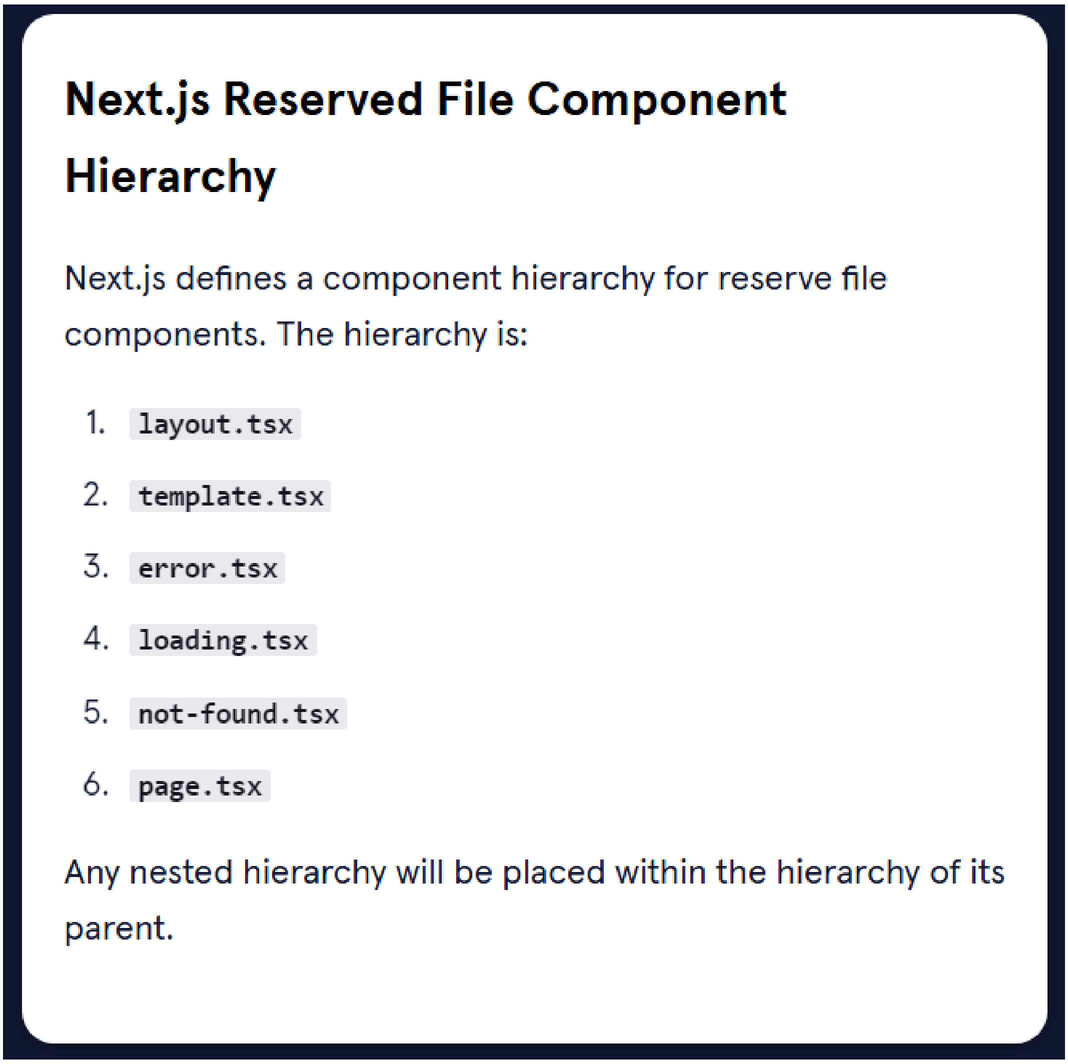
MODULE PRACTICE

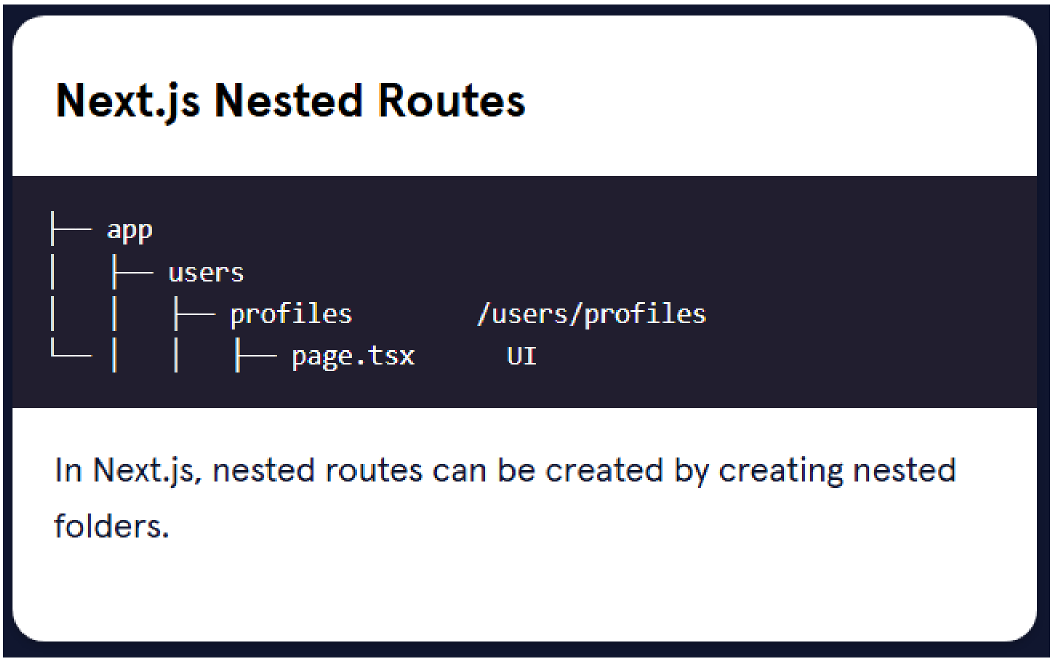


Next.js Reserved File Component Hierarchy

Next.js defines a component hierarchy for reserve file components. The hierarchy is:

