**Question 2.**

Optimizing a web page that loads slowly involves identifying bottlenecks in the loading process,

tools like Google Page Speed Insights can help diagnose issues by providing metrics like Time to Interactive (TTI), First Contentful Paint (FCP), and Largest Contentful Paint (LCP)

Below are the 3 causes of slow loading

**1**. Lack of Caching and Compression and the cause is Without caching, browsers must re-download resources on every visit, and uncompressed files

How to fix: Enable browser caching by setting HTTP headers like Cache-Control and Expires on server-side configurations

**2**. Unoptimized Images or Media Files

Cause: Large image files contribute significantly to page weight, leading to longer download times, especially on mobile networks or slower connections. How to fix: Compress and resize images using tools like ImageOptim, TinyPNG, or automated build processes.

Convert to modern formats like WebP or AVIF for better compression without quality loss. **3**.Excessive or Render-Blocking HTTP Requests

Cause: Pages with many separate files (e.g., multiple CSS stylesheets, JavaScript scripts, or fonts) require numerous HTTP requests, which can queue up and block rendering until they're loaded, especially if they're synchronous or in the <head>.

How to fix: Concatenate and minify files—combine multiple CSS/JS files into one using build tools like Gulp or Vite and remove whitespace/comments with minifiers like UglifyJS.