**Next JS Routing**

**Static Site Generation**

A method pf pre-rendering where the HTML pages are generated at build time.

The html with all the data that makes up the content of the web page are generated in advance when you build your application.

Recommended method to pre-render pages whenever possible

Page can be built oncde, cached by CDN and served to the client almost instantly

Ex: Blog Pages, E-commerce product page, Documentation and marketing pages

**Pros**

* **Performance:** Because static site generators create webpages in advance instead of on demand (as with a CMS), web pages load slightly faster in users' browsers.
* **Customization:** Developers can create any template they want. They are not limited by the fields provided by a CMS, nor by a CMS's built-in templates.
* **Lighter backend:** Static websites are lightweight and do not require as much code to run on the server side, whereas CMS-based websites constantly query the server side for content.

**Cons**

* **Few or no pre-built templates:** The downside of unlimited customization is that it can take longer to get started. Many static site generators do not come with templates, and developers will have to spend a lot of time building them from scratch at first.
* **No user-friendly interface:** It is harder for non-developer users to publish content using a static site generator. There is no CMS interface, and working with raw unformatted data may be intimidating for users. In addition, developer support is often necessary for making website updates.

**getStaticProps**

1. getStaticProps run only on the server side
2. The function will never run client side
3. The coded you write inside getStaticProp wont even be included in the JS bundle that is sent to the browser
4. You can write server side code directly in getStaticProps
5. Accessing the file system using the fs module or querying a database can be done inside getStaticProps
6. You also don’t have to worry about including API keys in getStaticProps as that wont make it to the browser
7. getStaticProps is allowed only in a page and cant be run from a regular components file
8. it is used for only pre-rendering and not client side data fetching
9. getStaticProps should return an object and object should contain a props key which is an object
10. getStaticProps will run at build time

**Problems with Static Generation**

1. We can not fetch data at request time
2. We do not get access to the in coming request

**Server Side Rendering**

SSR is a form of pre rendering where the HTML is generated at request time

SSR is required when you need to fetch data per request and also when you need to fetch personalized data keeping in mind SEO

How does Next.js make it possible to fetch data at request time?

How does next js make it possible to get access to the incoming request which will facilitate fetching data personalized for a user