1. `layout.tsx`
2. `template.tsx`
3. `error.tsx`
4. `loading.tsx`
5. `not-found.tsx`
6. `page.tsx`

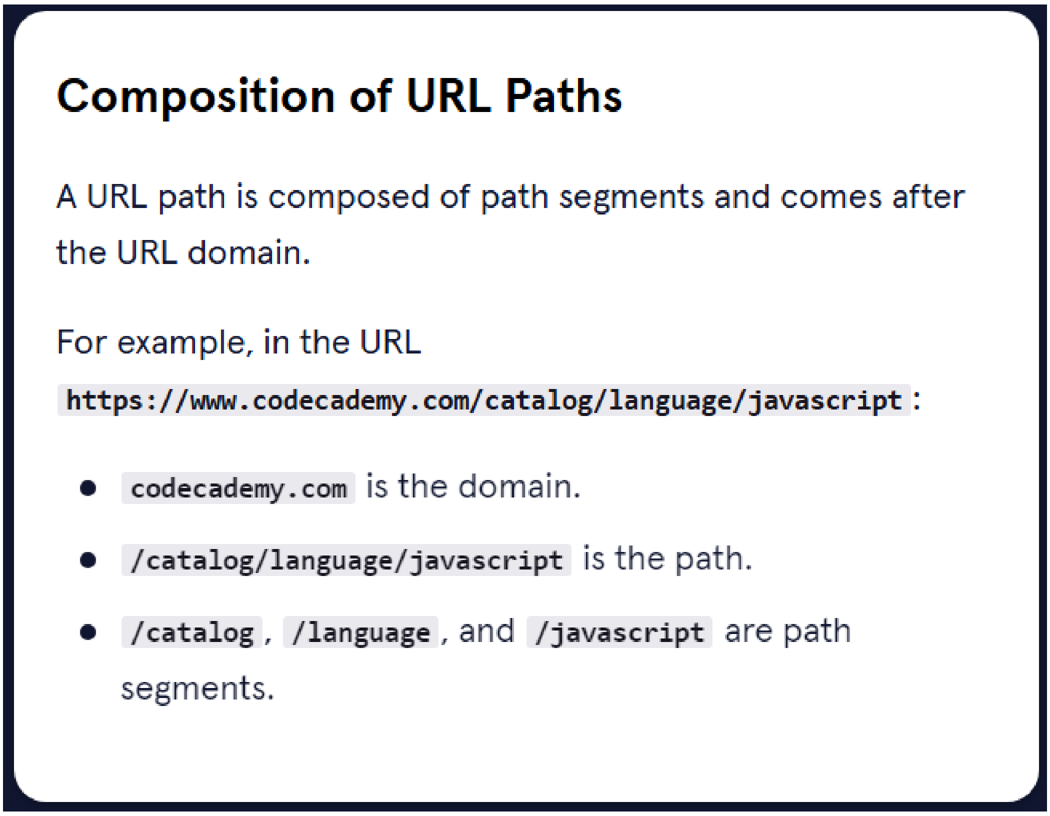
Any nested hierarchy will be placed within the hierarchy of its parent.



