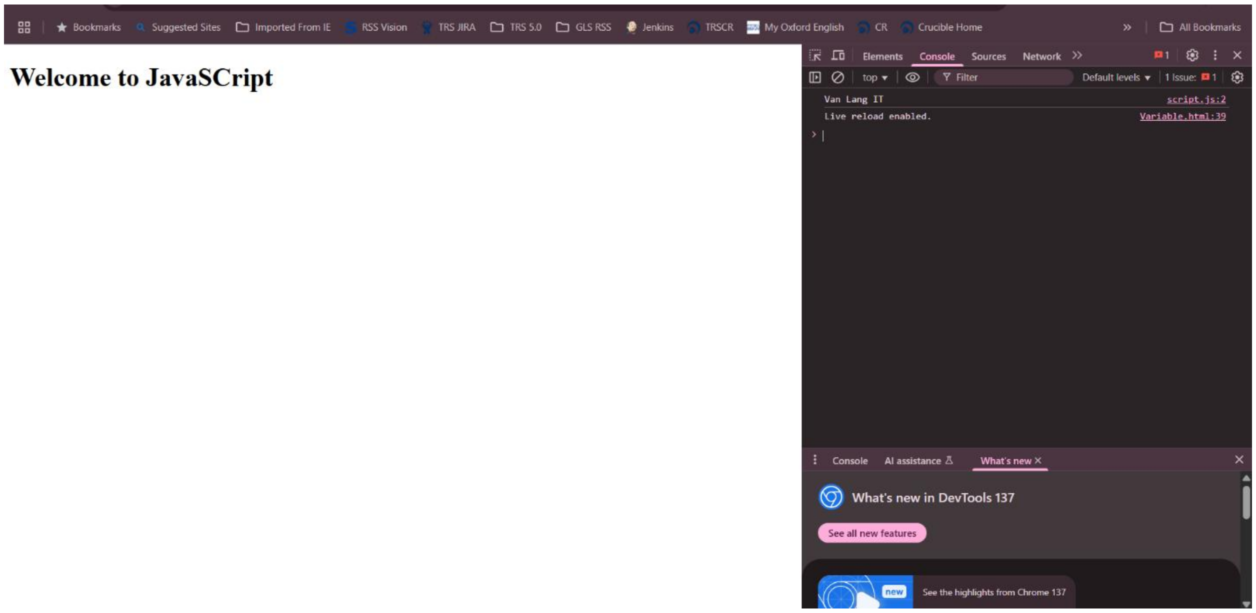
Dương Ngọc Linh Đan – 2374802010091

Result:

3 Practical Exercises

3.1 Exercise 1: Declaring Variables

Declare a variable name with the value "Van Lang IT" and log it to the console.

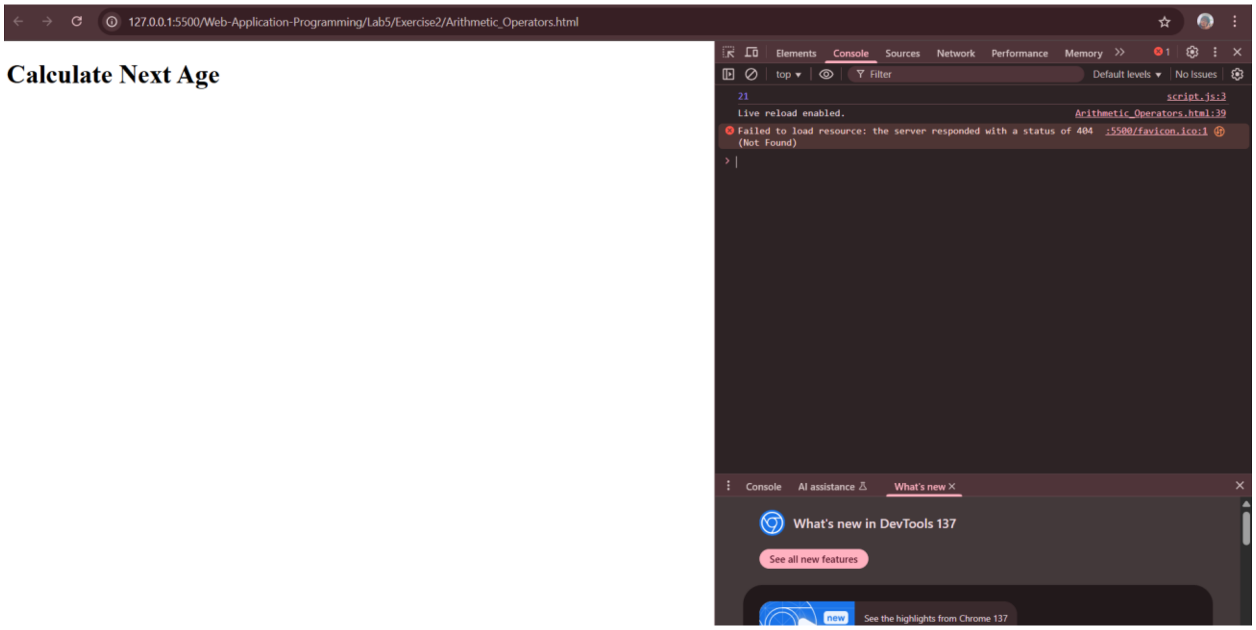


Welcome to JavaSCript

```
Van Lang IT                                  script.js:2
Live reload enabled.                    Variable.html:39
```

3.2 Exercise 2: Using Arithmetic Operators

Create a variable nextAge that stores the next age based on the given age. For example, if age = 20, then nextAge = 21.



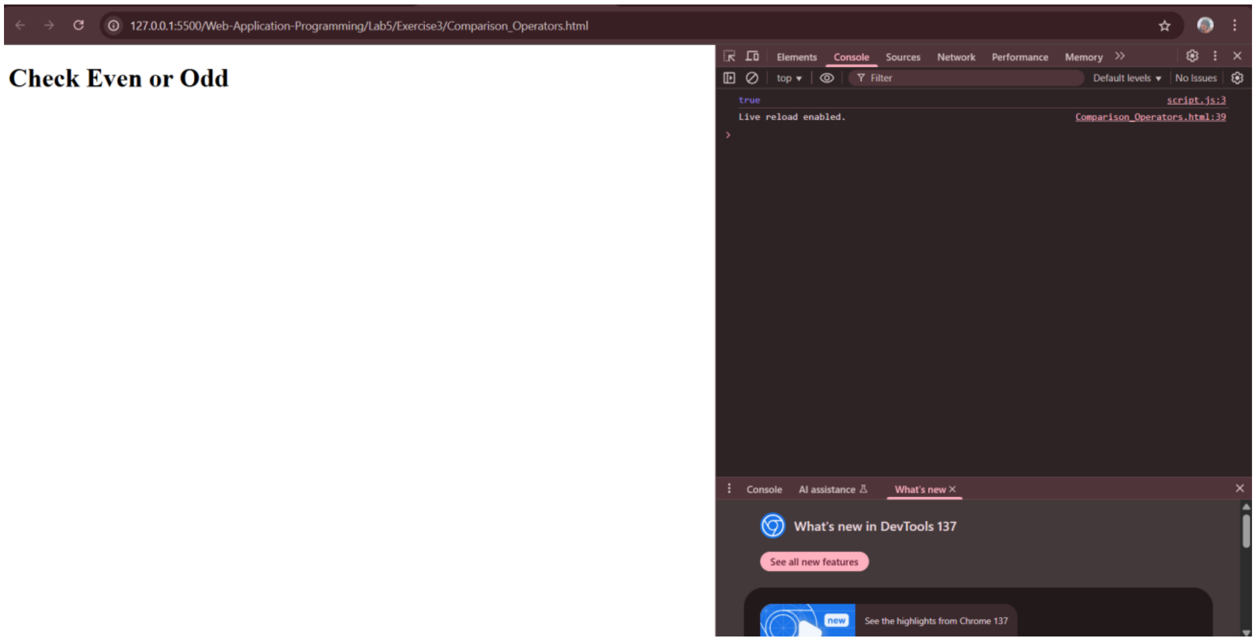
127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise2/Arithmetic_Operators.html

Calculate Next Age

```
21                                                         script.js:3
Live reload enabled.                           Arithmetic_Operators.html:39
Failed to load resource: the server responded with a status of 404   :5500/favicon.ico:1
(Not Found)
```

3.3 Exercise 3: Using Comparison Operators

Check if a number is even or odd using the modulo operator and log the result (true for odd, false for even).



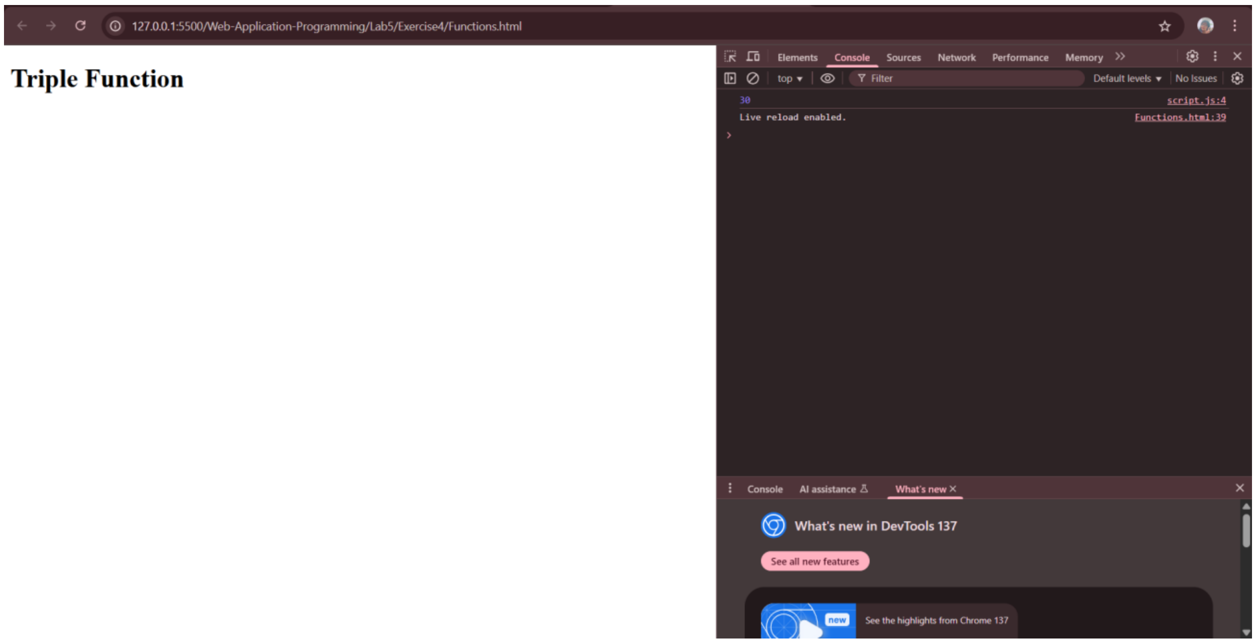
127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise3/Comparison_Operators.html

