**Task 4: Technical Document – Testing and Validation**

**1. Testing My Project**

Below is a list of the main processes I tested based on the IPO chart from Task 1. For each one, I included whether the test passed or failed, what the expected vs actual results were, and any fixes I made if there were issues.

| Tested Action | GitHub Commit ID | Expected Output | Actual Output | Pass/Fail | Notes |
|---|---|---|---|---|---|
| User lands on Home page | [Insert Commit ID] | Homepage loads with Ferrari F1 visuals and links | Worked as expected | Pass | No issues found. Navigation links and branding all appeared correctly. |
| Navigate to About page | [Insert Commit ID] | Displays timeline and info about team history | Worked as expected | Pass | Section loaded with no errors. Responsive layout looked good too. |
| Click on Machines page | [Insert Commit ID] | Shows scrollable list of F1 cars with images/stats | Images didn't load at first | Fail | Fixed by correcting image paths and checking lazy loading settings. |
| Select a car from Machines | [Insert Commit ID] | Full car details with specs and visuals | Specs were misaligned | Fail | Adjusted the layout grid in CSS. Looks good after the fix. |
| Navigate to Contact page | [Insert Commit ID] | Displays contact form or info | Worked as expected | Pass | Tested form submission and it showed success message properly. |
| Open on mobile/tablet | [Insert Commit ID] | Mobile-friendly layout adjusts correctly | Worked as expected | Pass | Tested on different screen sizes. Layout responds well. |

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**2. Code Validation**

At the time of testing, I didn't use official code validation tools like the W3C HTML/CSS Validators or Lighthouse audits. I mainly relied on checking the website manually in the browser to make sure everything looked and worked the way it was supposed to.

Looking back, I realize that using tools like:

- **W3C HTML Validator** to check for structural issues in the HTML
- **W3C CSS Validator** to catch errors in styling
- **Lighthouse (in Chrome DevTools)** for performance and accessibility checks

would have helped catch potential problems more efficiently. I plan to start using these tools in future projects to make sure my code meets proper web standards.

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**3. Issues and What I Improved**

**Current Issues I Found:**

- Some of the structure of the website is not aligned properly — for example, certain sections don't sit evenly across the page or feel slightly off on different screen sizes.
- The navbar still slightly overlaps the content on smaller screens.

**How I Fixed (or Plan to Fix) Them:**

- I'm planning to go back and review the layout using CSS Grid and Flexbox more carefully. Some alignment issues may be caused by margin/padding inconsistencies or missing container rules.
- For the navbar, I already adjusted the z-index and spacing, but I may need to tweak the media queries more to fix this fully on all devices.

**Ideas for Future Improvements:**

- Add animations when switching between different car models.
- Improve the design and feedback messages on the contact form.
- Add a dark mode toggle to improve user experience.