



Session 01 — Dev Environment Architecture

A visual diagram showing relationships between GitHub Codespaces, OS, runtimes, dev tools, and the browser preview.

Mermaid diagram (preferred)

```
graph TD
    subgraph DevTools [DevTools]
        direction TB
        Vite["Vite\n(dev server) ⚡"]
        HMR["HMR\n(Hot Module Replacement) ↺"]
        React["React App\n(src/*.jsx / components) ⚙️"]
        Files["Project files\n(src/, public/) 📁"]
    end
    subgraph OS [OS]
        direction TB
        Node["Node.js\n(runtime) ⚙️"]
        NPM["npm / package manager 📦"]
    end
    subgraph Codespace [Codespace]
        direction TB
        DevContainer["devcontainer\n(config)"]
        subgraph OS_Container [Ubuntu (container OS) 🐧]
            direction TB
            Node
            NPM
        end
        DevTools
        VSCode["VS Code\n(remote editor) 🖥️"]
    end
    Dev["Developer\n(Browser or VS Code Desktop)"]
    Browser["Browser Preview"]

    Dev -->|opens remote session| VSCode
    VSCode -->|remote connection| Codespace
    Dev -->|open preview| Browser
    DevContainer --> OS_Container
    OS_Container --> Node
    Node --> NPM
    NPM --> Vite
    NPM --> React
    Files --> React
    React -->|built / served by| Vite
    Vite --> HMR
    HMR --> Browser
    Vite -->|serves on localhost| Browser

    class Dev,Browser actorClass
    class Node,NPM osClass
    class Vite,HMR,React devtoolsClass
    class VSCode codespaceToolClass
    class DevContainer,Files diagNotes
```

```
%% Visual style definitions
classDef actorClass fill:#ffffff,stroke:#94a3b8,stroke-width:1px,color:#0f172a;
classDef osClass fill:#ecfdf5,stroke:#34d399,stroke-width:1px,color:#065f46;
classDef devtoolsClass fill:#fff7ed,stroke:#fb923c,stroke-width:1px,color:#92400e;
classDef codespaceToolClass fill:#eef2ff,stroke:#7c3aed,stroke-width:1px,color:#3730a3;
classDef diagNotes fill:#f8fafc,stroke:#e2e8f0,stroke-width:1px,color:#0f172a;

%% Optional styling for clarity (some renderers support 'style' for nodes)
style Codespace fill:#f0f9ff,stroke:#60a5fa,stroke-width:2px
```

Legend / Notes

- Codespace = remote container running Ubuntu with your project's config (.devcontainer).
- Node + npm = runtime + package manager used to install/run Vite and the React app.
- Vite = dev server with HMR; serves the app on localhost to the Browser preview.
- VS Code (remote) = editor connected to the Codespace for live editing.

ASCII fallback (for plaintext renderers)