Check Even or Odd

```
true                                                       script.js:3
Live reload enabled.                           Comparison_Operators.html:39
```

3.4 Exercise 4: Creating Functions

Create a function triple that takes a parameter x and returns its value multiplied by 3

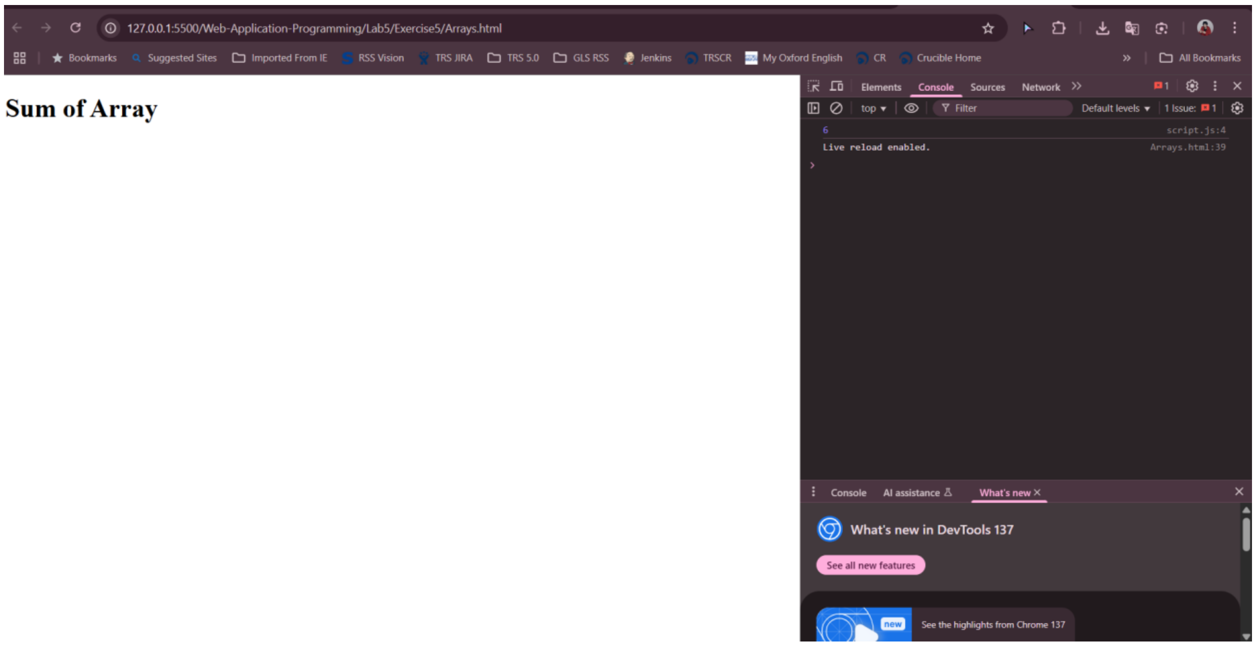

127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise4/Functions.html

Triple Function

```
30                                   script.js:4
Live reload enabled.            Functions.html:39
```

3.5 Exercise 5: Working with Arrays

Create a function sumArray that takes an array of numbers and returns their sum.

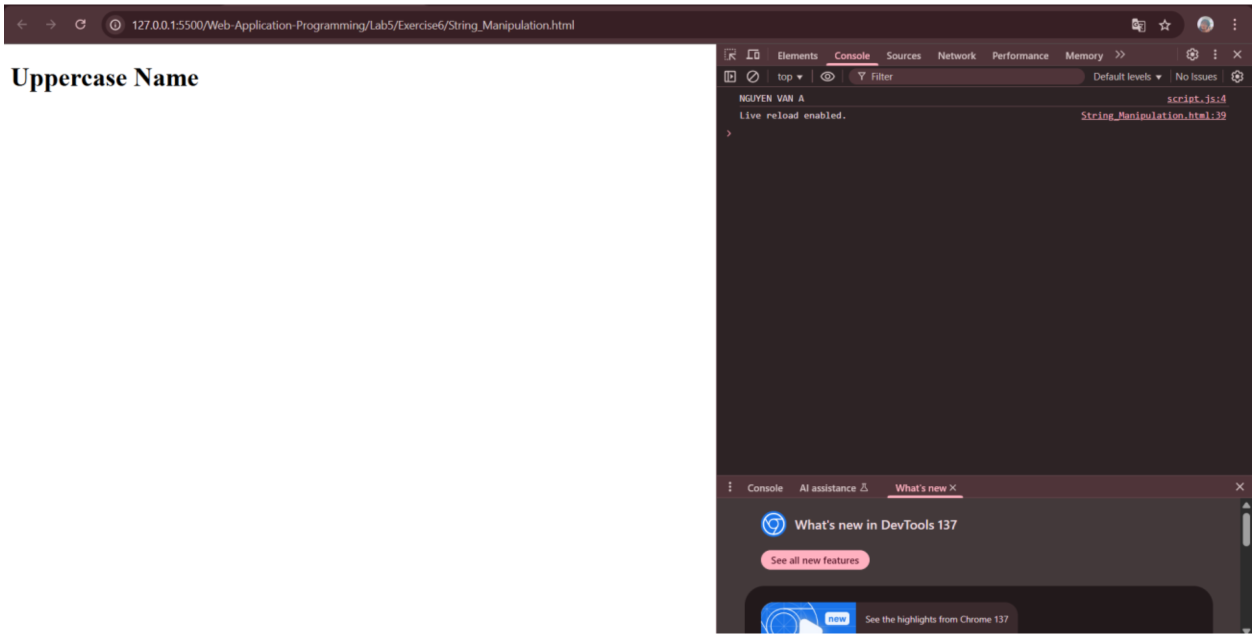

127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise5/Arrays.html

Sum of Array

```
6                                    script.js:4
Live reload enabled.               Arrays.html:39
```

3.6 Exercise 6: String Manipulation

Create a function toUpperCaseName that converts a given name to uppercase.


127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise6/String_Manipulation.html
Elements
Console
Sources
Network
Performance
Memory
What's new in DevTools 137
See all new features

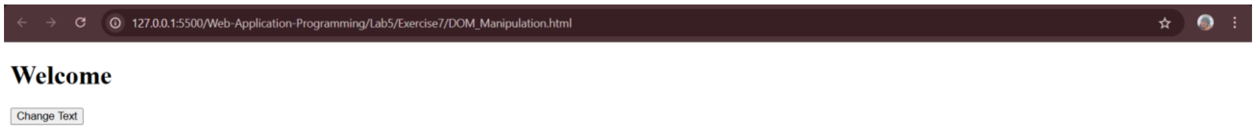
Uppercase Name

```
NGUYEN VAN A                                   script.js:4
Live reload enabled.          String_Manipulation.html:39
```

3.7 Exercise 7: DOM Manipulation

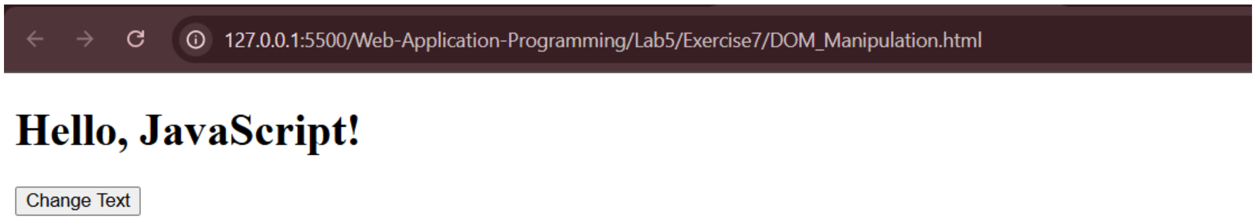
Change the text of an <h1> element to "Hello, JavaScript!" when a button is clicked.

- Before I click:


127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise7/DOM_Manipulation.html
Change Text

Welcome

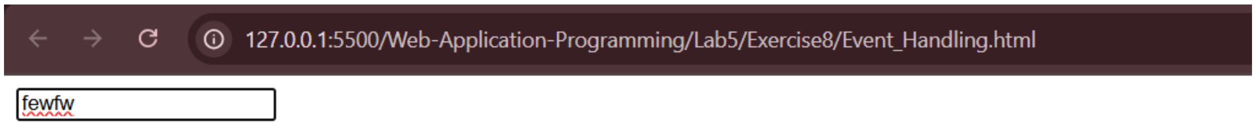
- After I click “Change Text”:


127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise7/DOM_Manipulation.html

Hello, JavaScript!

3.8 Exercise 8: Event Handling

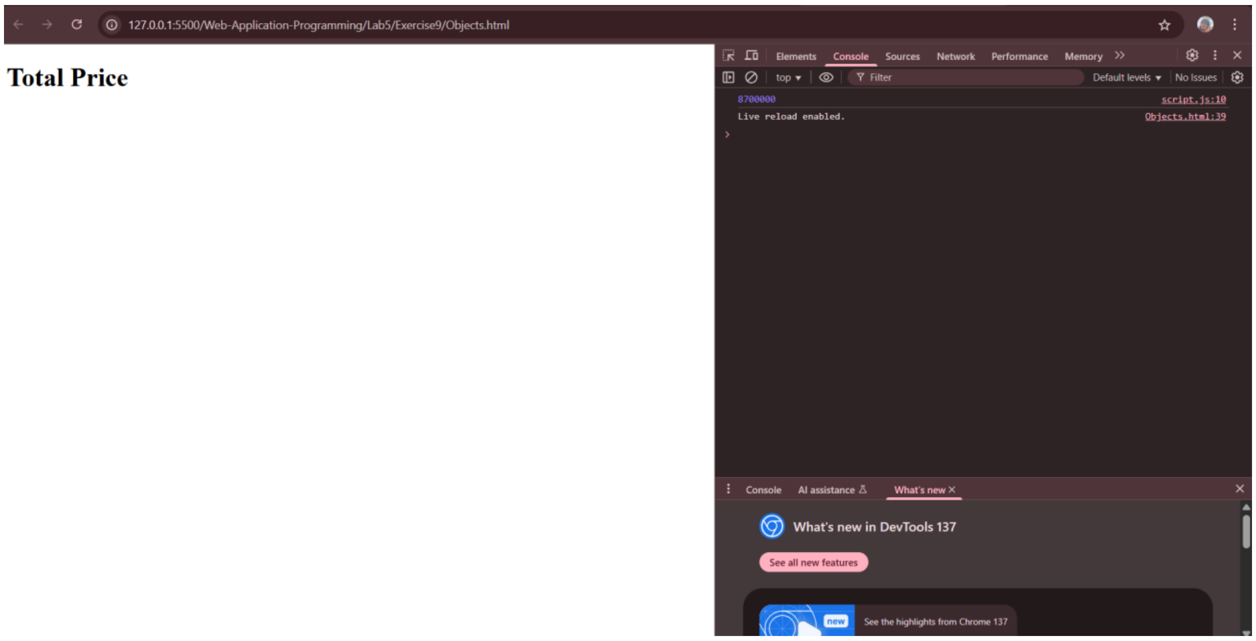
Create an input field that logs its value to the console whenever the user types.


