

# DWA\_12 Knowledge Check

To complete this Knowledge Check, ensure you have worked through all the lessons in **Module 12: Declarative Abstractions**.

To prepare for your session with your coach, please answer the following questions. Then download this document as a PDF and include it in the repository with your code.

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## 1. What are the benefits of direct DOM mutations over replacing HTML?

1. **Efficiency:** Direct DOM mutations are more efficient as they avoid the need to recreate the entire HTML structure, resulting in better performance.
2. **State Preservation:** Preserve the state of elements, including input values, event listeners, and scroll positions, avoiding the need for resetting or reconfiguring them.
3. **Granular Control:** With direct DOM mutations, you can selectively update specific elements or properties, providing fine-grained control over the changes in the DOM.
4. **Animation and Transition:** Allow for smoother animations and transitions by directly manipulating properties and styles.
5. **Integration with External Libraries:** Facilitate seamless integration with external libraries or frameworks that require direct access to the DOM, enabling interactions with third-party APIs or lower-level browser functionalities.

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## 2. What low-level noise do JavaScript frameworks abstract away?

- JavaScript frameworks abstract away low-level details and complexities in web development, allowing us to focus on higher-level application logic.
- They handle tasks such as DOM manipulation, event handling, data binding, AJAX and networking, state management, and component abstraction.
- Abstraction increases productivity, code reusability, and maintainability by providing higher-level abstractions and APIs.

- As Developers, we can concentrate on application logic and user experience without getting caught up in low-level implementation details.
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### 3. What essence do JavaScript frameworks elevate?

- JavaScript frameworks elevate web development by enhancing productivity, promoting code reusability, supporting scalability, optimizing performance, ensuring cross-browser compatibility, fostering a strong community and ecosystem, and emphasizing maintainability.
  - They provide tools, abstractions, and conventions that simplify complex tasks, enable modular and reusable code, optimize performance, handle cross-browser inconsistencies, and enforce structured and maintainable code organization.
  - JavaScript frameworks empower us to focus on delivering value and solving business problems while building robust and efficient web applications.
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### 4. Very broadly speaking, how do most JS frameworks achieve abstraction?

1. **Component-based Architecture:** Many JS frameworks, such as React and Vue.js, utilize a component-based architecture. Developers can create reusable components that encapsulate logic, data, and presentation, providing an abstract interface to interact with. Components allow developers to think in terms of building blocks, making it easier to manage complex UI structures.
2. **Data Binding:** Data binding is a technique employed by frameworks like Angular, Vue.js, and Knockout.js to establish a connection between the application's data and the user interface. It allows for the automatic synchronization of data changes between the UI and the underlying data model, reducing the amount of manual DOM manipulation needed.

3. Most **JavaScript frameworks** achieve abstraction through various techniques and patterns that allow developers to work with higher-level concepts and hide implementation details
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5. What is the most important part of learning a JS framework?

- The most important part of learning a JavaScript framework is understanding its core concepts and principles, which include architecture, components, data management, routing, tooling, testing, and community engagement.
- By grasping these fundamentals, you can effectively utilize the framework's capabilities, build scalable applications, handle data flow, navigate between views, optimize performance, debug effectively, and leverage community resources.
- Ultimately, this understanding empowers you to develop robust and maintainable applications using the framework.