

## WEB PROGRAMMING AND APPLICATIONS

(503073)

WEEK 5

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### Exercise 1. Loading data dynamically from server with fetch API (or AJAX)

This exercise involves using the Fetch API (or XMLHttpRequest) to retrieve student data from a web service, displaying the list of students on a predefined interface. Afterward, it requires implementing basic student management features such as adding a new student, deleting a student, or updating a student's status.

- The mandatory requirement for this assignment is to synchronize the data with a backend restful web service. You can easily set up a restful web service by utilizing the provided database.json file in combination with the json-server tool (requires Node.js installed on your computer).
- Once you have the necessary tools installed (Node.js and json-server), you can quickly set up the backend by entering the following command: `json-server database.json`. This will start the server, and it will be accessible at <http://localhost:3000/students>.
- Next, you will send HTTP requests to the address `http://localhost:3000/students` using appropriate HTTP methods (GET, POST, PATCH, DELETE) to perform read, add, delete, and update operations on the student data.

Fullname

Fullname

Age

Age

State

Pending

Add

ID	Name	Age	State	Actions
1	John Smith	30	Pending	<div>Change</div> <div>Delete</div>
2	Robert Downey	32	Confirmed	<div>Change</div> <div>Delete</div>

*Expected outcome upon successful data retrieval*

### Exercise 2: Develop a webpage that displays the password strength.

- The strength status should be instantly updated whenever a user adds or removes a character in the textbox.
- If criteria are met, use a green background for that criteria; if criteria are not met, use a deep red background.

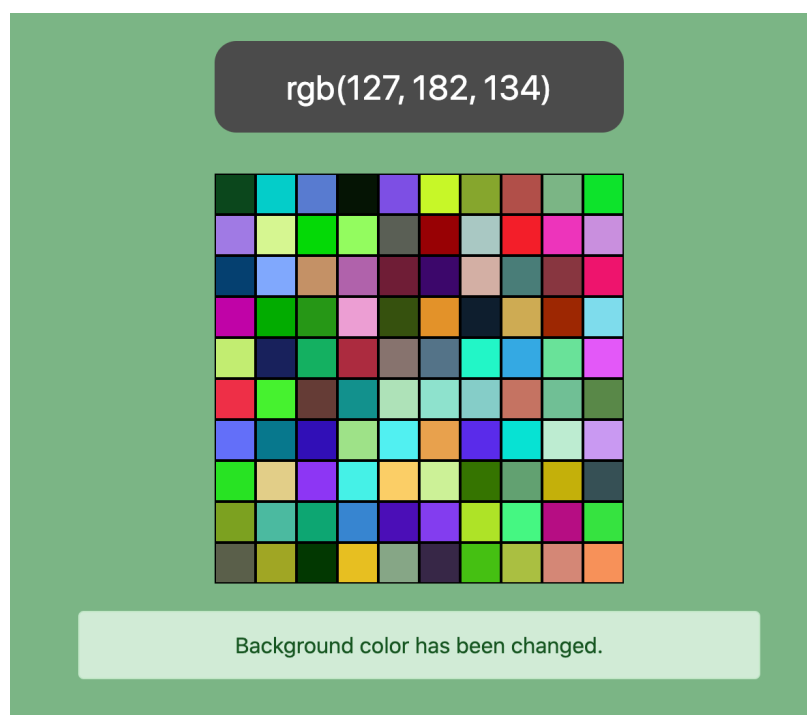
New password 👁 Show

.....

Password requirements met!

✓	8 characters
✓	1 number
✓	1 special character e.g., \$, !, @, %, &
✓	No leading or trailing whitespace

### Exercise 3. Create a color picker web page



See the video demo (*Color picker.mp4*) to better understand the requirements of this exercise.

#### Requirements:

- The cells must be generated dynamically by interacting with the Document Object Model (do not hardcoding by HTML).
- The cell colors must be generated **randomly** and they will be changed every time the page is reloaded. You are free to choose which colors to display.
- When mouse overs the cells, the background color changes temporarily according to the value of the cell and will return to the original color when the mouse is moved out of the color panel.