Next.js Nested Routes

```
├── app
│   ├── users
│   │   ├── profiles        /users/profiles
└── │   │   ├── page.tsx      UI
```

In Next.js, nested routes can be created by creating nested folders.

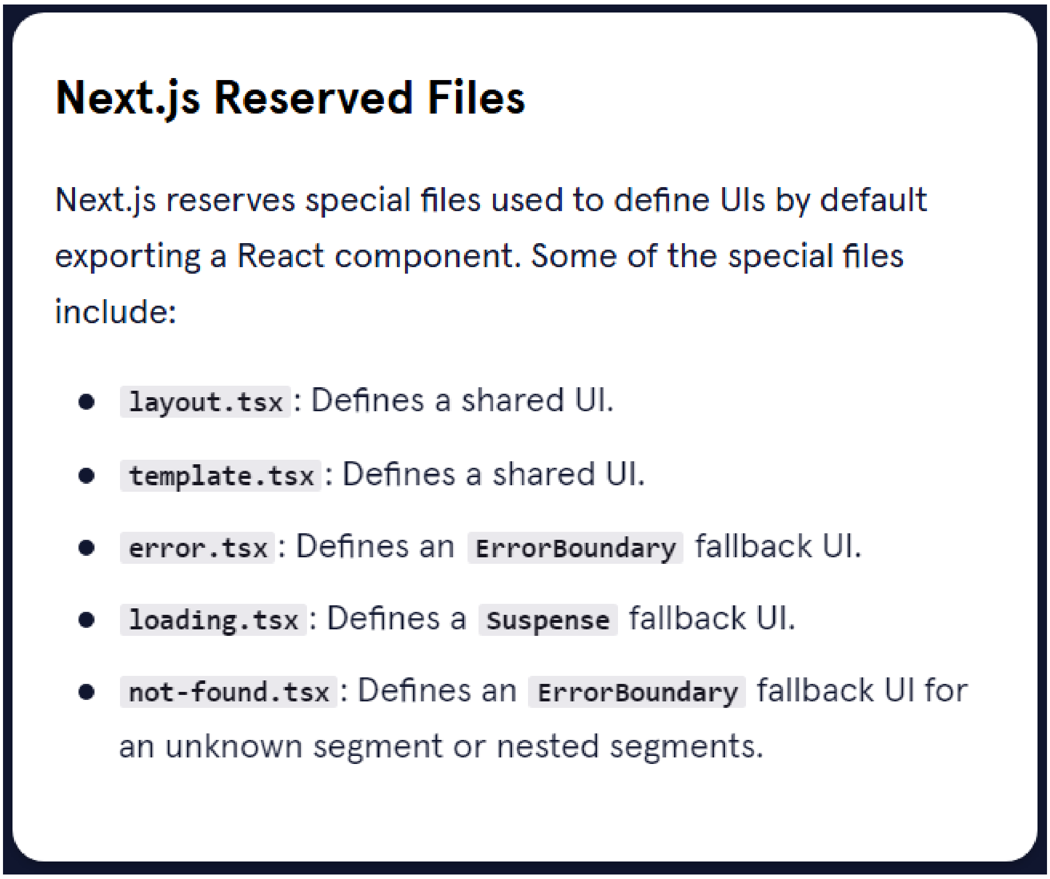


Composition of URL Paths

A URL path is composed of path segments and comes after the URL domain.

