CTD Intro
Week 16

Node, NPM, Debug, and OpenAPI

Node and NPM

- JavaScript originally just ran in browsers

- In 2009, Ryan Dahl build a stand-alone JavaScript engine based on Google's V8 JavaScript engine.
  - Enabled server and desktop JavaScript applications

- JavaScript's asynchronous capabilities made it possible to build fast and efficient servers

- NPM (Node Package Manager) and other packages managers provide a rich ecosystem.

Debugging and Developer Tools

- Debugging
  - Finding and correcting errors in specification and/or implementation
- By inspection
- Accessing the developer tools, debugger, javascript console
  - Chrome
    - Click three vertical dots in the upper right corner
    - Select 'more tools'
    - Select 'developer tools'
  - Edge
    - Three horizontal dots in the upper right corner
    - Same menu selections as Chrome
  - Firefox
    - Three horizontal bars in the upper right corner
    - Select 'more tools'
    - Select 'Web Developer Tools'
  - For all, right-click and select 'inspect'

Developer Tools

- Select tools using tabs
  - Console
    - Interactive javascript
    - Error messages
  - Elements
    - Graphical browser for the Dom hierarchy
  - Source
  - Debugger
    - Single stepping
    - Breakpoints
    - Watchpoints
    - Call stack, function tracing
  - Network
    - Watch fetch requests
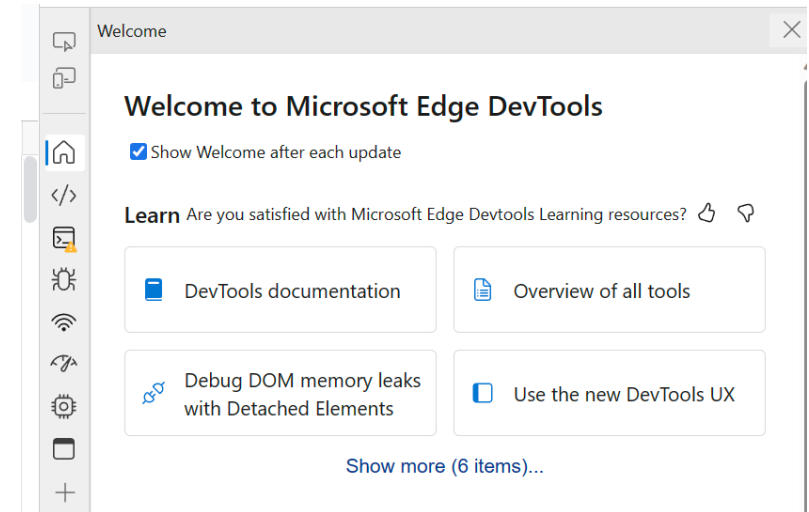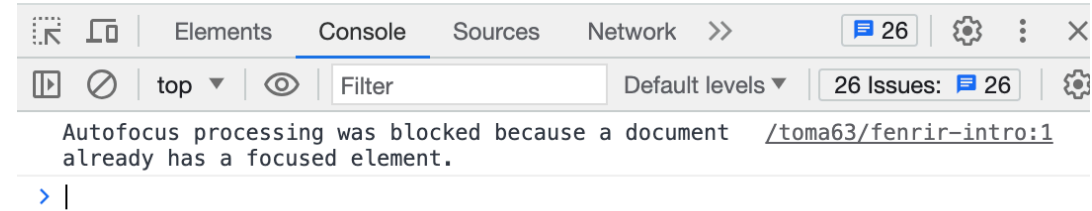
Debugger – interactive demo

- Some of
  - Stepping
  - Break on event
  - Line breakpoints
  - Debugging functions
  - Debugging exceptions
  - Breaking on DOM changes (watch expressions)
  - Mobile/Desktop

Open API project

- Adding a second fetch endpoint

- Two options for how to display additional information

- Show/hide data from the second fetch in a single page
  - Use the hidden attribute to show/hide additional information

- Load a second page
  - Use window.location.href to go to a new page
    - Needs to load its own css and js
    - Provide a back button
  - Pass information (e.g. a fetch URL) to the second page using search params
    - Use const params = new URLSearchParams()
    - Use params.append("param-name", "string-data")
    - '?' + params.toString() added to the url for the other page
    - In the other js file:
      - params = new URLSearchParams(window.location.search)
    - Retrieve using params.get("param-name")

CORS

- Cross Origin Resource Sharing
  - Important security feature
  - Prevents reuse of cookie data by a malicious host.
  - Applies to browser code
- [3 Ways to Fix the CORS Error — and How the Access-Control-Allow-Origin Header Works | by David Katz | Medium](#)
- A restrictive CORS policy can make it difficult to use an API.
- Access-Control-Allow-Origin: * for testing
- A soccer API which doesn't have CORS issues: API-Sports - Documentation Football

Questions and Demo