127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise8/Event_Handling.html

fewfw

3.9 Exercise 9: Working with Objects

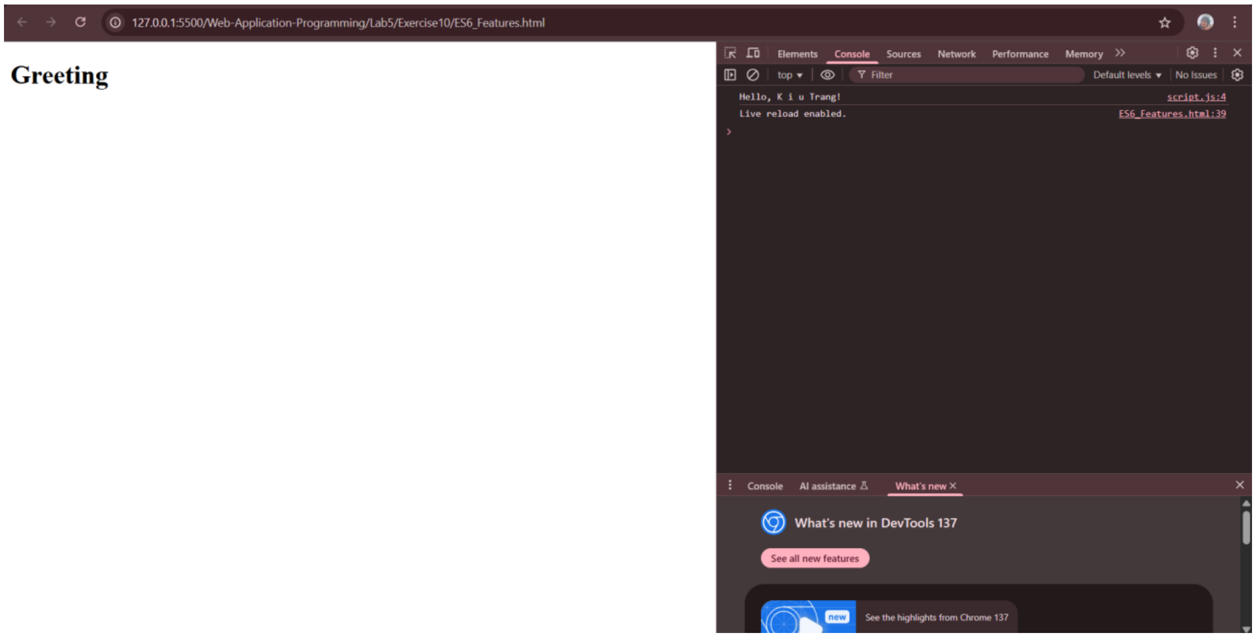
Calculate the total price of items in an array of objects, where each object has a price property.


127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise9/Objects.html
Total Price
Elements
Console
Sources
Network
Performance
Memory
What's new in DevTools 137
See all new features

```
8700000                                    script.js:10
Live reload enabled.                       Objects.html:39
```

3.10 Exercise 10: Using ES6+ Features

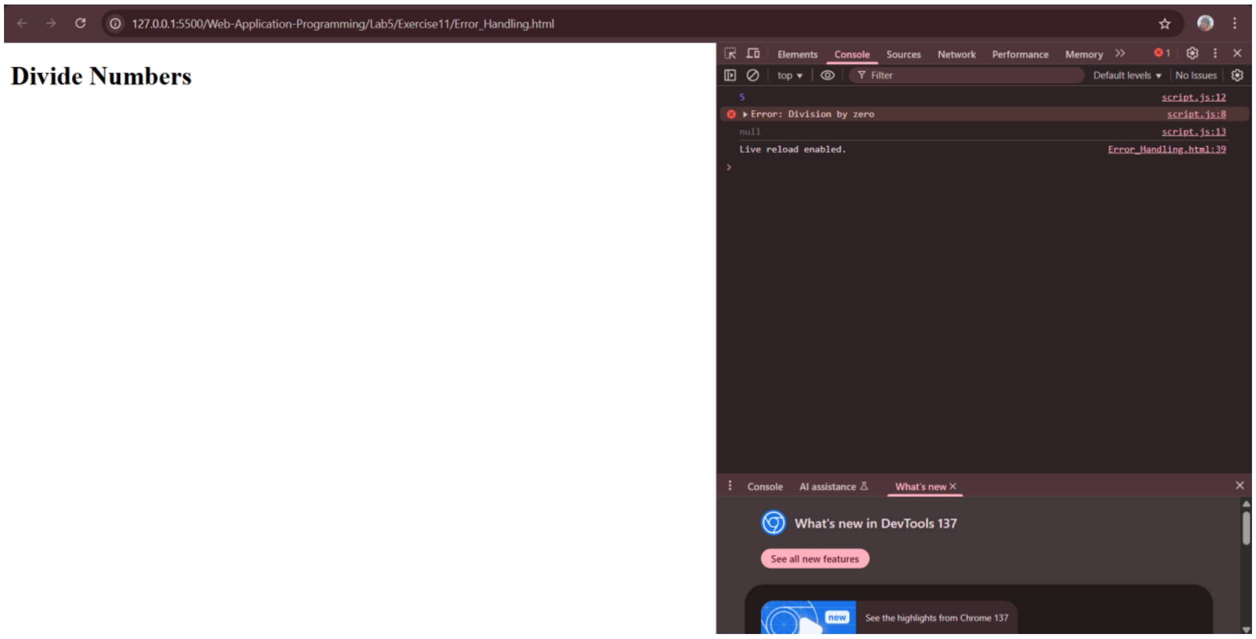
Use template literals and destructuring to create a greeting message from an object.


127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise10/ES6_Features.html
Greeting
Elements
Console
Sources
Network
Performance
Memory
What's new in DevTools 137
See all new features

```
Hello, K i u Trang!                        script.js:4
Live reload enabled.                       ES6_Features.html:39
```

3.11 Exercise 11: Error Handling

Create a function that divides two numbers and handles division by zero with try/catch.

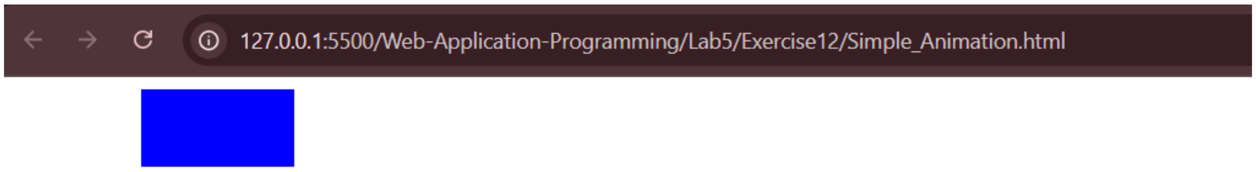

127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise11/Error_Handling.html
Elements
Console
Sources
Network
Performance
Memory
top
Filter
Default levels
No Issues
What's new in DevTools 137
See all new features
See the highlights from Chrome 137

Divide Numbers

```
5                                          script.js:12
▸ Error: Division by zero                  script.js:8
null                                       script.js:13
Live reload enabled.              Error_Handling.html:39
```

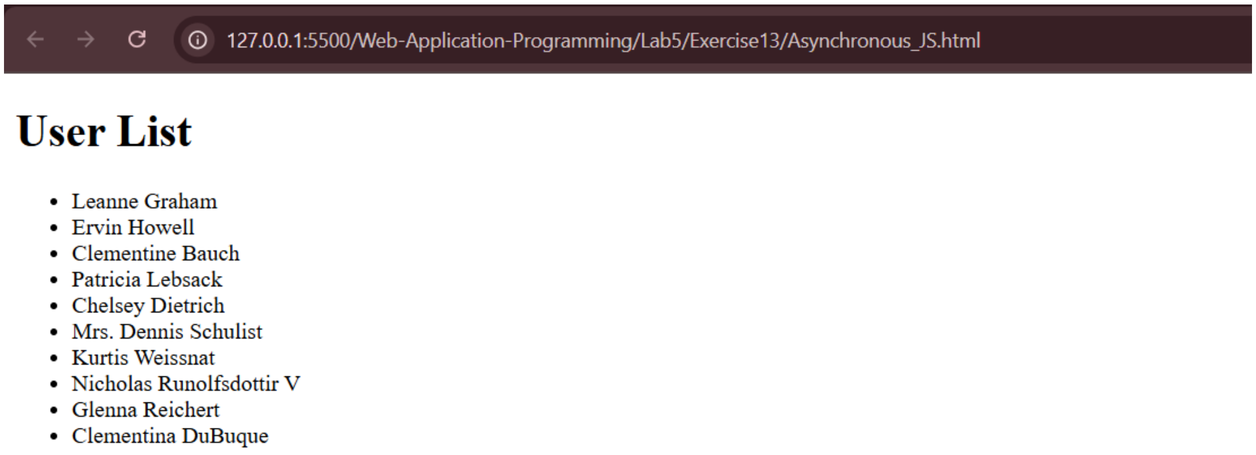
3.12 Exercise 12: Simple Animation

Create a box that moves 100px to the right over 2 seconds using setInterval.


127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise12/Simple_Animation.html

3.13 Exercise 13: Asynchronous JavaScript

Fetch data from a public API (JSONPlaceholder) and display user names in a list.


127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise13/Asynchronous_JS.html

User List

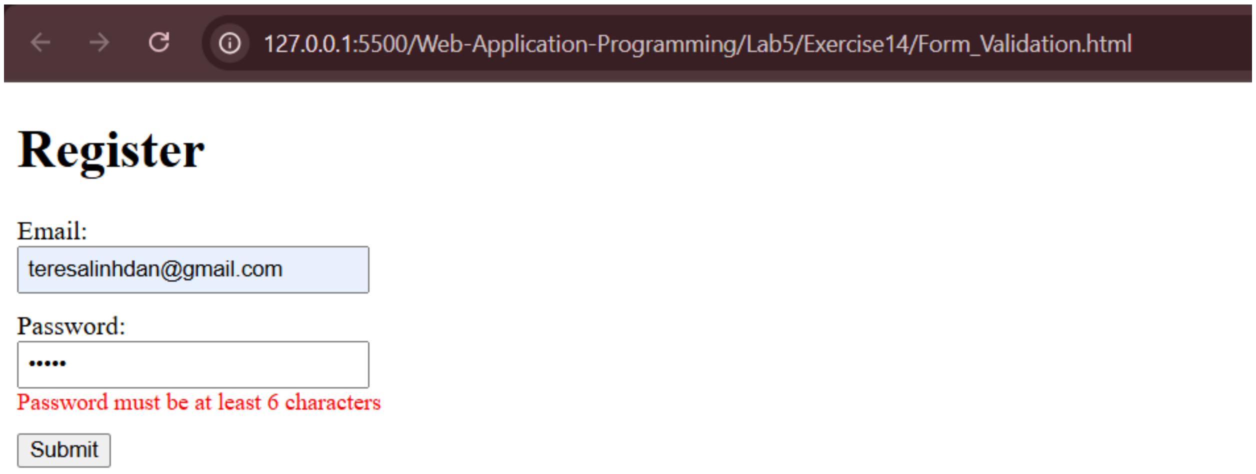
- Leanne Graham
- Ervin Howell
- Clementine Bauch
- Patricia Lebsack
- Chelsey Dietrich
- Mrs. Dennis Schulist
- Kurtis Weissnat
- Nicholas Runolfsdottir V
- Glenna Reichert
- Clementina DuBuque

3.14 Exercise 14: Form Validation

Create a registration form that validates email and password inputs. Display error messages if:

• Email is empty or does not contain @.