For example, in the URL `https://www.codecademy.com/catalog/language/javascript`:

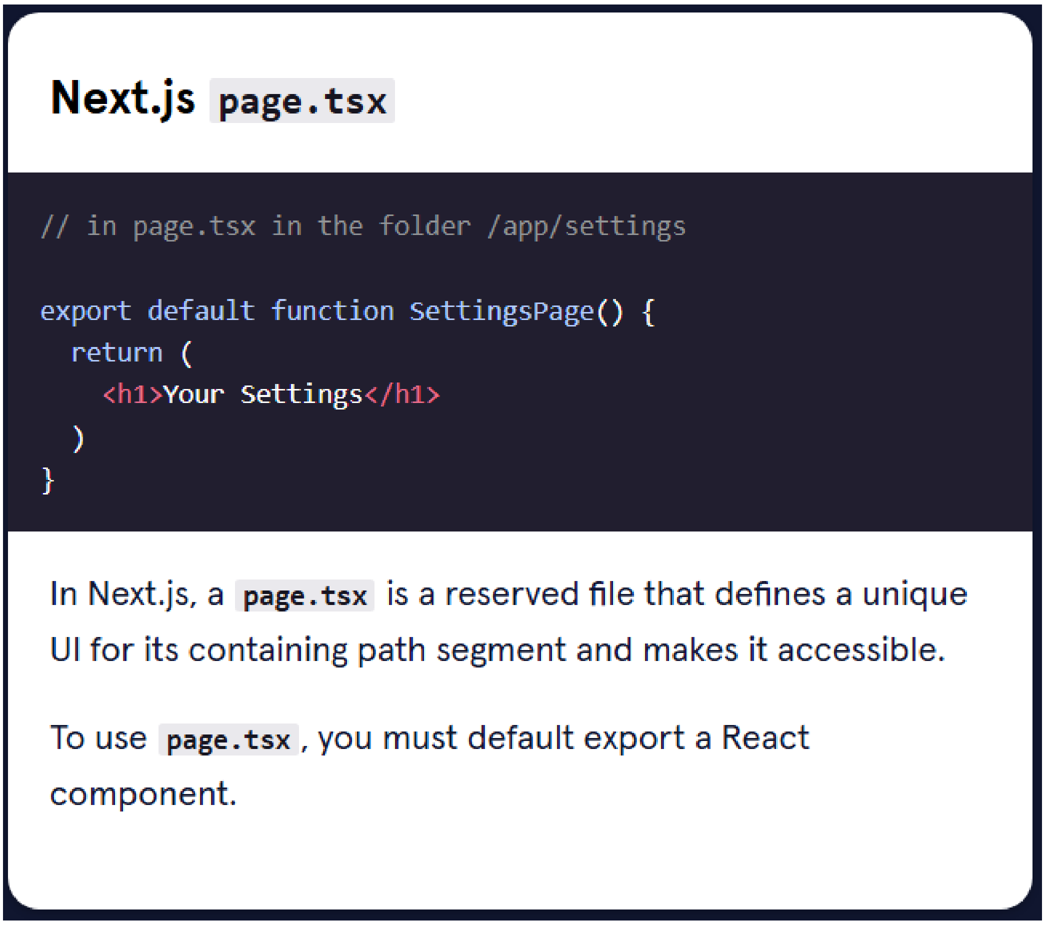
- `codecademy.com` is the domain.
- `/catalog/language/javascript` is the path.
- `/catalog`, `/language`, and `/javascript` are path segments.



