Next.js App Router Routing patterns you should know

Alon Valadji · Follow
Published in Israeli Tech Radar
8 min read · Mar 12, 2024

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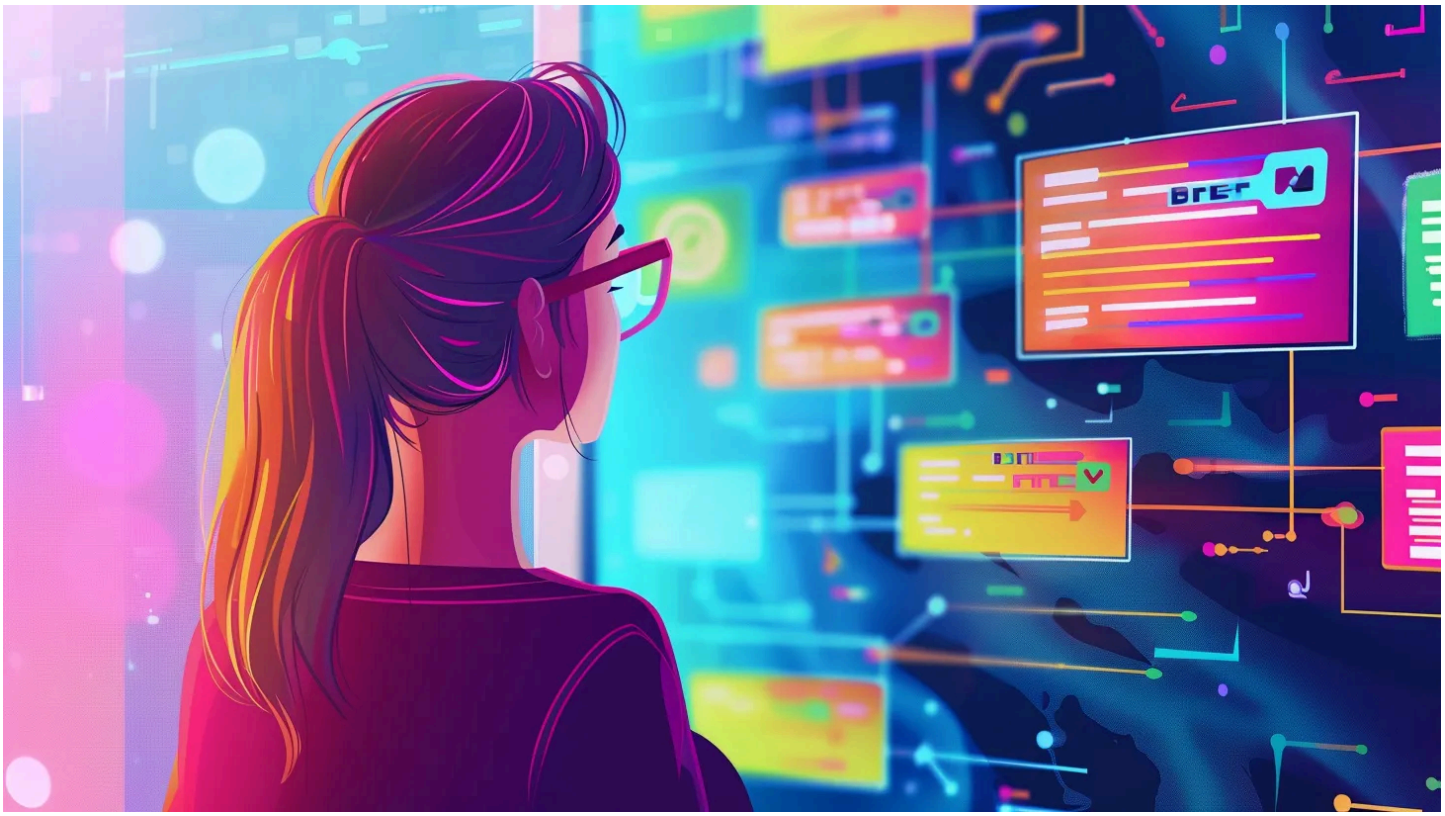

> *TL;DR grab the code from the GitHub repo: https://github.com/alonronin/nextjs-israel-routing-pattenrs*