• Password is empty or less than 6 characters.


127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise14/Form_Validation.html

Register

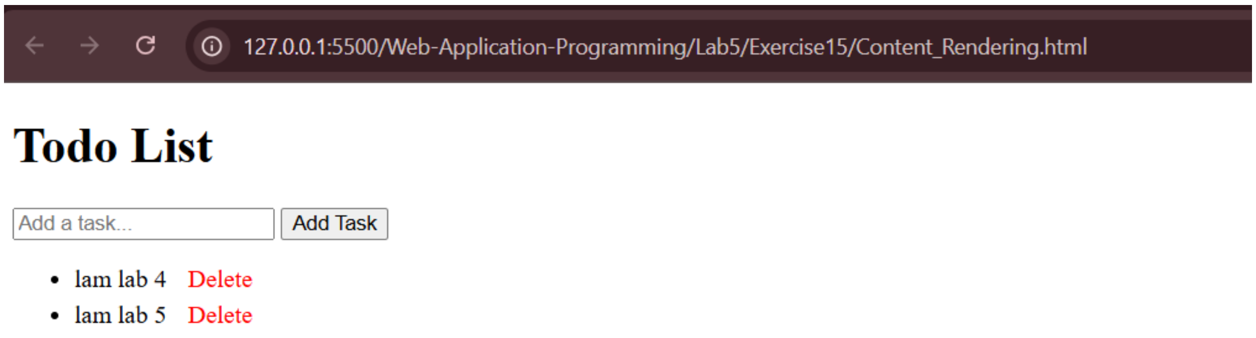
Email:
teresalinhdan@gmail.com

Password:
•••••

Password must be at least 6 characters

3.15 Exercise 15: Dynamic Content Rendering

Create a simple todo list where users can add tasks via an input field. Display the tasks in a list and allow deletion of tasks.



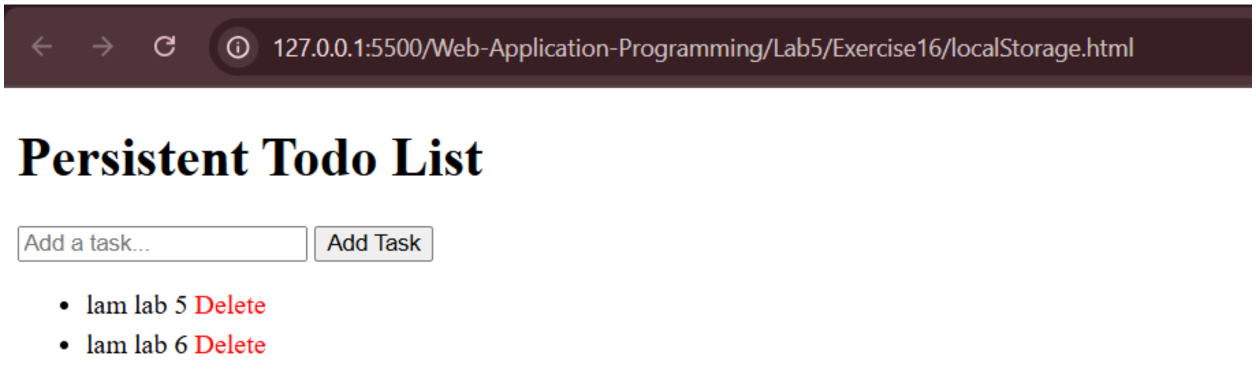
127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise15/Content_Rendering.html

Todo List

- lam lab 4 Delete
- lam lab 5 Delete

3.16 Exercise 16: Using localStorage

Extend the todo list from Exercise 15 to save tasks to localStorage so they persist after page reload.



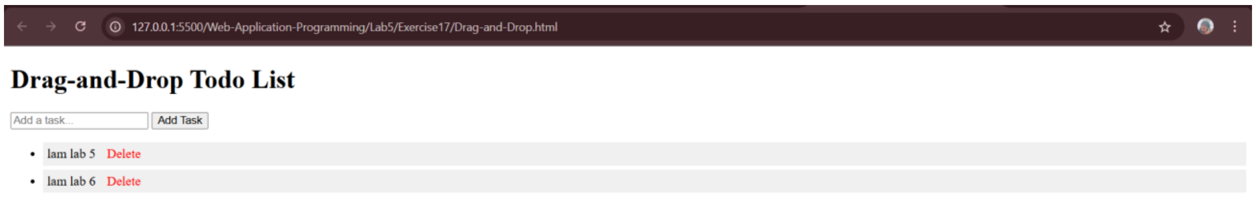
127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise16/localStorage.html

Persistent Todo List

- lam lab 5 Delete
- lam lab 6 Delete

3.17 Exercise 17: Drag-and-Drop

Implement a drag-and-drop feature to reorder tasks in the todo list from Exercise 15.


127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise17/Drag-and-Drop.html

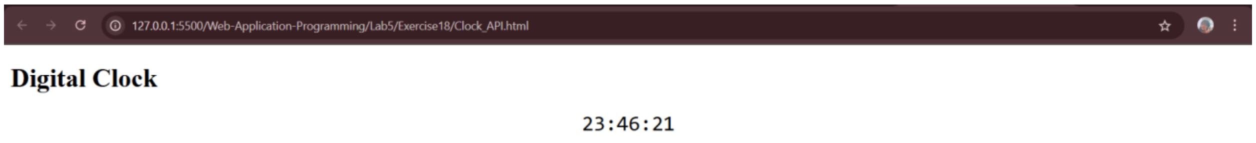
Drag-and-Drop Todo List

Add a task... Add Task

- Iam lab 5 Delete
- Iam lab 6 Delete

3.18 Exercise 18: Real-Time Clock with API

Create a digital clock that displays the current time, updated every second, using the browser's Date object.


127.0.0.1:5500/Web-Application-Programming/Lab5/Exercise18/Clock_API.html

Digital Clock

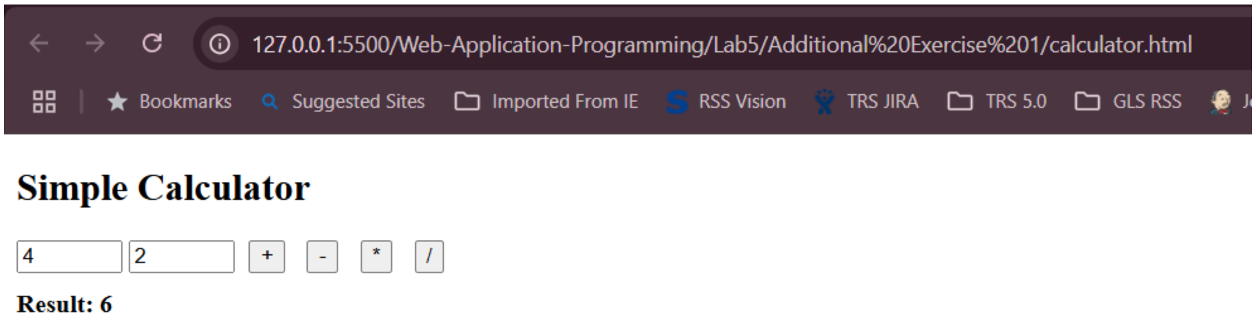
```
23:46:21
```

4. Additional Exercises

Exercise 1:

- Build a simple calculator with addition, subtraction, multiplication, and division.

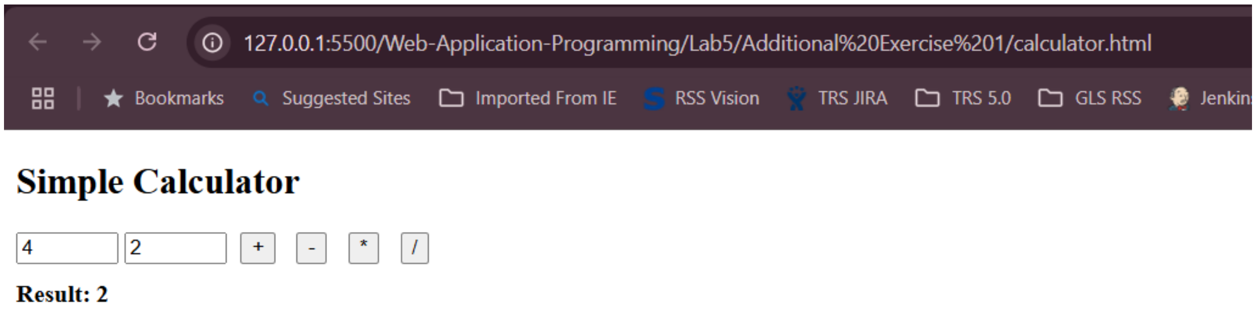
- Addition:


127.0.0.1:5500/Web-Application-Programming/Lab5/Additional%20Exercise%201/calculator.html

Simple Calculator

Result: 6

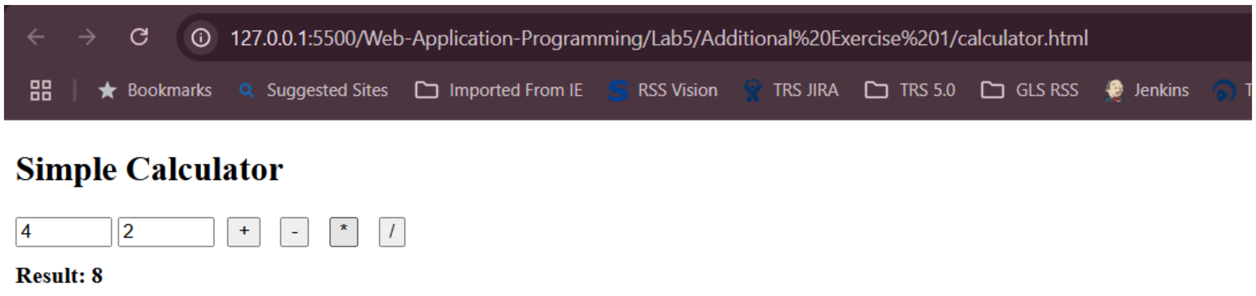
- Substraction:


