For testing my web application properly, I used different approaches:

* Tested using chrome DevTools for basic simulation:
* Steps:

1. Opened my app on chrome using my local development server: <http://localhost:5173/map>

And allowing current location access

A screenshot of a computer

Description automatically generated

1. Opened chrome DevTools

Screens screenshot of a computer screen

Description automatically generated

1. Then pressed ‘toggle device toolbar’ to switch to mobile view

A screenshot of a computer

Description automatically generated

1. Then selected ‘slow android device’ from the device list for example I selected ‘Moto G4’

A screen shot of a cell phone

Description automatically generated

1. Simulated a **slow network connection** by

Going to network tab

Then at no throttling drop down I selected slow 3G:

A screen shot of a cell phone

Description automatically generated

1. Compared the performance of the application with 3G network vs No throttling from the performance tab in DevTools. I recorded the device will refreshing the application and zooming in and out and moving the marker around

No network throttling:

A cell phone on a computer screen

Description automatically generated

A cell phone on a computer screen

Description automatically generated3G slow network:

Well find that

1. Also simulated a **slow CPU** by

Going to Performance tab

Then at CPU throttling I selected 4x slowdown:

A screen shot of a cell phone

Description automatically generated

1. Compared the performance of the application with No throttling CPU vs 4x slowdown CPU from the performance tab in DevTools. I recorded the device while refreshing the application and zooming in and out and moving the marker around

No throttling:

A cell phone on a computer screen

Description automatically generated

4x slowdown CPU:

A cell phone on a computer screen

Description automatically generated

And tried slowing down the network and the cpu both:

Network: 3G

CPU: 4x slowdown

A cell phone on a computer screen

Description automatically generated

A cell phone on a computer screen

Description automatically generatedAnd recorded the performance metrics in these conditions:

Comparison:

Well find that when running the web application in a slow android device with a no network throttling or CPU throttling that the total time taken to

* Load UI components and js objects
* Scripting for user interactivity
* Rendering the components
* Painting
* System

Took an average of 10623-13449 ms total time

However, when there’s 3G network and a 4x slow CPU

Took an average of 29517 ms total time that’s almost double the time taken when the device has no throttling at all. Well also find that its always the rendering that takes the most time in the application running.