Defining a Route

The simplest pattern is just to create a directory inside the app folder with the route name and at that directory create a `page.tsx` file.

```
nextjs-routing-patterns
├── apps
│   └── blog
│       └── src
│           └── app
│               └── posts
│                   └── page.tsx
└── libste
```

Here is our code to fetch posts and display them:

```
import { ContentWrapper, Title } from '@nrp/components/server';
import Link from 'next/link';

export default async function Page() {
  const posts = await fetch('https://jsonplaceholder.typicode.com/posts').then(
    (res) => res.json(),
  );

  return (
    <ContentWrapper>
      <Title>Posts</Title>

      <ul className="flex flex-col gap-2">
        {posts.map((post: { id: string; title: string }) => (
          <li key={post.id}>
            <Link
              href={`/posts/${post.id}`}
              className="capitalize hover:underline"
            >
              {post.title}
            </Link>
          </li>
        ))}
      </ul>
    </ContentWrapper>
  );
}
```

Dynamic Routes

We want to navigate to a post by its id, for this, we will need to create a dynamic route. For that just create a directory with the square brackets and the name of the param inside and a `page.tsx` file inside that directory as follows:

```
nextjs-routing-patterns
├── apps
│   └── blog
│       └── src
│           └── app
│               └── posts
│                   ├── [postId]
│                   │   └── page.tsx
│                   └── page.tsx
└── libs
```

Here is the code for our post:

```tsx
import { ContentWrapper, Paragraph, Title } from '@nrp/components/server';

export default async function Page({ params }: { params: { postId: string } })
  await new Promise((resolve) => setTimeout(resolve, 1000));
  const post = await fetch(
    `https://jsonplaceholder.typicode.com/posts/${params.postId}`,
  ).then((res) => res.json());

  return (
    <ContentWrapper>
      <Title className="capitalize">{post.title}</Title>

      <Paragraph className="capitalize">{post.body}</Paragraph>
    </ContentWrapper>
  );
}
```

Catch All and Optional Catch All Routes

To catch all routes from a directory except for the root of that directory's route, we can use the Catch All pattern. We will add a directory with the `[...slug]` bracket and 3 dot annotation, the slug will be our route param in the `params` props, and we'll add our `page.tsx` file to that directory:

```
nextjs-routing-patterns
├── apps
│   └── blog
│       └── src
│           └── app
│               └── catch-all
│                   └── [...slug]
│                       └── page.tsx
└── libs
```

Here is the code:

```
import { ContentWrapper, Title } from '@nrp/components/server';

export default function Page({ params }: { params: { slug: string[] } }) {
  return (
    <ContentWrapper>
      <Title>From Catch All</Title>
      <pre>{JSON.stringify(params.slug, null, 2)}</pre>
    </ContentWrapper>
  );
}
```

When we navigate to `/catch-all` we'll get a `404` page, however, to `/catch-all/next/page/etc` you'll get the page rendered as expected with array of `params` in the json.

The second pattern allows us to catch the root's directory also. So we'll create a directory with the `[[...slug]]` double brackets and 3 dots annotation, adding `page.tsx` to that folder:

```
nextjs-routing-patterns
├── apps
│   └── blog
│       └── src
│           └── app
│               └── optional-catch-all
│                   └── [[...slug]]
```

```
│                       └── page.tsx
└── libs
```

And the `page.tsx` code:

```tsx
import { ContentWrapper, Title } from '@nrp/components/server';

export default function Page({ params }: { params: { slug: string[] } }) {
  return (
    <ContentWrapper>
      <Title>From Optional Catch All</Title>

      <pre>{JSON.stringify(params.slug, null, 2)}</pre>
    </ContentWrapper>
  );
}
```

Now the root directory will not return a `404` page but the page's title and empty `params` array. Navigating further will result in the same behavior as previously illustrated.

Nested Layout

We can nest our routing layouts by adding a `layout.tsx` file to our new route. This will nest the current layout inside the parent layout file and display the current page inside the new layout `children`. It is a great pattern to create tabbed navigation, for example.

```
nextjs-routing-patterns
├── apps
│   └── blog
│       └── src
│           └── app
│               └── nested
│                   ├── password
│                   │   └── page.tsx
│                   ├── layout.tsx
│                   ├── page.tsx
│                   └── tabs.tsx
└── libs
```

Here is the `layout.tsx` code:

```
import { ContentWrapper, Title } from '@nrp/components/server';
import { NavigationTabs } from '@nrp/components';

export default function Layout({ children }: { children: React.ReactNode }) {
  return (
    <ContentWrapper>
      <Title>I am nested layout</Title>
      <NavigationTabs
        items={[
          { title: 'Account', url: '/nested' },
          { title: 'Password', url: '/nested/password' },
        ]}
      />

      {children}
    </ContentWrapper>
  );
}
```

Now our page at the `nested` route will be rendered at the layout's children and also the `password` route. What is great about that is that the layout would not cause a re-render and speed up performance navigating our spa.