127.0.0.1:5500/Web-Application-Programming/Lab5/Additional%20Exercise%201/calculator.html

Simple Calculator

Result: 2

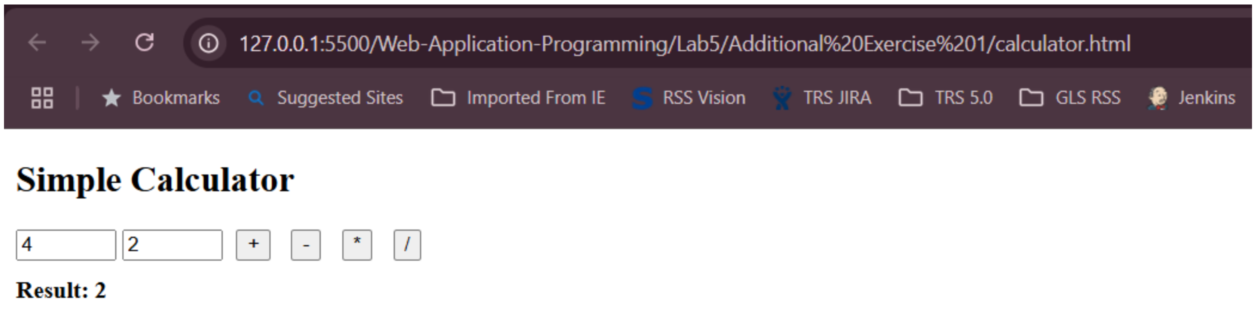
- Multiplication


127.0.0.1:5500/Web-Application-Programming/Lab5/Additional%20Exercise%201/calculator.html

Simple Calculator

Result: 8

- Division:


127.0.0.1:5500/Web-Application-Programming/Lab5/Additional%20Exercise%201/calculator.html

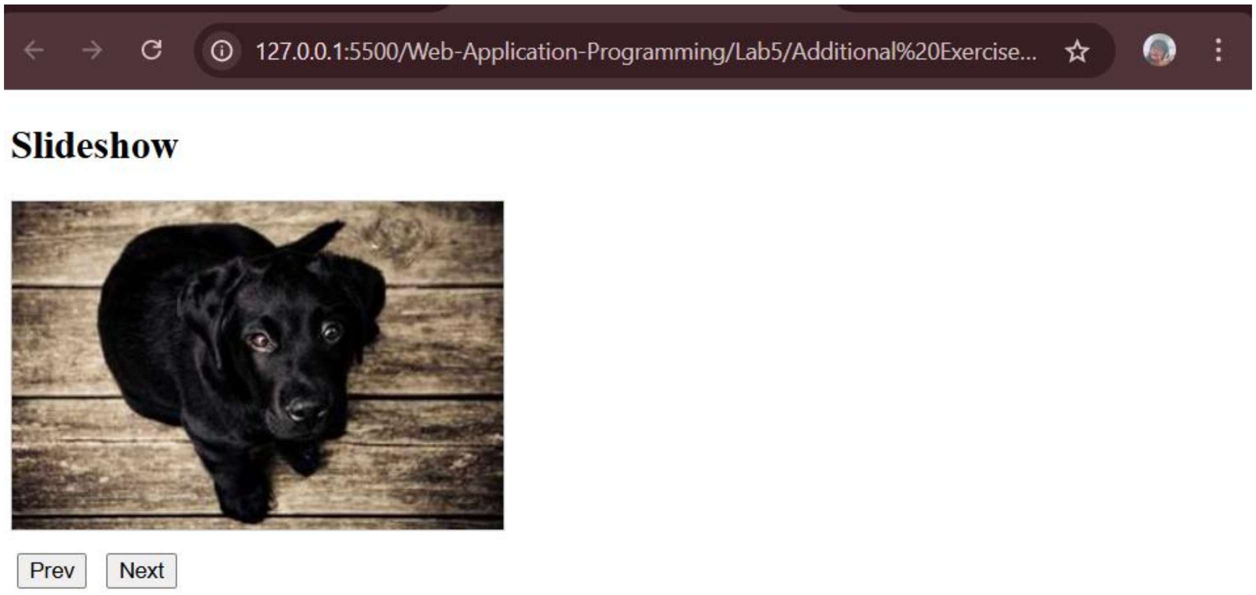
Simple Calculator

Result: 2

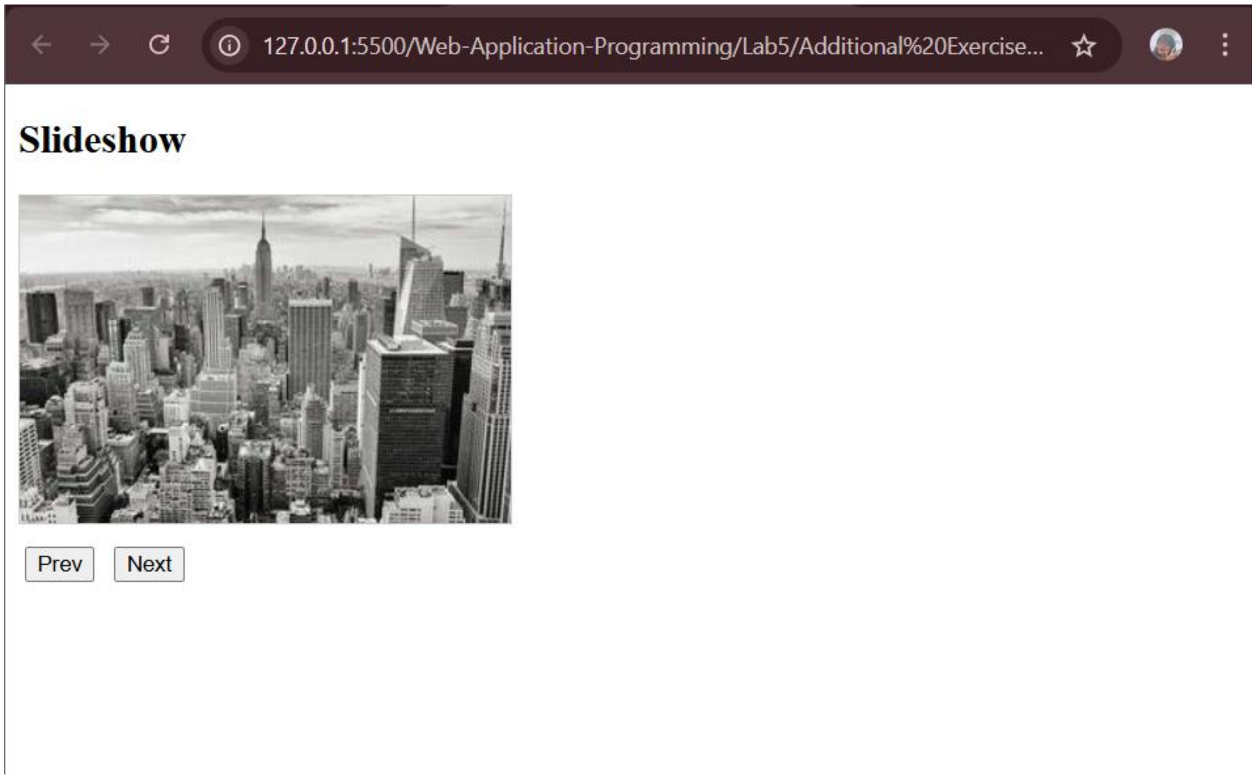
Exercise 2:

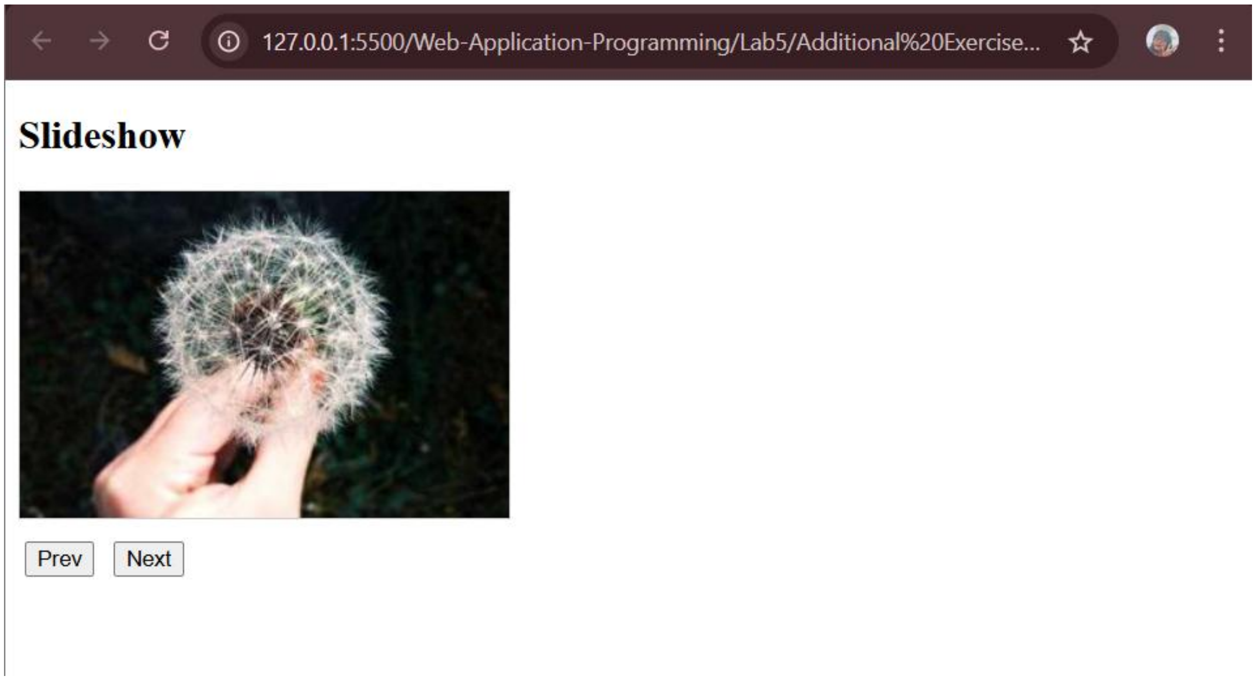
- Create a slideshow that changes images every 3 seconds with next/previous buttons.

Below are three images shown:


127.0.0.1:5500/Web-Application-Programming/Lab5/Additional%20Exercise...