Next.js Reserved Files

Next.js reserves special files used to define UIs by default exporting a React component. Some of the special files include:

- `layout.tsx`: Defines a shared UI.
- `template.tsx`: Defines a shared UI.
- `error.tsx`: Defines an `ErrorBoundary` fallback UI.
- `loading.tsx`: Defines a `Suspense` fallback UI.
- `not-found.tsx`: Defines an `ErrorBoundary` fallback UI for an unknown segment or nested segments.

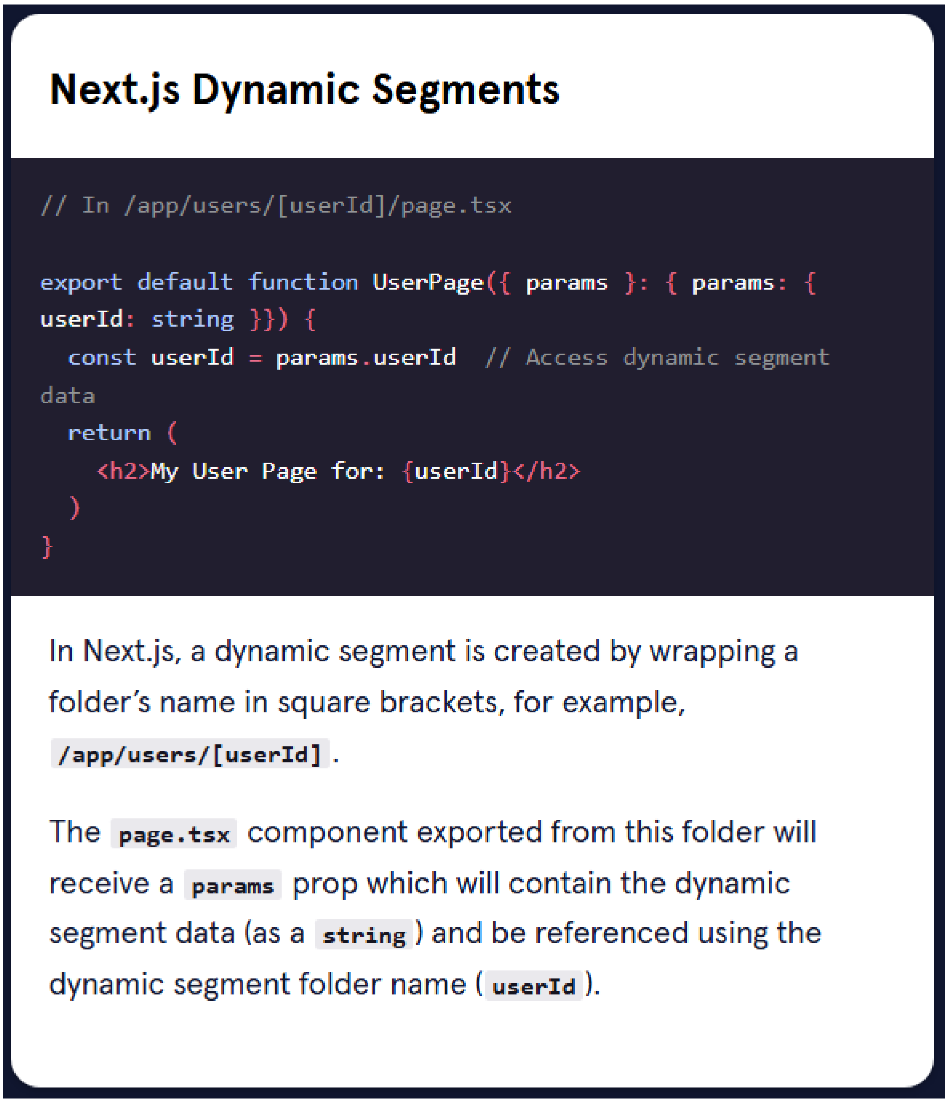


Next.js `page.tsx`

```
// in page.tsx in the folder /app/settings

export default function SettingsPage() {
  return (
    <h1>Your Settings</h1>
  )
}
```

In Next.js, a `page.tsx` is a reserved file that defines a unique UI for its containing path segment and makes it accessible.