If you need to re-render the layout page, consider using the `template` file convention: https://nextjs.org/docs/app/api-reference/file-conventions/template

Here is the `page.tsx` code:

```
import { ContentWrapper, Paragraph, Title } from '@nrp/components/server';

export default function Page() {
  return (
    <ContentWrapper>
      <Title>Account</Title>

      <Paragraph>
        Lorem ipsum dolor sit amet, consectetur adipisicing elit. A architecto,
        corporis eos eum facilis incidunt libero perspiciatis provident quae
        quod. Aliquid animi at culpa, hic illo reiciendis similique? Molestiae,
        repudiandae.
      </Paragraph>
```

```
      </ContentWrapper>
    );
}
```

And the password's `page.tsx` code:

```
import { ContentWrapper, Paragraph, Title } from '@nrp/components/server';

export default function Page() {
  return (
    <ContentWrapper>
      <Title>Password</Title>

      <Paragraph>
        Lorem ipsum dolor sit amet, consectetur adipiscing elit. sed do eiusmoc
      </Paragraph>
    </ContentWrapper>
  );
}
```

Parallel Routes

This pattern is great to display two, or more, different pages side by side and even create a unique navigation for each page inside the joined parent page.

To do so we need to create a slot first. A slot is a directory with the `@` sign and the name of the slot ie: `@albums` . Inside we'll create again a `page.tsx` file. Let's create the same for `@users` page.

```
nextjs-routing-patterns
├── apps
│   └── blog
│       └── src
│           └── app
│               └── parallel
│                   ├── @albums
│                   │   └── page.tsx
│                   └── @users
│                       └── page.tsx
└── libs
```

Here is the code for the albums page:

```
import { ContentWrapper, Title } from '@nrp/components/server';

export default async function Page() {
  const albums = await fetch(
    `https://jsonplaceholder.typicode.com/albums`,
  ).then((res) => res.json());

  return (
    <ContentWrapper>
      <Title size="small">Albums</Title>

      <ul>
        {albums.map((album: { id: string; title: string }) => (
          <li key={album.id}>{album.title}</li>
        ))}
      </ul>
    </ContentWrapper>
  );
}
```

And for the users page:

```
import { ContentWrapper, Title } from '@nrp/components/server';
import { Avatar, AvatarFallback, AvatarImage } from '@nrp/components';
import Link from 'next/link';

export default async function Page() {
  const users = await fetch('https://jsonplaceholder.typicode.com/users').then(
    (res) => res.json(),
  );

  return (
    <ContentWrapper>
      <Title size="small">Users</Title>

      <ul className="flex flex-col gap-4">
        {users.map(
          (user: {
            id: string;
            name: string;
            username: string;
            email: string;
          }) => (
            <li key={user.id} className="flex items-center gap-4">
```

```
                <Avatar>
                  <AvatarImage
                    className="bg-foreground"
                    src={`https://robohash.org/${user.username}`}
                    alt="@shadcn"
                  />
                </Avatar>
                <div>
                  <p className="text-sm font-medium leading-none">{user.name}</p>
                  <p className="text-sm text-muted-foreground">{user.email}</p>
                </div>
              </li>
            ),
          )}
        </ul>
      </ContentWrapper>
    );
}
```

Next we'll need to add the slot in our layout. We can add a nested layout inside our `parallel` route or add it to the root layout as well. We create the `layout.tsx` file and a `page.tsx` for our `parallel` page.

```
nextjs-routing-patterns
├── apps
│   └── blog
│       └── src
│           └── app
│               ├── parallel
│               │   ├── @albums
│               │   │   └── page.tsx
│               │   └── @users
│               │       └── page.tsx
│               ├── layout.tsx
│               └── page.tsx
└── libs
```