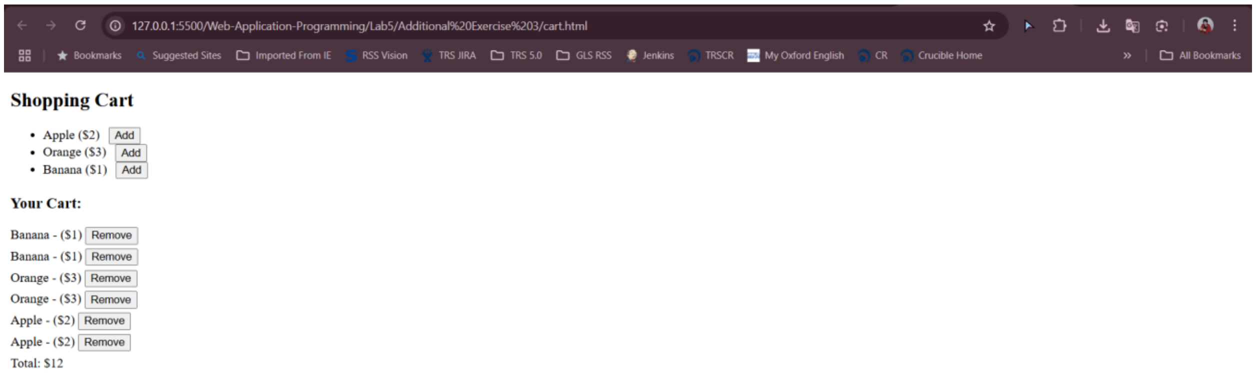
Slideshow


127.0.0.1:5500/Web-Application-Programming/Lab5/Additional%20Exercise...
Slideshow
Prev
Next


127.0.0.1:5500/Web-Application-Programming/Lab5/Additional%20Exercise...
Slideshow
Prev
Next

Exercise 3:

- Implement a shopping cart that allows adding/removing items and calculates the total price.



Shopping Cart

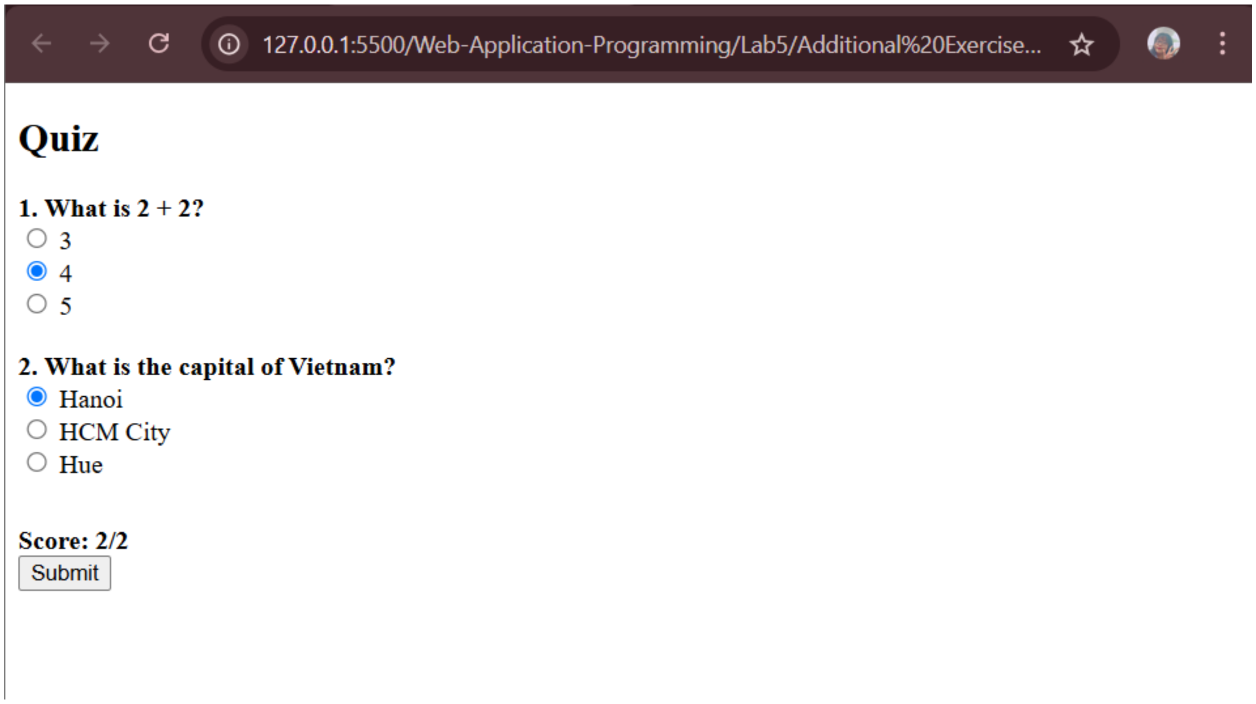
- Apple ($2) Add
- Orange ($3) Add
- Banana ($1) Add

Your Cart:

Banana - ($1) Remove
Banana - ($1) Remove
Orange - ($3) Remove
Orange - ($3) Remove
Apple - ($2) Remove
Apple - ($2) Remove
Total: $12

Exercise 4:

- Develop a quiz application with multiple-choice questions and a score tracker.


127.0.0.1:5500/Web-Application-Programming/Lab5/Additional%20Exercise...

Quiz

1. What is 2 + 2?

3
[✓ 4]
5

2. What is the capital of Vietnam?

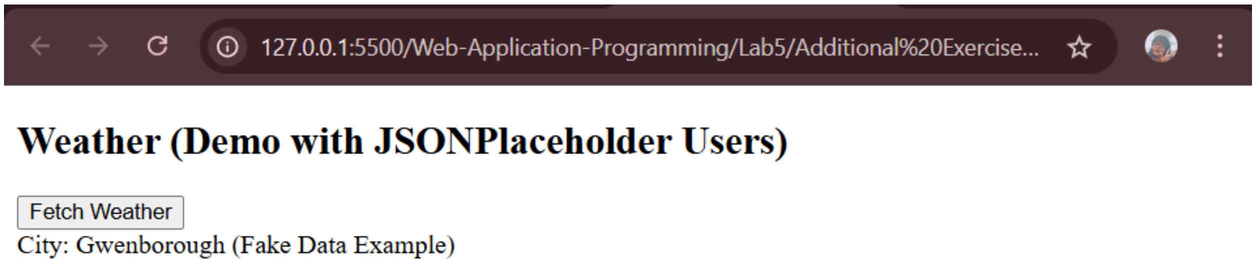
[✓ Hanoi]
HCM City
Hue

Score: 2/2

Submit

Exercise 5:

- Fetch and display real-time weather data from a public API (e.g. OpenWeatherMap).



127.0.0.1:5500/Web-Application-Programming/Lab5/Additional%20Exercise...

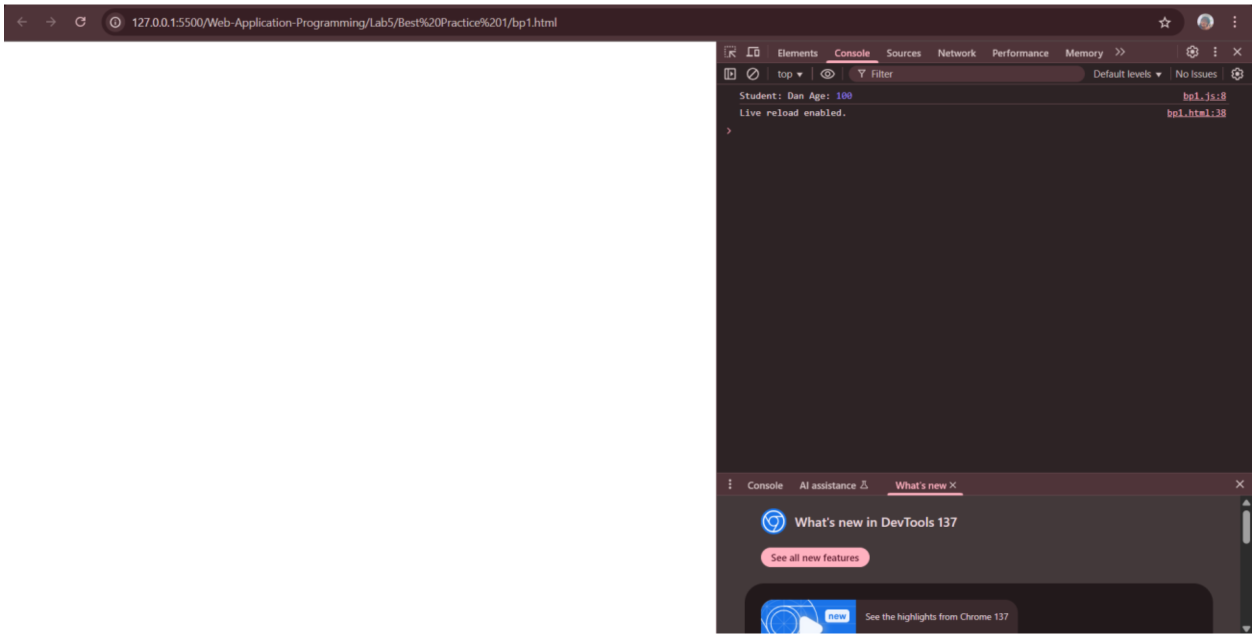
Weather (Demo with JSONPlaceholder Users)

City: Gwenborough (Fake Data Example)

5. JavaScript Best Practices:

Exercise 1:

- **Use Descriptive Variable Names:** Choose meaningful names like username instead of u.

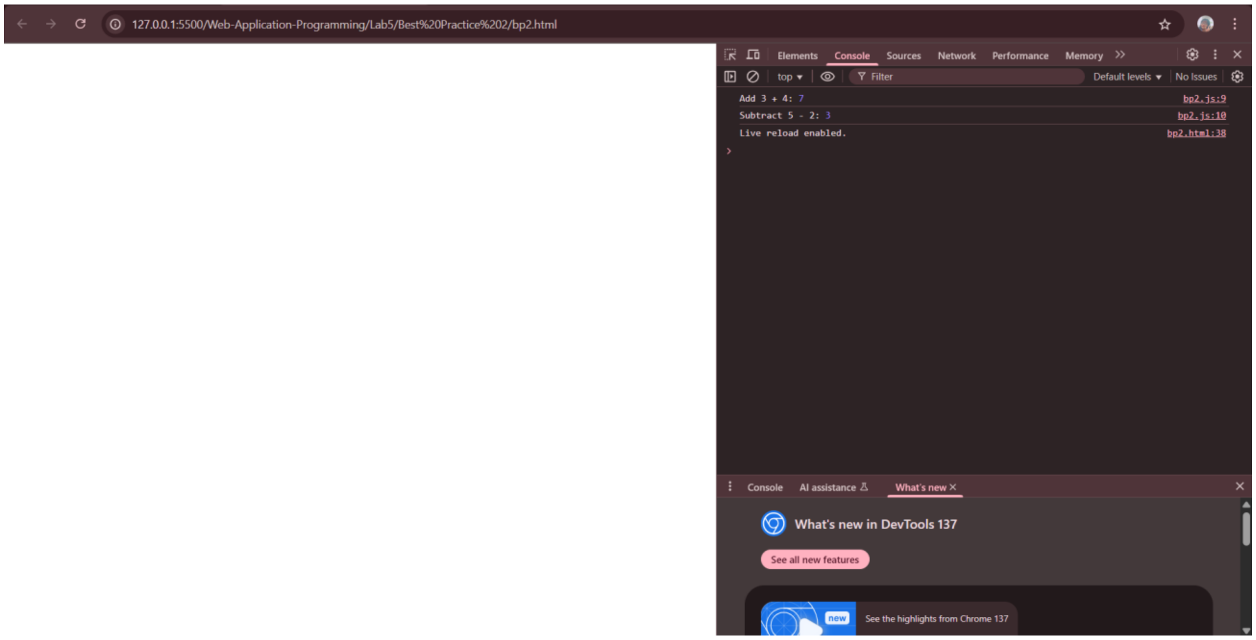


127.0.0.1:5500/Web-Application-Programming/Lab5/Best%20Practice%201/bp1.html

```
Student: Dan Age: 100                                   bp1.js:8
Live reload enabled.                                    bp1.html:38
```

Exercise 2:

- **Modularize Code:** Break code into reusable functions and modules for maintainability.

