
  },
};
```

    - **Flicker Issue**: Sometimes, the title flickers to a default (like localhost) while the page loads, which may be a **Next.js bug**.
    - **Advanced Title Configuration**:
        - Use **template strings** in the metadata for more flexibility.
        - **Example**: { template: '%s - The Wild Oasis' }, where %s is replaced by the page-specific title.
        - If no title is defined, a **default title** like "Welcome - The Wild Oasis" is used.
    - **Description for SEO**:
        - Description can be defined in the **metadata object** (e.g., description: 'Luxurious cabin hotel located in the Italian Dolomites').
        - This automatically becomes the **meta description tag** in the HTML head.

    - If not overridden on individual pages, the global description is used.
  - **Favicon Setup**:
    - A **favicon.ico** or image file named **Icon** should be placed in the **app folder** (top-level folder). icon.png
    - The favicon image can be in any format (e.g., **PNG**), and Next.js automatically uses it without extra code.
  - **Next.js Font Handling**:
    - Next.js simplifies the process of adding custom fonts to the app.

[End of Notes]

- **Next.js Font Optimizations**:
  - Next.js includes **performance optimizations for fonts** out of the box.
  - Fonts can be **self-hosted** to improve **performance** and **privacy**, avoiding external server requests.
  - Self-hosting prevents **layout shifts** and enhances **page load speed**.
- **Font Hosting from Google**:
  - Google fonts can be **self-hosted** to improve website performance.
  - Using Google fonts directly from Google servers can lead to **privacy issues** (e.g., GDPR violations) and **slower load times**.
- **Steps to Add Google Fonts**:

1. **Import the Font**:

```
import { Josefin_Sans } from "next/font/google";
```

   - Use Next/font/Google to import fonts (e.g., **Josefin Sans**).

2. **Configure the Font**:

```
//calling the function returns an object
const josefin = Josefin_Sans({
  subsets: ["latin"],
  display: "swap",
});
```

   - Define **subset** (e.g., latin for English).
   - Use the **display property**: swap displays text in a default font until the custom font loads.
   - Specify **font weight** if needed (optional for **variable fonts**).

3. **Apply the Font**:
   - The imported font returns a **class name** to be applied to the HTML body or specific elements.

```
 <body
       className={`${josefin.className} antialiased bg-primary-950
text-primary-100
flex flex-col
```

        - Apply the font to the body or specific tags (e.g., headings).

- **Example Code**:

javascript

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```
import { Josefin_Sans } from 'next/font/google';

const josefin = Josefin_Sans({
  subsets: ['latin'],
  display: 'swap',
});

export default function Home() {
  return (
    <div className={josefin.className}>
      <h1>Welcome</h1>
    </div>
  );
}
```

- **Benefits of Self-Hosting Fonts**:
    - **Improves performance** by reducing external HTTP requests.
    - **Enhances privacy** by avoiding external server communication.
    - Prevents **layout shifts** for better user experience.

[End of Notes]

Notes on Improving Navigation and Root Layout in Next.js

Enhancing Navigation

- Current navigation is an unstyled list of links.
- Replacing it with a pre-styled navigation component from starter files.
- Updating <a> elements to Next.js <Link> for proper routing.
    - **Syntax:** import Link from "next/link";
- The new navigation has:
    - Bigger text
    - Side-by-side arrangement
    - Improved styling

Updating the Root Layout

- **Header Component:**
    - Replaces manual <header> setup.
    - Imports logo and navigation.
    - Adds a subtle bottom border.
- **Removing the Footer:**
    - Not needed in the current design.
- **Centering Page Content:**
    - Setting max-w-7xl (2080px width) for main content.
    - Applying mx-auto to center it in the viewport.
    - Adding spacing:
        - Horizontal padding: px-8
        - Vertical padding: py-12

Ensuring Full-Height Layout

- **Issue:** Content does not occupy the full height of the viewport.
- **Solution:**
    - Wrap <main> in a parent <div>.
    - Make <body> a flex container (flex flex-col).

    - Set the inner <div> to flex-1 so it fills remaining space.
    - Now, the header stays fixed, and the main content expands dynamically.

Final Adjustments

- Ensuring layout consistency with predefined padding values.
- Adding the **antialiased** class for improved font rendering.

Next Steps

- Improve image performance in Next.js.

[End of Notes]

Optimizing Images in Next.js

- **Importance of Image Optimization**
    - Images significantly impact **page size** and **loading speed**.
    - Next.js provides an **Image component** to optimize images automatically.
- **Next.js Image Component (next/image)**
    - Replaces the native <img> tag.
    - Provides several optimizations **out of the box**:
        - **Automatic format conversion** (e.g., WebP).
        - **Responsive image sizing** using srcset.
        - **Prevents layout shifts** by requiring **explicit width and height**.
        - **Lazy loading** (loads images only when they enter the viewport).
- **Basic Usage**
    - Import the component:

jsx

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```
import Image from "next/image";
```

    - Replace <img> with <Image>:

jsx

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<Image src="/logo.png" width={128} height={128} alt="Logo" />

  - The srcset attribute ensures **responsive image loading**.

- **Alternative Usage: Static Image Import**
  - Import images directly into the component:

jsx

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```
import logo from "../public/logo.png";
```

  - Use the imported image:

jsx

CopyEdit

```
<Image src={logo} alt="Logo" />
```

  - This method allows **Next.js to analyze the image** automatically.
  - **No need to specify width and height**, but may affect resizing.