Here is the code for the layout:

```
import { Title } from '@nrp/components/server';

export default function Layout({
  children,
```

```
  users,
  albums,
}: {
  children: React.ReactNode;
  users: React.ReactNode;
  albums: React.ReactNode;
}) {
  return (
    <div>
      <Title>Parallel Layout</Title>

      {children}

      <div className="flex gap-4 p-4 justify-around">
        {users}
        {albums}
      </div>
    </div>
  );
}
```

And our `parallel` route page:

```
import { Title } from '@nrp/components/server';

export default function Page() {
  return <Title size="medium">Parallel Routes</Title>;
}
```

Intercepting Routes

Sometimes we want to do a soft route on a page to just peek at it, let's say in a Modal, and have the original route intact (for direct access, full refresh or sharing the links). So this pattern is great just for that.

Having an photos gallery and a photo by id routes we want to open the photo in a Modal dialog at the client but load the photo page at full reload and direct link sharing.

This will be the directory structure for our photo gallery:

```
nextjs-routing-patterns
├── apps
│   └── blog
│       └── src
│           └── app
│               ├── intercepted
│               │   └── [photoId]
│               │       └── page.tsx
│               └── page.tsx
└── libs
```

Now we want to intercept the `/intercetped/[photoId]` route. Todo so we'll need to create a slot directory and add it to the layout, in the slot directory we'll need to create a directory with the `(.)` prefix that will represent the intercepted route. `(.)` is for current scope, `(..)` for parent scope, `(../..)` for parent's parent scope and `(...)` for root scope.

If it is a nested route we will add the routing directory structure inside this directory without the `(.)` prefix, only the first folder will have it. Let's also add a `layout.tsx` file to hold our `@modal` slot.

```
nextjs-routing-patterns
├── apps
│   └── blog
│       └── src
│           └── app
│               ├── intercepted
│               │   ├── @modal
│               │   │   └── (..)intercepted
│               │   │       └── [photoId]
│               │   │           └── page.tsx
│               │   └── [photoId]
│               │       └── page.tsx
│               ├── layout.tsx
│               └── page.tsx
└── libs
```

This is the `layout.tsx` file code:

```
import { ReactNode } from 'react';

export default function Layout({
  children,
  modal,
}: {
  children: ReactNode;
  modal: ReactNode;
}) {
  return (
    <>
      {children} {modal}
    </>
  );
}
```

The `/[photoId]/page.tsx` page code:

```
import { ContentWrapper, Title } from '@nrp/components/server';
import { Photo } from '../../components/photo';

export default async function Page({
  params,
}: {
  params: { imageId: string };
}) {
  return (
    <ContentWrapper>
      <Title>Intercepted Route</Title>

      <div className="w-[600px] self-center">
        <Photo imageId={params.imageId} />
      </div>
    </ContentWrapper>
  );
}
```

The intercepted `/@modal/(..)intercepted/[photoId]/page.tsx` page code:

```
import { Photo } from '../../../../components/photo';
import { Suspense } from 'react';
import { Loader2 } from 'lucide-react';
```

```
import { Modal } from '../../../../components/modal';

export default async function Page({
  params,
}: {
  params: { imageId: string };
}) {
  return (
    <Modal title="Intercepted Route">
      <div className="min-h-[100px] flex items-center justify-center">
        <Suspense fallback={<Loader2 className="animate-spin" />}>
          <Photo imageId={params.imageId} />
        </Suspense>
      </div>
    </Modal>
  );
}
```

Now to make it work as expected we also need to add `default.tsx` files in our directory structure to signal next.js what to render in the slot of the layout if nothing was intercepted:

```
nextjs-routing-patterns
├── apps
│   └── blog
│       └── src
│           └── app
│               ├── intercepted
│               │   ├── @modal
│               │   │   └── (..)intercepted
│               │   │       ├── [photoId]
│               │   │       │   └── page.tsx
│               │   │       └── default.tsx
│               │   └── [photoId]
│               │       ├── default.tsx
│               │       └── page.tsx
│               ├── default.tsx
│               ├── layout.tsx
│               └── page.tsx
└── libs
```

Dynamic Render

Another pattern I like to use, is a Optional Catch All routes and then conditionally render the page, whether is a `params` presented or not. This offers me a way to

handle multiple scenarios in a single page and also render always the pages as I want, even if I share them with direct link access, for example displaying a photo image in a Modal.