When you click on a cell, the background color changes to the color of the cell. Messages will show and hide in 3 seconds with face in and fade out effects.

Exercise 4: Create a webpage simulating a shopping cart found on e-commerce websites.

Product List

ID	Name	Price	Description	Action
1	Product 1	10.00	Description 1	Add to Cart
2	Product 2	15.00	Description 2	Add to Cart

Shopping Cart




ID	Name	Price	Quantity	Total Price	Action
1	Product 1	10.00	<input type="text" value="2"/>	20.00	Remove
2	Product 2	15.00	<input type="text" value="3"/>	45.00	Remove

Total Number of Products: 5

Total Price Overall: \$65.00

- Upon clicking the "Add to cart" button, the product will be added to the "Shopping Cart" table if not already present or update the quantity if it is.
- When adjusting the quantity of a product in the cart, the total amount will be automatically updated immediately.
- Pressing the "Remove" button will delete the product from the cart list, and the total amount will also be updated accordingly.

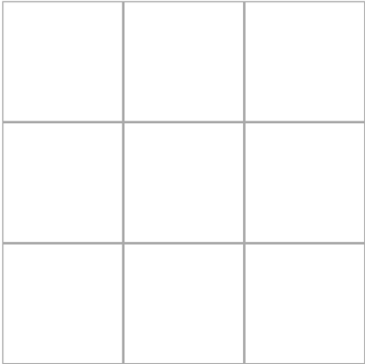
Exercise 5: Implement a filter feature for a webpage containing a textbox and a table listing products, where adding or removing a character in the textbox filters the product table to display only items matching the entered keyword.

Image	Name	Price	Description
	iPhone 15 Pro Max 256GB   Chính hãng VN/A	32,990,000	iPhone 15 Pro Max thiết kế mới với chất liệu titan chuẩn hàng không vũ trụ bền bỉ, trọng lượng nhẹ, đồng thời trang bị nút Action và cổng sạc USB-C tiêu chuẩn giúp nâng cao tốc độ sạc.
	Apple Watch Series 9 41mm (4G) viền nhôm dây cao su	12,790,000	Apple Watch Series 9 41mm 4G sở hữu khả năng xử lý mượt mà nhờ được trang bị chip S9 SiP mạnh mẽ cùng chất lượng hiển thị sắc nét trên màn hình 1.6 inch.
	Ốp lưng iPhone 15 Pro Max Silicone hỗ trợ sạc Magsafe	1,272,000	Ốp lưng iPhone 15 Pro Max Silicone hỗ trợ sạc Magsafe có kiểu dáng ốp khít với nhiều màu sắc cho người dùng lựa chọn từ hồng, xanh, đen đến trắng.


- The entered keyword can be searched in any column of the table (name, price, description), and results will be displayed when the product content contains that keyword.
- For example, entering the keyword "i" will display products like iPhone, iPad, and iMac because they contain the letter " i ". Entering "900" will show products with prices like "32,990,000" or "12,790,000" as they contain the search keyword in their price.
- For example, Even when entering "thiet ke," the product "iPhone 15 Pro Max" in the illustration will be displayed because it contains the phrase "thiết kế" (Vietnamese) in the product description. This feature enhances user experience by dynamically updating the displayed products based on real-time keyword input, facilitating efficient and flexible product searches.


**Exercise 6:** Use the given images to create puzzle games like the following:


### Xếp hình



### Xếp hình







**Congratulations!** You have completed the puzzle game.

See the video demo (*Puzzle-example.mp4*) to better understand the requirements of this exercise.

#### Requirements:

- The position of the puzzle pieces is chosen randomly when the page is loaded. Rotation angles (0, 90, 180, 270) of the puzzle pieces are also randomly generated.
- Users can click on the pieces to rotate them (0 → 90, 90 → 180,...).
- You can only drag pieces into empty box, you can not drop pieces in the none empty box or outside.

- After the user drags the last piece of the puzzle, the web page will display a greeting message if the user has correctly cropped the original photo.