- **Adjusting Image Quality**
  - **Set quality prop** to control compression:

jsx

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```
<Image src={logo} quality={10} alt="Low-Quality Logo" />
```

  - Lower quality reduces file size but may cause blurriness.
  - Default quality is **not necessarily 100%**.

- **Benefits of Using next/image**
  - Eliminates **manual image optimization steps**.
  - Reduces **page load times** and improves **SEO**.
  - Provides **advanced image handling** with minimal effor

Building the Homepage in Next.js

1. Setting Up the Page

- Open page.js in the root **app** folder.
- Replace the existing JSX with the new homepage structure.
- **Ensure the button is a proper link** to navigate to the cabins page.

2. Optimizing the Background Image

- **Use Next.js Image component** instead of <img> for automatic optimization.
- Import the image statically:

jsx

CopyEdit

```jsx
import bg from "../public/bg.png";
```

- Replace the <img> tag with:

jsx

CopyEdit

```jsx
<Image src={bg} fill alt="Background Image" />
```

- The fill property makes the image **occupy the entire parent element** responsively.

3. Styling the Image

- Use **Tailwind CSS** for object fitting:

jsx

CopyEdit

```jsx
className="object-cover"
```

  - Equivalent to CSS:

css

CopyEdit

```css
object-fit: cover;
```

- Ensures the image **scales properly without distortion**.

4. Improving the Image Behavior

- Prevent unwanted image shifting:

jsx

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```
className="object-top"
```

  - Equivalent to CSS:

css

CopyEdit

```
object-position: top;
```

  - Keeps the image **anchored to the top** as the viewport resizes.

- Enable **blur placeholder** for smooth loading:

jsx

CopyEdit

```
placeholder="blur"
```

  - Shows a blurred version before the full image loads.

- Adjust **image quality** to save bandwidth:

jsx

CopyEdit

```
quality={80}
```

  - Reduces file size while keeping **visual fidelity**.

5. Fixing Console Warning for fill Property

- **Ensure parent container has position: relative**:

jsx

CopyEdit

```
className="relative"
```

  - Required when using fill to make the image **expand properly**.

6. Next.js Image Optimization in Action

- **On different screen sizes**, Next.js dynamically adjusts:
  - **Resolution** (e.g., 1000px vs. 3000px).
  - **File size** (e.g., 45KB instead of 7MB).

- This **saves bandwidth** and improves **performance**.

7. Final Thoughts

- The homepage **looks professional and polished**.
- Optimized image **reduces load time** and **improves UX**.
- Ready to move on to building the **Cabins** and **About** pages.

[End of Notes]

Cabins Overview Page:

- Display all cabins with individual **cabin carts** for each cabin.
- Users can click on a cabin cart to be directed to a **single cabin page** (to be implemented later).
- Implemented with a starter page and an empty **array of cabins** (will be updated later).
- **Cabin cart component** needs to be added for each cabin (currently without images).

About Page:

- Focus on responsive images.
- Images in the about page are large (1.1MB, 2,000px wide), which needs to be optimized for performance.
- Implemented using **Next.js image component** for responsiveness:
  - Static image import for responsiveness.
  - Images should scale based on container size, ensuring **fluid layout**.
- Use **image component** from Next.js:
  - Automatically renders as a regular **HTML img tag**, retaining **max width** of 100% for responsiveness.
- **Fill property**:
  - When source is dynamic (e.g., from a database), **use fill to make the image responsive within a container**, but without setting width/height.
  - Use object-fit: **cover in Tailwind CSS to ensure image fits container properly**.

- **Parent container size**:
    - **Set aspect ratio for the container (e.g., aspect-square for square images) to define the image size without specifying exact dimensions.**
- **Image Placeholder**:
    - Use **blur** placeholder for better user experience and SEO (no layout shift).
    - Placeholder will show while the image is loading.

Key Techniques for Responsive Images:

- **Aspect ratio** for container sizing instead of fixed width/height.
- **Static image import** works best for images in the project.
- For dynamic image sources, use the **fill** prop and adjust container styles.
- **Blur placeholder** improves UX and SEO metrics like **layout shift**.

Nested Routes in Next.js:

- **Folder structure** defines route segments in Next.js.
- **/account** is the primary route (guest area).
- **Nested routes**:
    - **/account/reservations** (nested route for reservations).
    - **/account/profile** (nested route for user profile).
- **Folder creation**:
    - Create reservations and profile folders inside /account.
    - Add page.js in each folder for the route to be accessible

Notes on Nested Layouts in Next.js

- **Nested Layouts** allow persistent UI elements across specific routes while maintaining page-specific content.
- Applied to the **account area** (/account, /account/reservations, /account/profile) to include a **side navigation**.

Creating a Nested Layout

- Next.js **layout.js** at the top level (app/layout.js) applies to all routes globally.

- For **nested layouts**, create another **layout.js** inside the specific folder (app/account/layout.js).
- This ensures the layout applies only to **routes under /account**.