

Batch DOM Changes:

Instead of making multiple changes one by one, batch them together. This reduces the number of reflows and repaints.

JavaScript

```
// Inefficient way
for (let i = 0; i < 100; i++) {
    document.body.appendChild(document.createElement('div'));
}

// Efficient way
const fragment = document.createDocumentFragment();
for (let i = 0; i < 100; i++) {
    fragment.appendChild(document.createElement('div'));
}
document.body.appendChild(fragment);
```

Use CSS Classes:

Apply changes by toggling CSS classes rather than modifying styles directly. This helps in minimizing reflows.

JavaScript

```
// Inefficient way
element.style.width = '100px';
element.style.height = '100px';
element.style.backgroundColor = 'red';
```

```
// Efficient way
element.classList.add('new-style');
```

AI-generated code. Review and use carefully. [More info on FAQ.](#)

CSS

```
.new-style {
  width: 100px;
  height: 100px;
  background-color: red;
}
```

Avoid Complex CSS Selectors: Simplify your CSS selectors to reduce the time the browser takes to match them.

CSS

```
/* Inefficient */
div > p:first-child span {
  color: red;
}

/* Efficient */
.highlight {
  color: red;
}
```

Minimize DOM Depth: *Keep the DOM tree shallow. Changes at one level can cause reflows at all levels.*

```
HTML

<!-- Inefficient -->
<div>
  <div>
    <div>
      <div>
        <p>Text</p>
      </div>
    </div>
  </div>
</div>

<!-- Efficient -->
<div>
  <p>Text</p>
</div>
```

Optimize Animations: *Use `requestAnimationFrame` for animations and consider using `will-change` to inform the browser about upcoming changes*

JavaScript

```
// Using requestAnimationFrame
function animate() {
    // Animation code here
    requestAnimationFrame(animate);
}
requestAnimationFrame(animate);

// Using will-change
element.style.willChange = 'transform';
```

Modify Hidden Elements: If you need to make multiple changes to an element, hide it first (e.g., using `display: none`), make the changes, and then show it again.

```
// Inefficient way
element.style.display = 'block';
element.style.width = '100px';
element.style.height = '100px';

// Efficient way
element.style.display = 'none';
element.style.width = '100px';
element.style.height = '100px';
element.style.display = 'block';
```

Use Positioning Wisely: Use position: absolute or position: fixed for elements that change frequently to remove them from the document flow

```
/* Inefficient for frequently changing elements */  
.moving-element {  
    position: relative;  
}  
  
/* Efficient */  
.moving-element {  
    position: absolute;  
}
```