To use `page.tsx`, you must default export a React component.

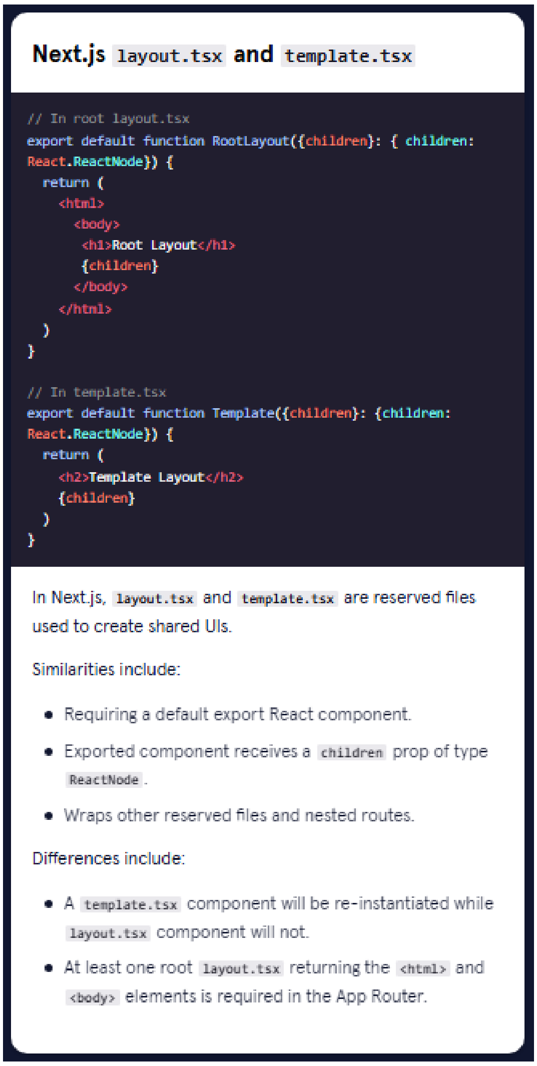


Next.js Dynamic Segments

```
// In /app/users/[userId]/page.tsx

export default function UserPage({ params }: { params: {
userId: string }}) {
  const userId = params.userId  // Access dynamic segment
data
  return (
    <h2>My User Page for: {userId}</h2>
  )
}
```

In Next.js, a dynamic segment is created by wrapping a folder's name in square brackets, for example, `/app/users/[userId]`.

The `page.tsx` component exported from this folder will receive a `params` prop which will contain the dynamic segment data (as a `string`) and be referenced using the dynamic segment folder name (`userId`).



Next.js `layout.tsx` and `template.tsx`

```
// In root layout.tsx
export default function RootLayout({children}: { children:
React.ReactNode}) {
  return (
    <html>
      <body>
       <h1>Root Layout</h1>
       {children}
      </body>
    </html>
  )
}

// In template.tsx
export default function Template({children}: {children:
React.ReactNode}) {
  return (
    <h2>Template Layout</h2>
    {children}
  )
}
```