Here is the directory structure:

```
nextjs-routing-patterns
├── apps
│   └── blog
│       └── src
│           └── app
│               └── dynamic-render
│                   └── [[...slug]]
│                       └── page.tsx
└── libs
```

And the `page.tsx` code:

```tsx
import { Photo } from '../../components/photo';
import { Suspense } from 'react';
import { Modal } from '../../components/modal';
import { Loader2 } from 'lucide-react';
import { Photos } from '../../components/photos';
import { ContentWrapper } from '@nrp/components/server';

export default async function Page({ params }: { params: { slug: string[] } })
  const [photoId] = params.slug ?? [];

  if (!photoId)
    return (
      <Suspense fallback={'Loading...'}>
        <Photos title="Dynamic Render" page="dynamic-render" />
      </Suspense>
    );

  return (
    <ContentWrapper>
      <Photos title="Dynamic Render" page="dynamic-render" />

      {photoId && (
        <Modal>
          <div className="min-h-[100px] flex items-center justify-center">
            <Suspense fallback={<Loader2 className="animate-spin" />}>
              <Photo imageId={photoId} />
            </Suspense>
```

```
            </div>
          </Modal>
        )}
      </ContentWrapper>
    );
  }
```

Conclusion

So we see how we can use Next.js App's directory routing patterns to achieve different approaches to our navigation system.

I hope that you found this article useful, let me know in the comments below what did you think, your suggestion and love 😍.

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Alon is a leading software architect well-versed in Rozansky and Woods' architectural methodologies. As a full-cycle JavaScript and web architecture torchbearer

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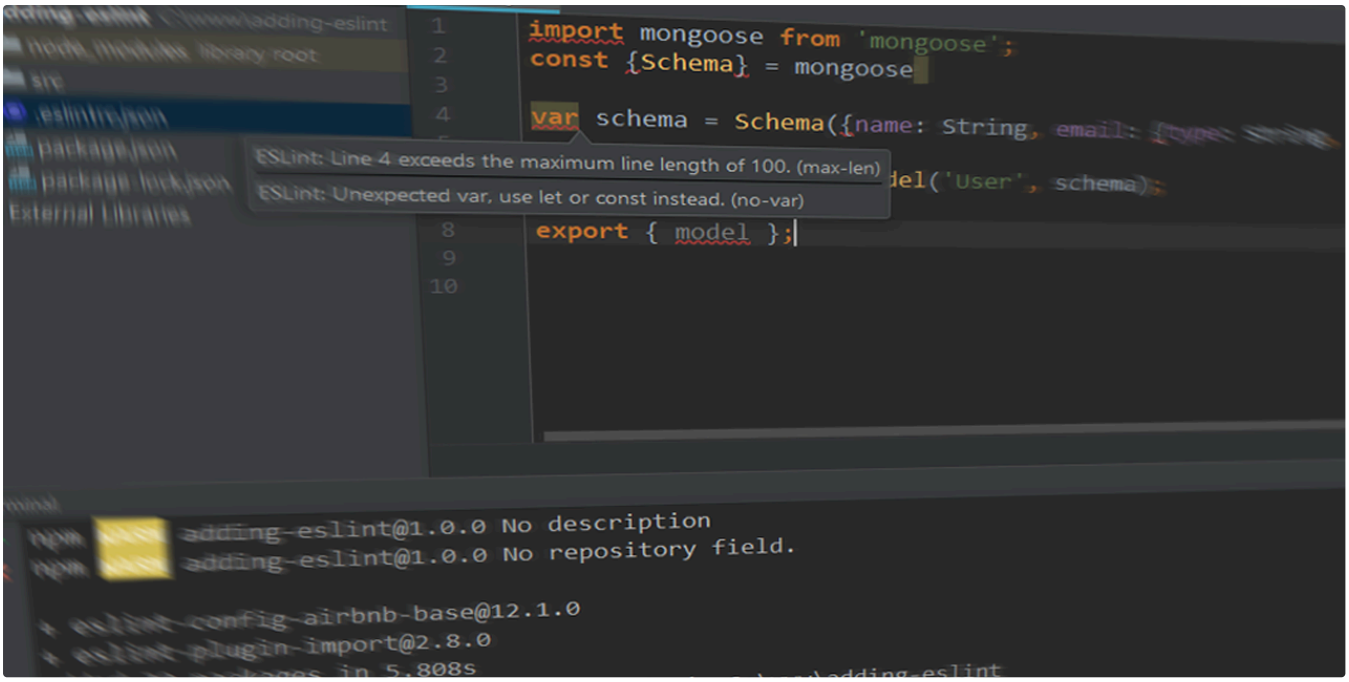