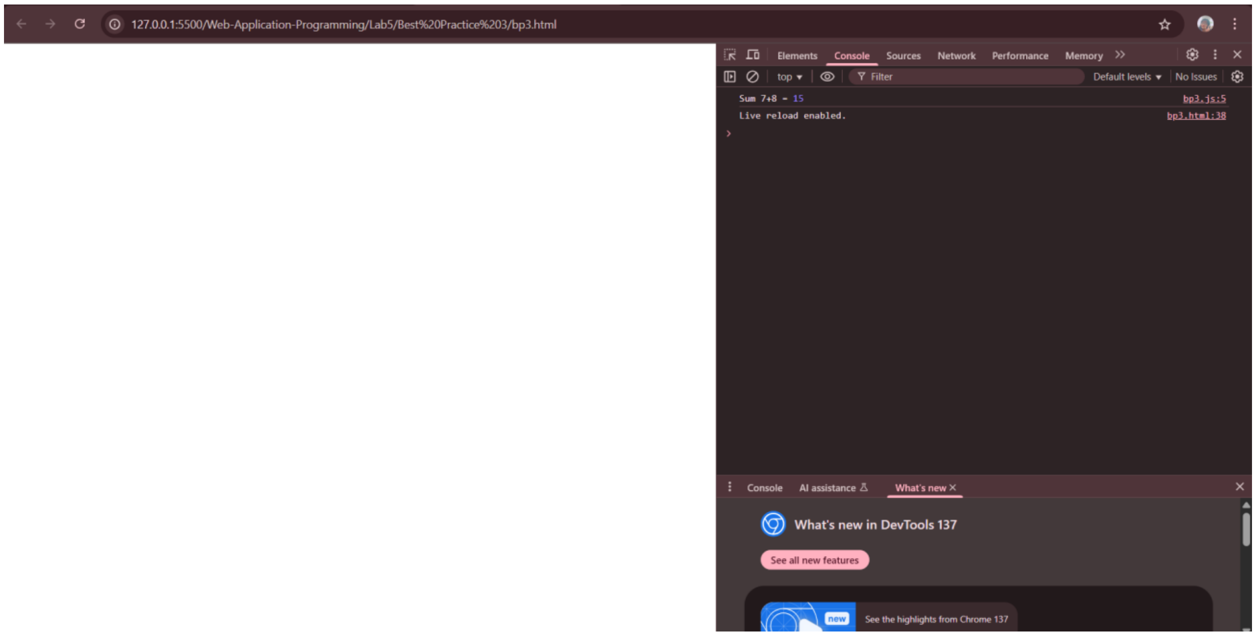


127.0.0.1:5500/Web-Application-Programming/Lab5/Best%20Practice%202/bp2.html

```
Add 3 + 4: 7                                   bp2.js:9
Subtract 5 - 2: 3                              bp2.js:10
Live reload enabled.                           bp2.html:38
```

Exercise 3:

- **Avoid Global Variables**: Use let or const within appropriate scopes to prevent conflicts.

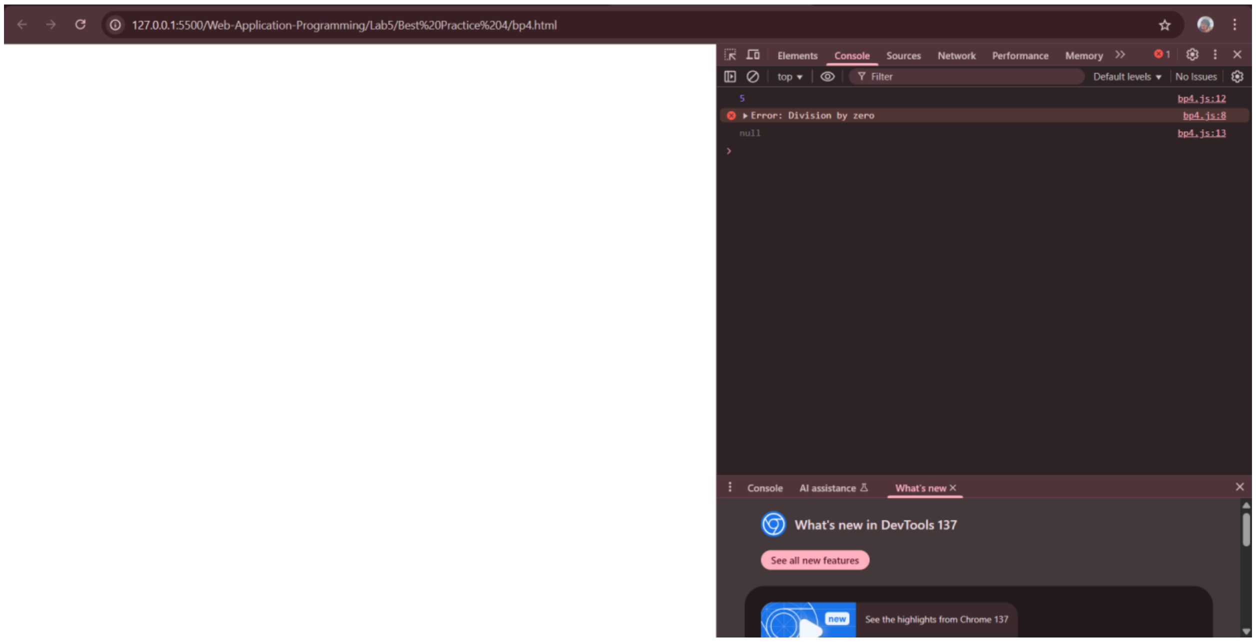


127.0.0.1:5500/Web-Application-Programming/Lab5/Best%20Practice%203/bp3.html

```
Sum 7+8 - 15                                   bp3.js:5
Live reload enabled.                           bp3.html:38
```

Exercise 4:

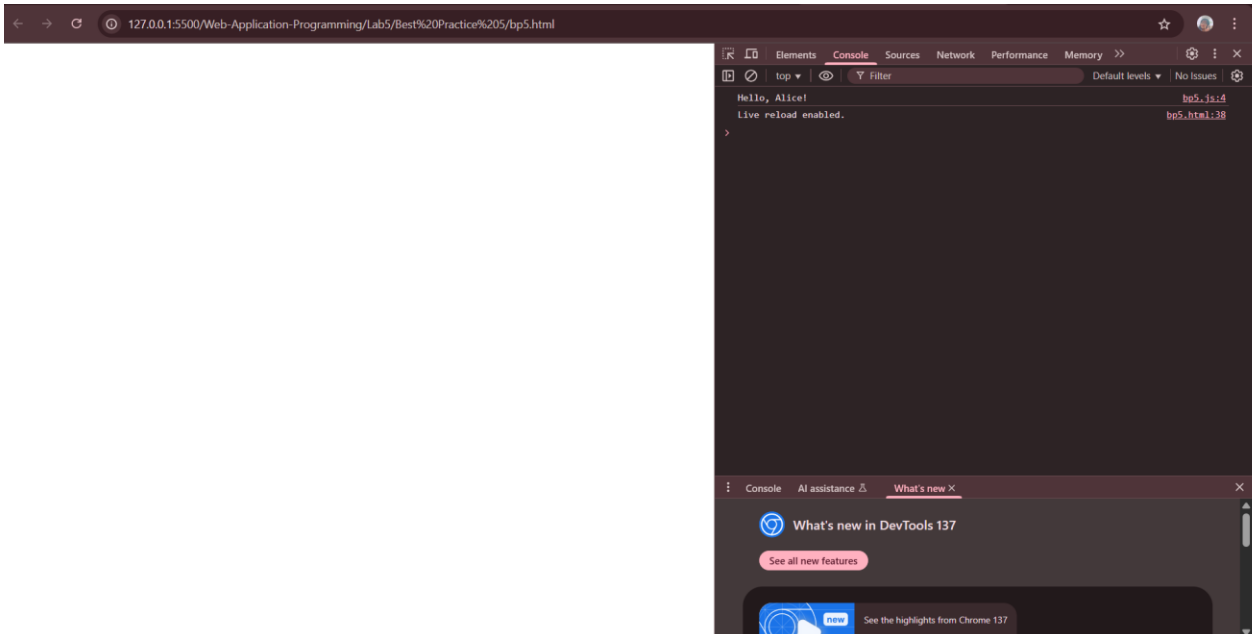
- **Handle Errors Gracefully:** Use try/catch for asynchronous operations and validate user inputs.


127.0.0.1:5500/Web-Application-Programming/Lab5/Best%20Practice%204/bp4.html
Elements
Console
Sources
Network
Performance
Memory
top
Filter
Default levels
No Issues
Console
AI assistance
What's new
What's new in DevTools 137
See all new features
See the highlights from Chrome 137

```
5                                   bp4.js:12
▸ Error: Division by zero           bp4.js:8
null                                bp4.js:13
>
```

Exercise 5:

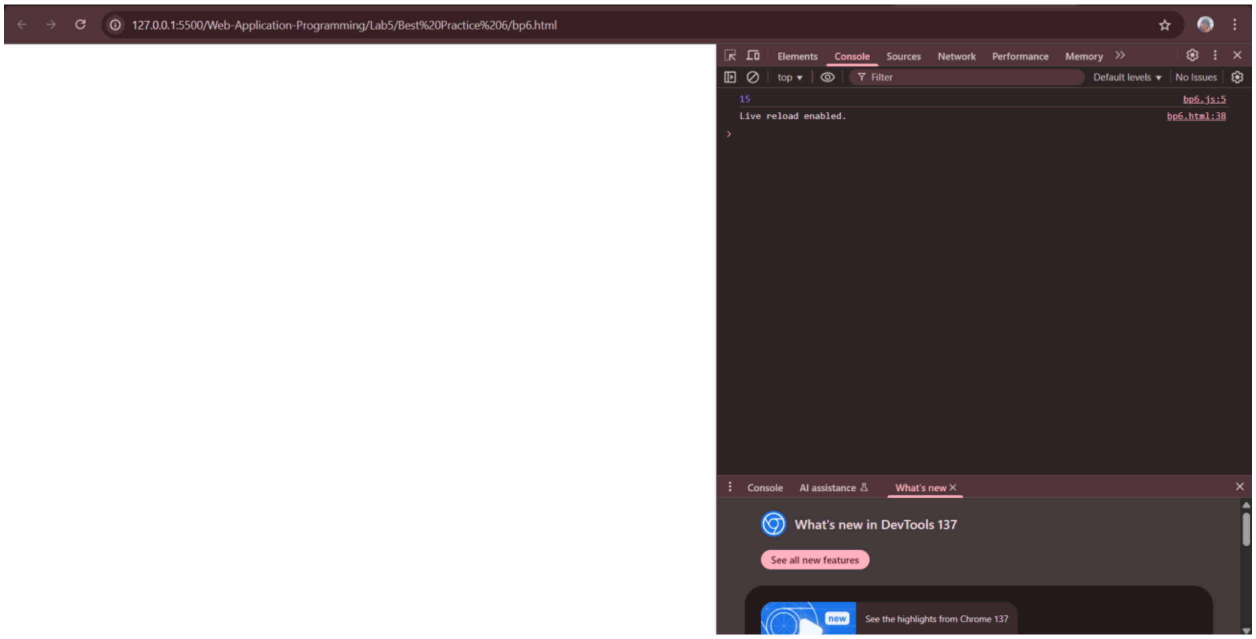
- **Use ES6+ Features:** Leverage arrow functions, destructuring, and modules for cleaner code.