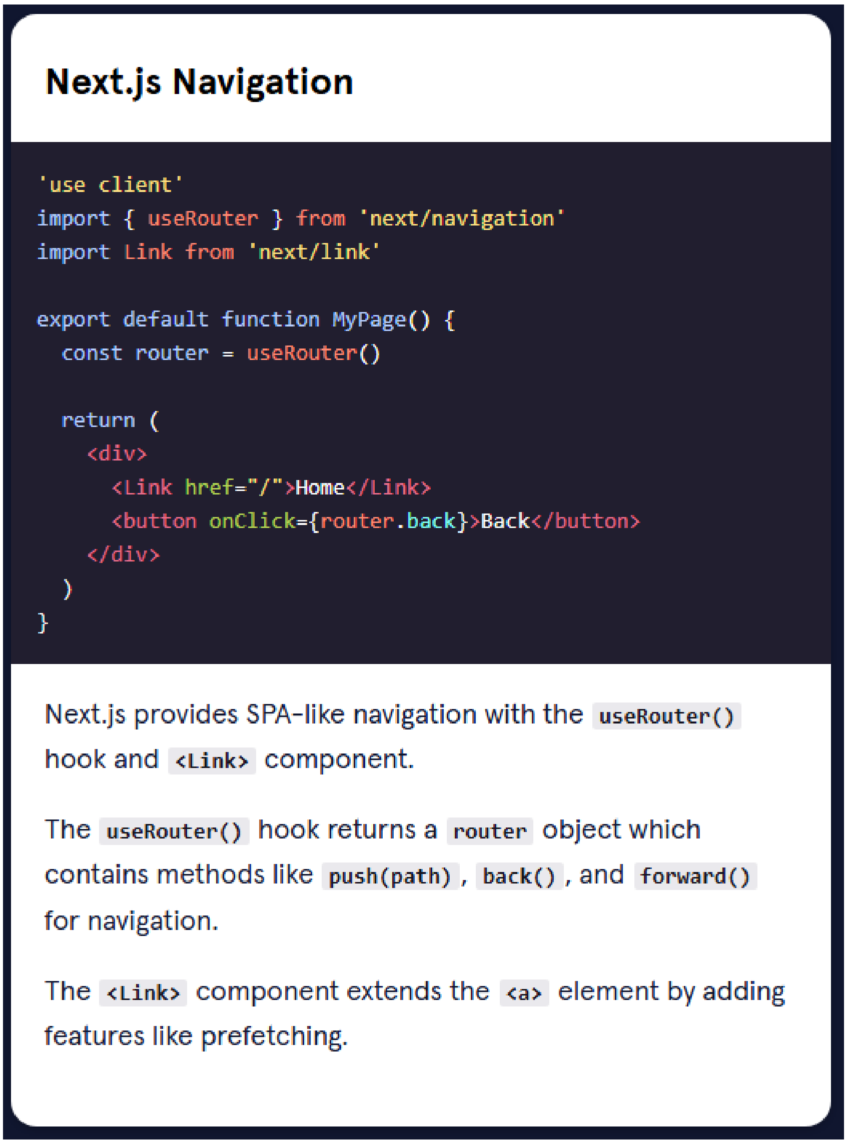
In Next.js, `layout.tsx` and `template.tsx` are reserved files used to create shared UIs.

Similarities include:

- Requiring a default export React component.
- Exported component receives a `children` prop of type `ReactNode`.
- Wraps other reserved files and nested routes.

Differences include:

- A `template.tsx` component will be re-instantiated while `layout.tsx` component will not.
- At least one root `layout.tsx` returning the `<html>` and `<body>` elements is required in the App Router.



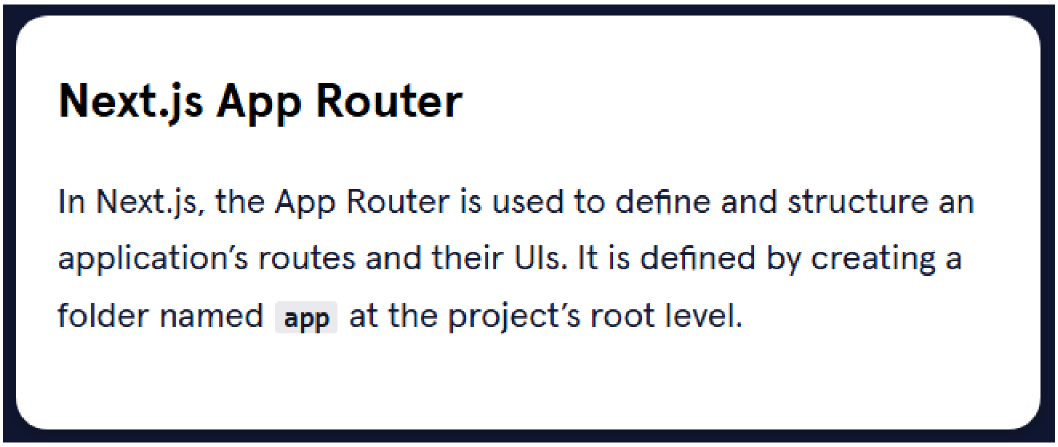
Next.js Navigation

```
'use client'
import { useRouter } from 'next/navigation'
import Link from 'next/link'

export default function MyPage() {
  const router = useRouter()

  return (
    <div>
      <Link href="/">Home</Link>
      <button onClick={router.back}>Back</button>
    </div>
  )
}
```