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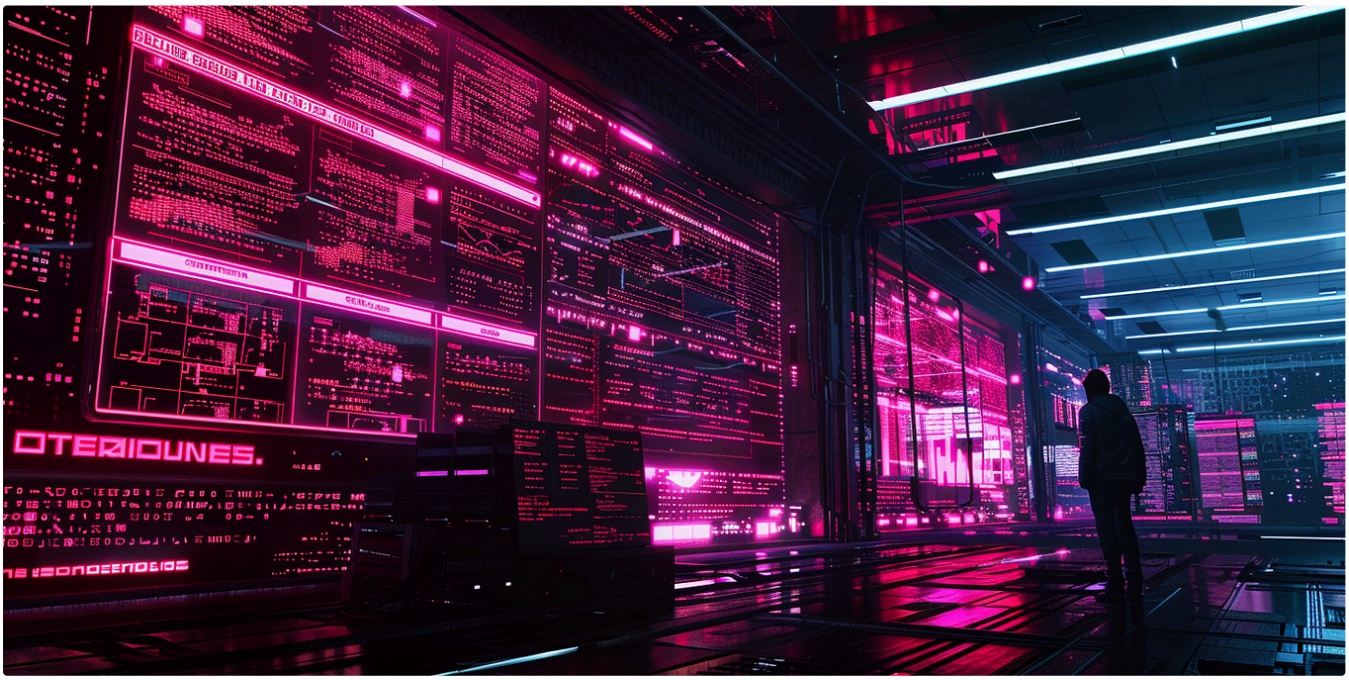

