

Spørgsmål 7

Question

Explain the concept Progressive Web Apps and show how to implement a Progressive Web App.

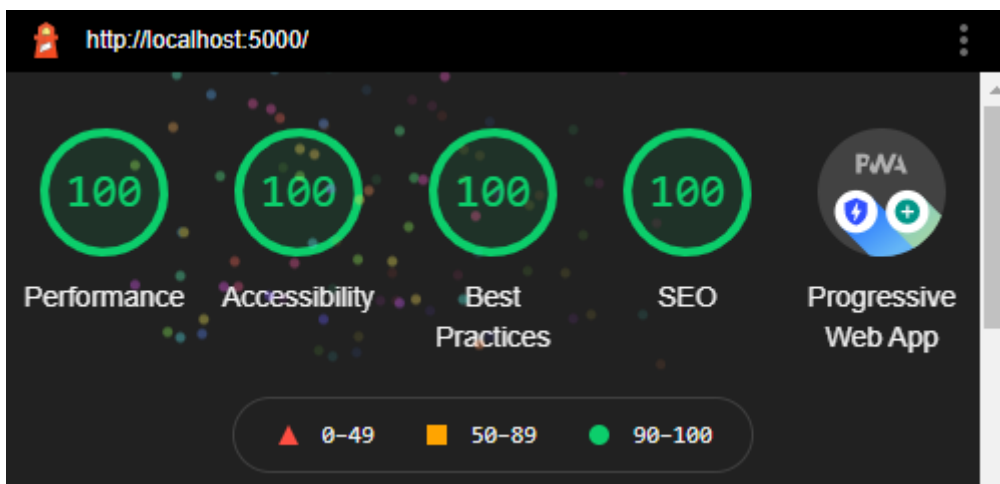
Explain how to optimize performance for a Web application.

Show how to implement two ways data communication using WebSocket.

PWA

1. PWA is an app that enables the developer to cache the app and enable the user to use the app while being offline!

`npx create-react-app my-app --template cra-template-pwa`



14.59.07 - localhost:3000

http://localhost:3000/

98 100 100 100 PWA

PWA

Progressive Web App

These checks validate the aspects of a Progressive Web App. [Learn more.](#)

Fast and reliable

- Page load is fast enough on mobile networks
- Current page does not respond with a 200 when offline
- `start_url` does not respond with a 200 when offline
Timed out waiting for `start_url` (`http://localhost:3000/`) to respond.

Installable

- Uses HTTPS
- Does not register a service worker that controls page and `start_url`
- Web app manifest meets the installability requirements

PWA Optimized

- Does not redirect HTTP traffic to HTTPS
- Configured for a custom splash screen
- Sets a theme color for the address bar.
- Content is sized correctly for the viewport
- Has a `<meta name="viewport">` tag with `width` or `initial-scale`
- Contains some content when JavaScript is not available
- Provides a valid `apple-touch-icon`
- Manifest doesn't have a maskable icon

Additional items to manually check (3) — These checks are required by the

```
export function register(config) {
  if (process.env.NODE_ENV === 'production' && 'serviceWorker' in navigator) {
    // The URL constructor is available in all browsers that support SW.
    const publicUrl = new URL(process.env.PUBLIC_URL, window.location.href);
    if (publicUrl.origin !== window.location.origin) {
      // Our service worker won't work if PUBLIC_URL is on a different origin
```

```

    // from what our page is served on. This might happen if a CDN is used to
    // serve assets; see https://github.com/facebook/create-react-app/issues/2374
    return;
  }

  window.addEventListener('load', () => {
    const swUrl = `${process.env.PUBLIC_URL}/service-worker.js`;

    if (isLocalhost) {
      // This is running on localhost. Let's check if a service worker still exists or not.
      checkValidServiceWorker(swUrl, config);

      // Add some additional logging to localhost, pointing developers to the
      // service worker/PWA documentation.
      navigator.serviceWorker.ready.then(() => {
        console.log(
          'This web app is being served cache-first by a service ' +
          'worker. To learn more, visit https://cra.link/PWA'
        );
      });
    } else {
      // Is not localhost. Just register service worker
      registerValidSW(swUrl, config);
    }
  });
}
}

```

2. A developer needs to list all the resources the application needs to function, so that they can be stored in the cache, and used when there is no internet connection.
3. To access the cache a serviceworker is needed. First it should be registered and then listen on when the window throws the "load" event. There after depending on the connection it will serve the application cache first.
4. Using a PWA does not only mean the possibility for offline capabilities. It also enables the application to perform better. If every important resource is already cached, the loading time and request time is minimised and some places removed.
- 5.

Websockets

1. normal request response http creates a lot of GET requests if you need to do something that seems to be "live"
2. Another way to do that is something called "long polling"
 1. Every time you get data from the server you send a get request with a long response timeout, that way you minimise the constant get requests.
3. The newest technology from 2011 is websockets
4. based on eventdriven communication

5. Allows data sending by triggering events

Web sockets

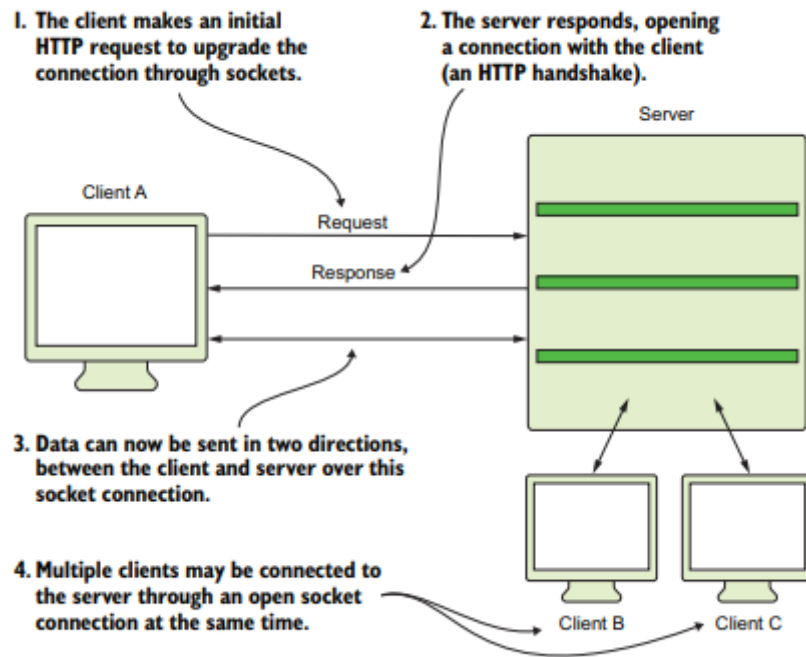


Figure 30.2 Opening a web socket connection between a client and server