Creating a "Number Multiplier" Cockpit Application

This guide will walk you through creating a simple Cockpit application. The application will feature two input fields for numbers and a button. When the button is pressed, it will calculate the product of the two numbers and display the result.

Step 1: Create the Application Directory

Cockpit looks for user-specific applications in the ~/.local/share/cockpit/ directory. First, open a terminal on your Linux system and create a directory for your new application. We'll call it multiplier.

```
mkdir -p ~/.local/share/cockpit/multiplier
```

This command creates the multiplier directory inside ~/.local/share/cockpit/. The -p flag ensures that the parent directories are created if they don't already exist.

Step 2: Create the Manifest File

Every Cockpit package needs a manifest.json file. This file tells Cockpit about your application, such as its name, where it should appear in the menu, and how to find it via search.

Create a new file named manifest.json inside your ~/.local/share/cockpit/multiplier/ directory:

```
nano ~/.local/share/cockpit/multiplier/manifest.json
```

Now, copy and paste the following JSON content into the editor:

```
{
  "name": "Multiplier",
  "tools": {
    "multiplier-tool": {
      "label": "Number Multiplier",
      "path": "index.html",
      "keywords": [ "multiplier", "calculate", "product" ]
    }
  }
}
```

- "name": A unique identifier for your package.
- "tools": This section defines items that will appear under Cockpit's "Tools" menu.
- "multiplier-tool": A unique ID for this specific tool within the package.
- "label": The human-readable name that will appear in the menu.
- "path": The entry point file for your application.
- "keywords": An array of search terms that will help users find your tool.

Save the file and exit the editor (in nano, press Ctrl+X, then Y, then Enter).

Step 3: Create the JavaScript File

To comply with Cockpit's security policies, it's best practice to keep your JavaScript in a separate file.

Create a new file named multiplier.js inside your application directory:

nano ~/.local/share/cockpit/multiplier/multiplier.js

Copy and paste the following JavaScript code into the editor.

```
// Wait for the DOM to be fully loaded
document.addEventListener("DOMContentLoaded", function() {
    // Get references to the HTML elements
    const number1Input = document.getElementById("number1");
    const number2Input = document.getElementById("number2");
    const calculateBtn = document.getElementById("calculateBtn");
    const resultParagraph = document.getElementById("result");

    // Function to perform the calculation
    function calculateProduct() {
        // Get the values from the input fields and convert them to numbers
        const num1 = parseFloat(number1Input.value) || 0;
        const num2 = parseFloat(number2Input.value) || 0;

        // Calculate the product
        const product = num1 * num2;

        // Display the result
        resultParagraph.textContent = `The product of ${num1} and ${num2} is:
```

```
${product}`;
    }

    // Add a click event listener to the button
    calculateBtn.addEventListener("click", calculateProduct);
});

// Send a "ready" message to Cockpit
cockpit.ready();
```

Save the file and exit the editor.

Step 4: Create the CSS File

Similarly to JavaScript, all styling should be in an external stylesheet.

Create a new file named multiplier.css inside your application directory:

```
nano ~/.local/share/cockpit/multiplier/multiplier.css
```

Copy and paste the following CSS code into the editor:

```
/* Define color variables for light and dark themes */
:root {
    --bg-color: #fff;
    --text-color: #333;
    --input-bg-color: #fff;
    --input-text-color: #333;
    --input-border-color: #ccc;
}

@media (prefers-color-scheme: dark) {
    :root {
        --bg-color: #222;
        --text-color: #eee;
        --input-bg-color: #444;
        --input-text-color: #eee;
        --input-border-color: #666;
    }
```

```
}

/* Apply the theme colors */
body {
    background-color: var(--bg-color);
    color: var(--text-color);
}

.form-control {
    background-color: var(--input-bg-color);
    color: var(--input-text-color);
    border-color: var(--input-border-color);
}
```

Save the file and exit the editor.

Step 5: Create the Application's HTML File

This is the core of your application's user interface. It will now link to the separate JavaScript and CSS files.

Create or edit the index.html file inside your ~/.local/share/cockpit/multiplier/ directory:

```
nano ~/.local/share/cockpit/multiplier/index.html
```

Copy and paste the following HTML code into the editor:

```
<!DOCTYPE html>
<html>
<head>
    <meta charset="utf-8">
    <title>Number Multiplier</title>
    <!-- Include the Cockpit base CSS for consistent styling -->
    <link href="/cockpit/static/base1.css" type="text/css" rel="stylesheet">
    <!-- Link to your application's custom stylesheet -->
    <link href="multiplier.css" type="text/css" rel="stylesheet">
    <!-- Include the Cockpit JavaScript API -->
    <script src="/cockpit/static/cockpit.js"></script>
</head>
```

```
<body>

<!-- Main container with some padding -->
<div class="container-fluid">
  <h1>Number Multiplier</h1>
  <p>Enter two numbers and press the button to see their product.</p>

  <!-- Form group for the first number -->
  <div class="form-group">
    <label for="number1">Number 1</label>
    <input type="number" id="number1" class="form-control" value="0">
  </div>

  <!-- Form group for the second number -->
  <div class="form-group">
    <label for="number2">Number 2</label>
    <input type="number" id="number2" class="form-control" value="0">
  </div>

  <!-- Button to trigger the calculation -->
  <button id="calculateBtn" class="btn btn-primary">Calculate Product</button>

  <hr>

  <!-- Area to display the result -->
  <h2>Result</h2>
  <p id="result" class="lead">The product will be displayed here.</p>
</div>

<!-- Link to your application's JavaScript file -->
<script src="multiplier.js"></script>

</body>
</html>
```

Save the file and exit the editor.

Step 6: Test Your Application

You're all set! The application is now "installed" for your user. To see it in action:

1. Log in to your Cockpit web interface (usually at https://your-server-ip:9090).
2. If you were already logged in, **do a hard refresh of your browser** (e.g., Ctrl+Shift+R or Cmd+Shift+R) to make Cockpit reload its menu and files.
3. You should now see a new item in the main menu on the left labeled **"Number Multiplier"** under the "Tools" section.
4. Click on it to open your application.

The application should now correctly display in both light and dark modes, depending on your system settings.

Congratulations, you have created your first Cockpit application!