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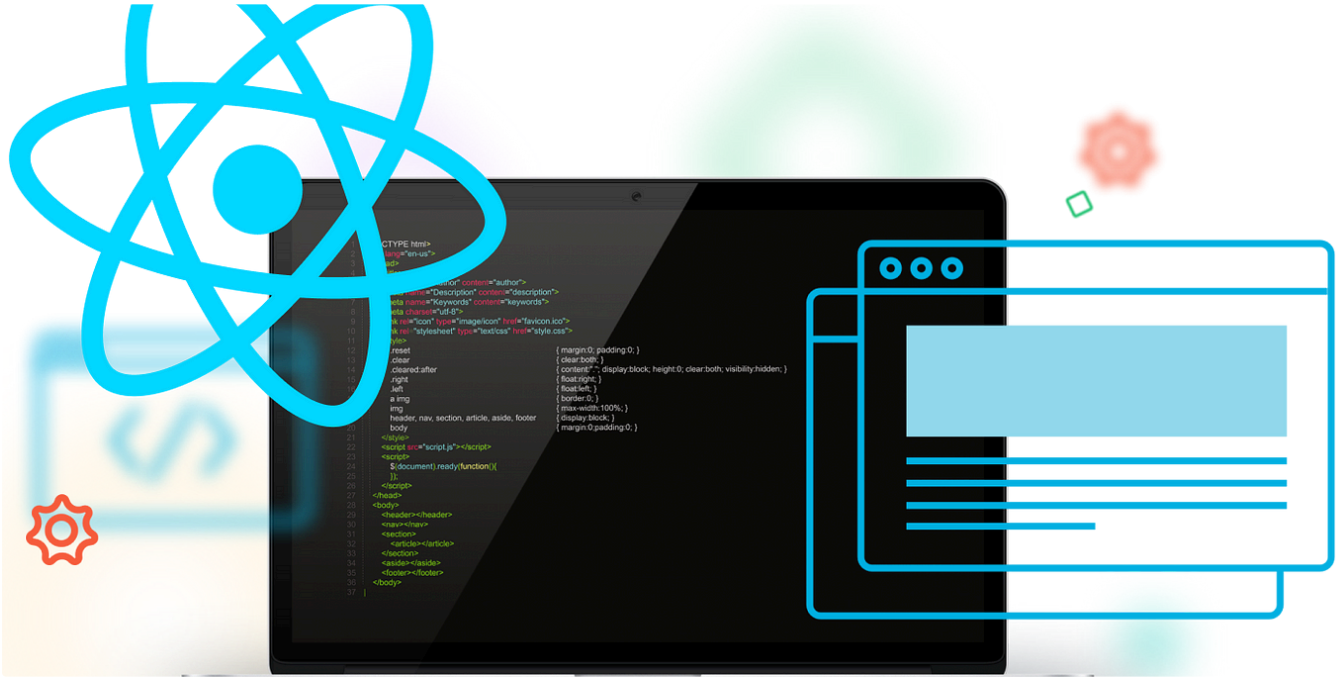

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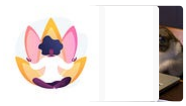

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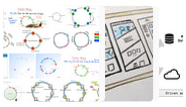

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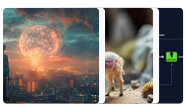

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- Led Your Transactions implementation for JavaScript front-end framework to showcase consumer transactions and reduce call center costs by $25 Million
- Recovered Saudi Arabia checkout failure impacting 4000+ customers due to incorrect GET form redirection

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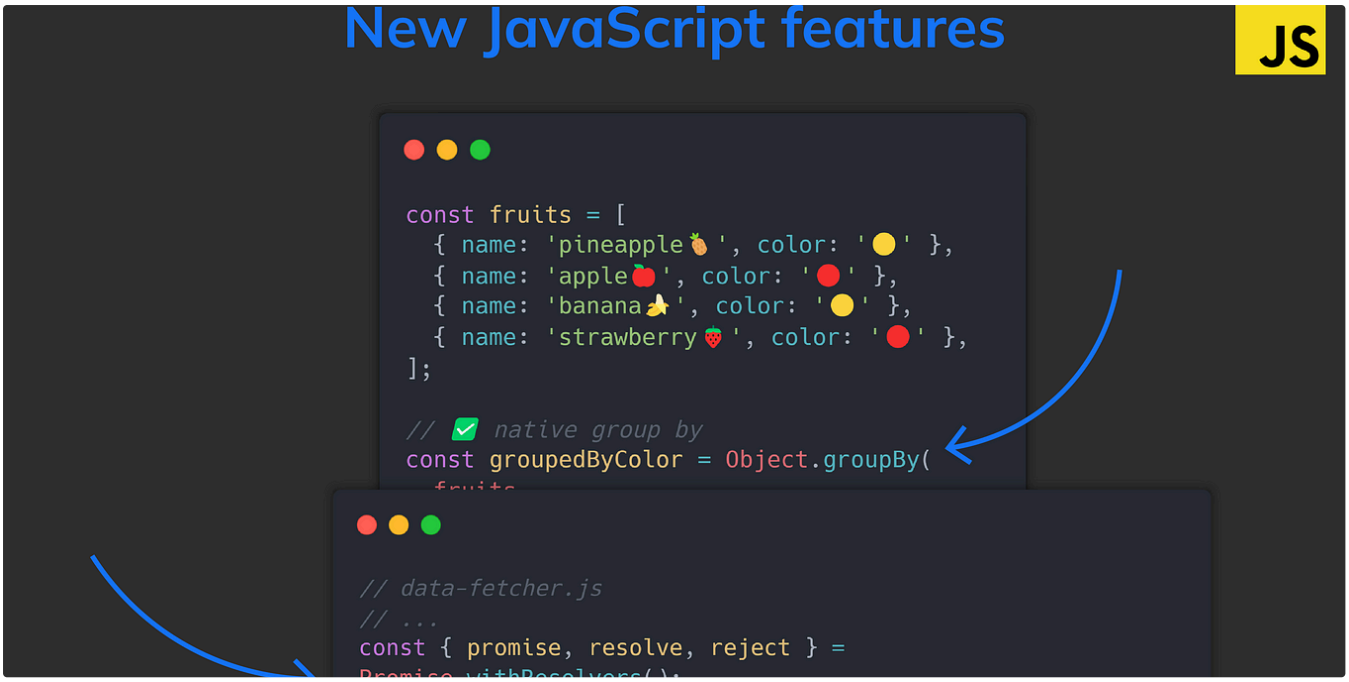