Next.js provides SPA-like navigation with the `useRouter()` hook and `<Link>` component.

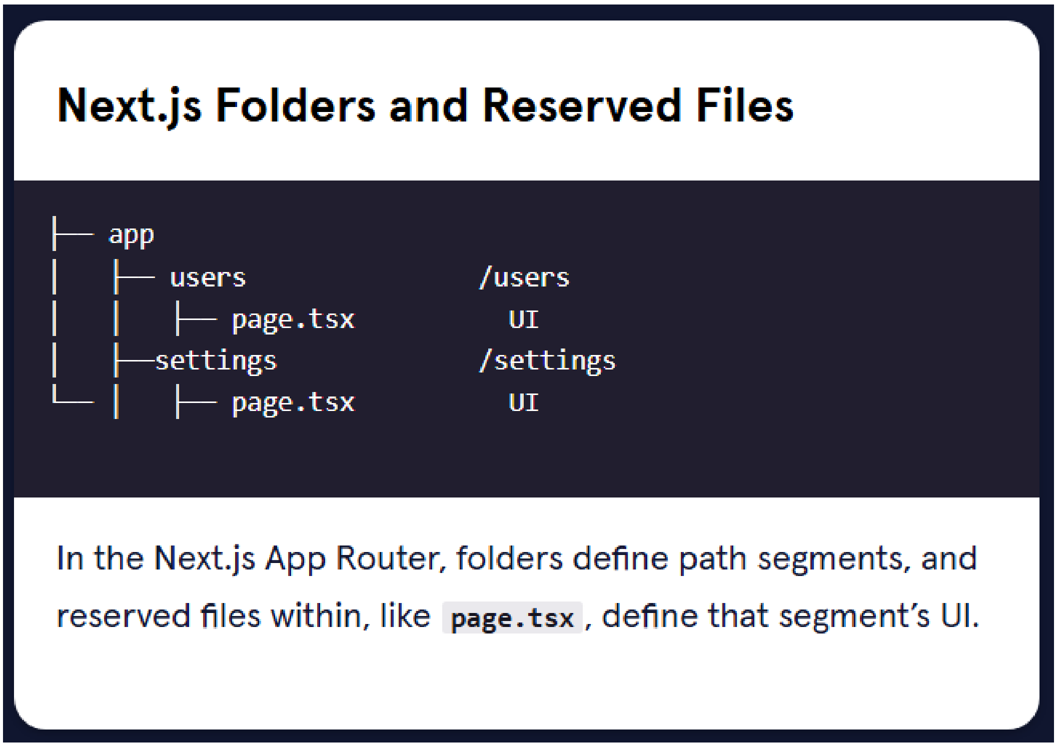
The `useRouter()` hook returns a `router` object which contains methods like `push(path)`, `back()`, and `forward()` for navigation.

The `<Link>` component extends the `<a>` element by adding features like prefetching.



Next.js App Router

In Next.js, the App Router is used to define and structure an application's routes and their UIs. It is defined by creating a folder named `app` at the project's root level.



Next.js Folders and Reserved Files

```
├── app
│   ├── users               /users
│   │   ├── page.tsx          UI
│   ├──settings             /settings
└── │   ├── page.tsx          UI
```

In the Next.js App Router, folders define path segments, and reserved files within, like `page.tsx`, define that segment’s UI.