127.0.0.1:5500/Web-Application-Programming/Lab5/Best%20Practice%205/bp5.html
Elements
Console
Sources
Network
Performance
Memory
top
Filter
Default levels
No Issues
Console
AI assistance
What's new
What's new in DevTools 137
See all new features
See the highlights from Chrome 137

```
Hello, Alice!                       bp5.js:4
Live reload enabled.                bp5.html:38
>
```

Exercise 6:

- **Comment Code:** Add comments to explain complex logic or functionality.

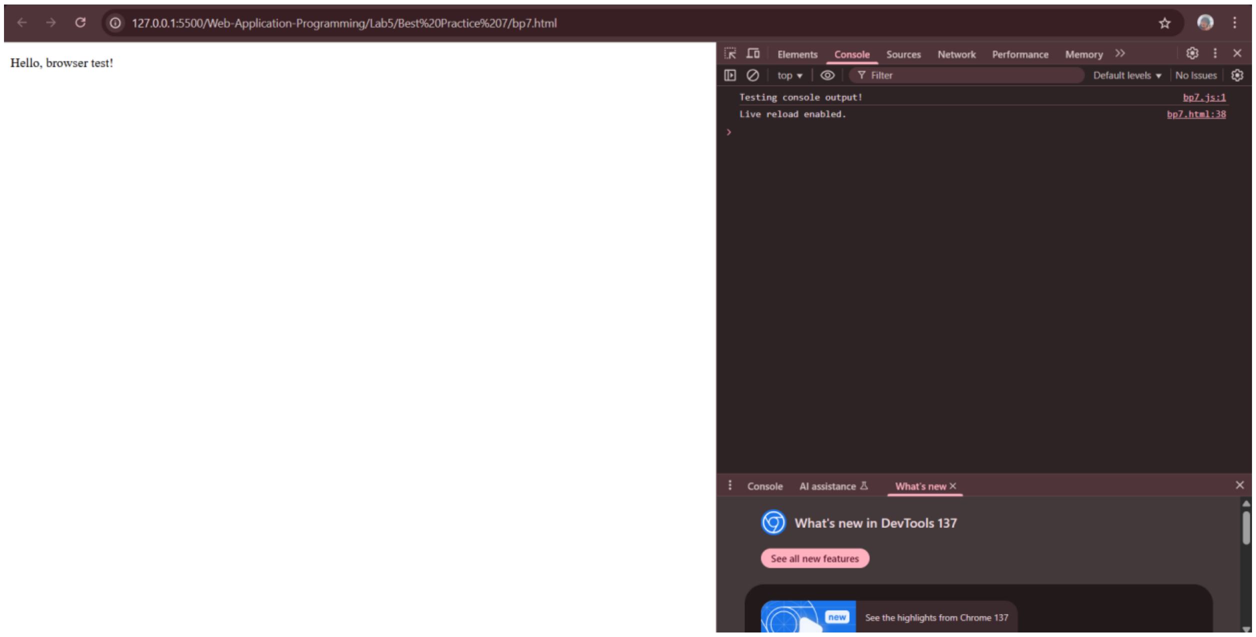


127.0.0.1:5500/Web-Application-Programming/Lab5/Best%20Practice%206/bp6.html
Elements
Console
Sources
Network
Performance
Memory
top
Filter
Default levels
No Issues
Console
AI assistance
What's new
What's new in DevTools 137
See all new features
See the highlights from Chrome 137

```
15                                                  bp6.js:5
Live reload enabled.                                bp6.html:38
```

Exercise 7:

- **Test in Browser:** Use browser DevTools to debug and test JavaScript code.



127.0.0.1:5500/Web-Application-Programming/Lab5/Best%20Practice%207/bp7.html
Elements
Console
Sources
Network
Performance
Memory
top
Filter
Default levels
No Issues
Console
AI assistance
What's new
What's new in DevTools 137
See all new features
See the highlights from Chrome 137

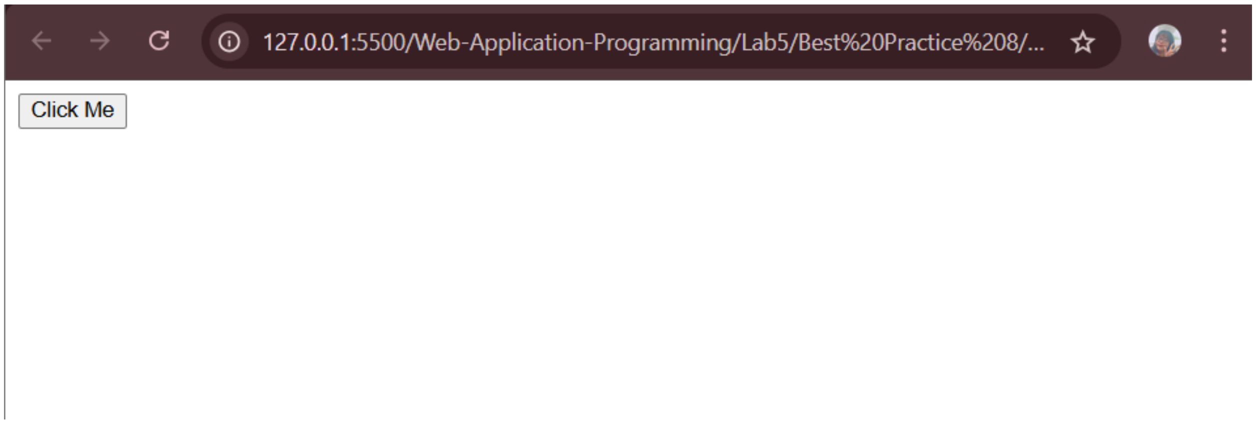
Hello, browser test!

```
Testing console output!                             bp7.js:1
Live reload enabled.                                bp7.html:38
```

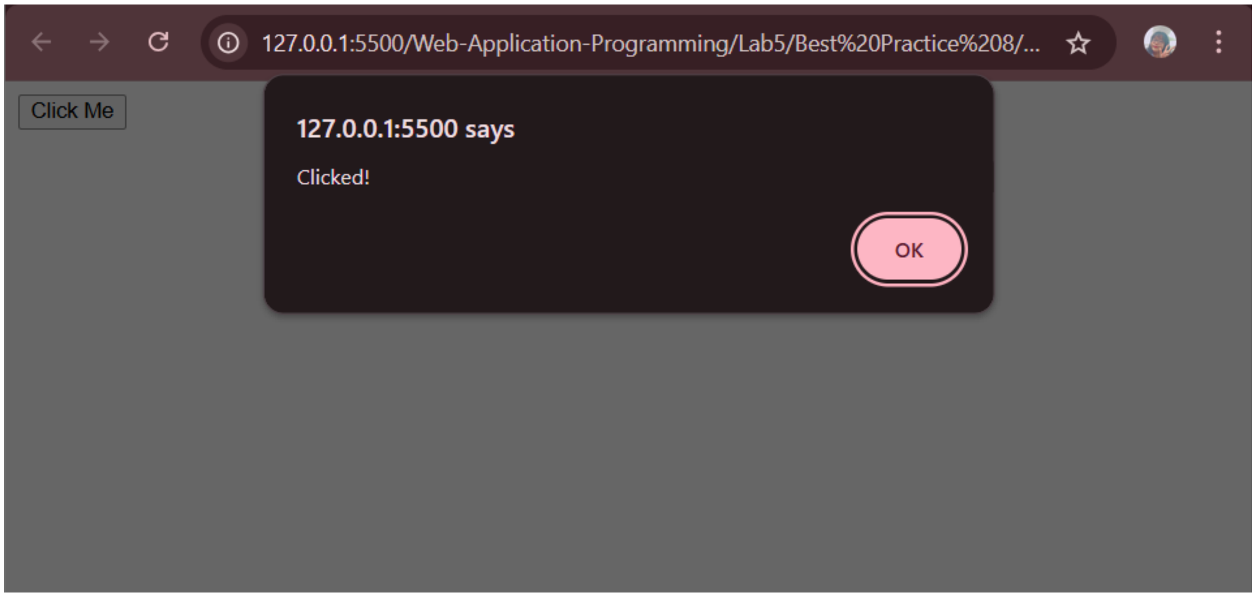
Exercise 8:

- **Optimize Event Listeners:** Remove unused event listeners to prevent memory leaks.

- Before I click:


127.0.0.1:5500/Web-Application-Programming/Lab5/Best%20Practice%208/...
Click Me

- After I clicked:



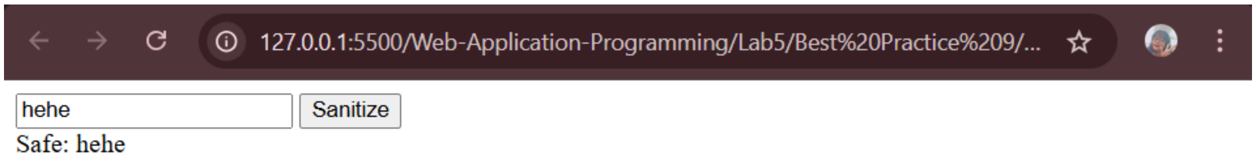
127.0.0.1:5500 says

Clicked!

127.0.0.1:5500/Web-Application-Programming/Lab5/Best%20Practice%208/...
Click Me
OK

Exercise 9:

- **Sanitize User Input:** Prevent XSS attacks by validating and sanitizing user inputs.



127.0.0.1:5500/Web-Application-Programming/Lab5/Best%20Practice%209/...

Safe: hehe