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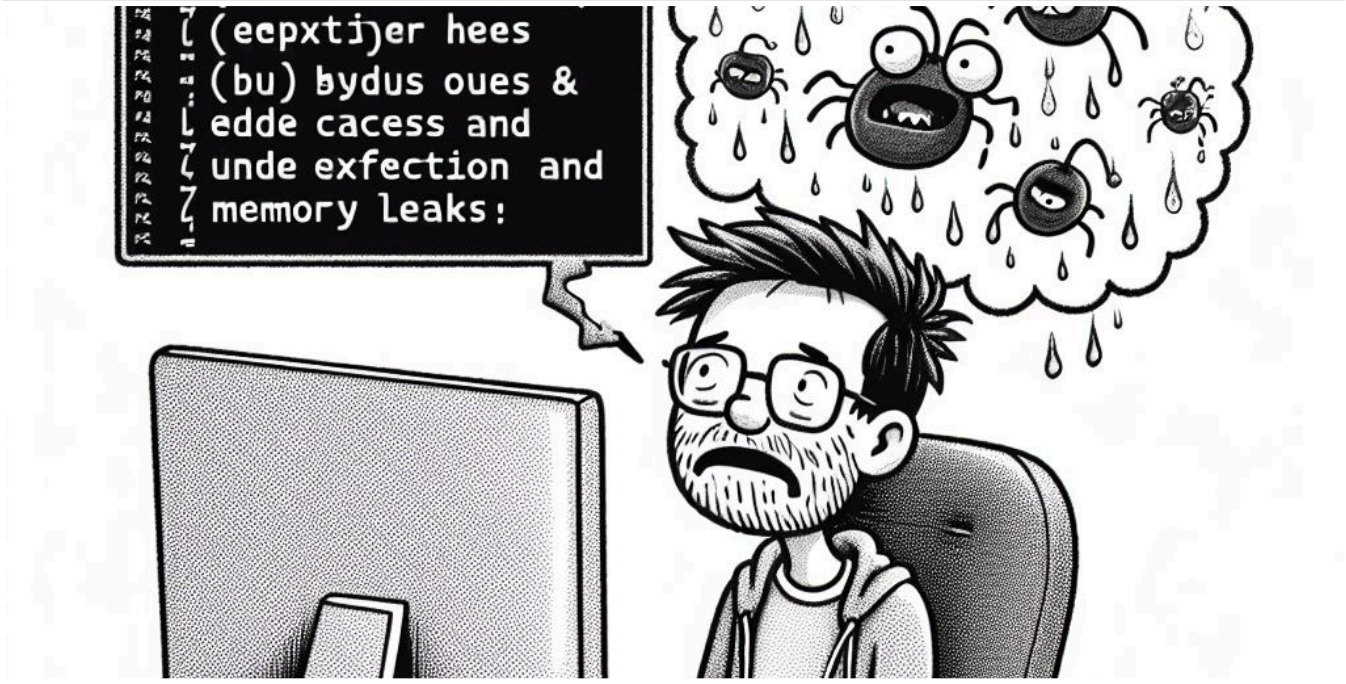

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