Real time data streaming with WebSocket and Socket.IO
Lab 1 Exercises
Basic JavaScript for Frontend

1   References

1.1   HTML References

https://www.w3schools.com/html/default.asp

https://www.tutorialrepublic.com/html-tutorial/html-get-started.php

1.2   HTML <canvas> references

https://www.w3schools.com/graphics/canvas_intro.asp

https://www.freecodecamp.org/news/full-overview-of-the-html-canvas-6354216fba8d/

1.3   CSS References

https://www.tutorialrepublic.com/css-tutorial/

https://www.w3schools.com/css/

1.4 JavaScript for DOM references

https://www.w3schools.com/js/js_htmldom.asp

https://www.javascripttutorial.net/javascript-dom/

https://www.freecodecamp.org/news/the-javascript-dom-manipulation-handbook/#what-you-can-do-with-the-dom

2 Manipulating the DOM

`Lab 1 / frontend / exercise`

2.1 Question 1

Based on the content of `index.html`, provide JavaScript code in `client.js` so that:

When the Add Numbers button is clicked:
- Values in the two fields are added and this sum of dynamically displayed in a paragraph below the button
- A message to indicate whether the sum is below 0, exactly 0 or above 0 is also dynamically displayed
- The contents of the two numeric input fields are cleared.

HINT:

You will first need to convert input values in the text fields to a number type in order to perform addition, for e.g:

```
const num1 = Number(num1Field.value);
const num2 = Number(num2Field.value);
```

You will only need to use these methods and properties

a) `createElement()` – create a new element.
b) `appendChild()` – append a node to a list of child nodes of a specified parent node.
c) `textContent` – get and set the text content of a node.
d) `innerHTML` – get and set the HTML content of an element.

2.2 Question 2

Part 1:

Based on the content of `index.html`, provide JavaScript code in `client.js` so that:

- When the button with id="addBtn" is clicked, the content of the text input field is added as an additional `<li>` at the end of the top level `<ul>`
- When the button with id="addHTML" is clicked, some header and paragraph elements with random content are added into the `<div>` with id="panel". You should use `innerHTML` to accomplish this purpose.

You will only need to use these methods and properties

a) `createElement()` – create a new element.
b) `appendChild()` – append a node to a list of child nodes of a specified parent node.
c) `textContent` – get and set the text content of a node.
d) `innerHTML` – get and set the HTML content of an element.

Part 2:

Further modify `client.js` so that

- When the button with id="addBtn" is clicked, a short message stating: "`Adding item in 3 seconds`" appears and then disappears after 3 seconds, and then only is the content of the text input field is added as an additional `<li>` at the end of the top level `<ul>`,
- When the button with id="addHTML" is clicked, some header and paragraph elements with random content are added into the `<div>` with id="panel". At the same time, the button with id="addHTML" now changes text to read: "`Remove headers / paragraphs from DIV`". When the button is clicked again, the header and paragraph elements inside the `<div>` with id="panel" are removed, and the text of the button changes again to read: "`Add headers / paragraphs to DIV`". When this button is again subsequently clicked, the entire process is repeated.

HINT:

You will first need to use to the `setTimeOut` function to accomplish the disappearance of the message after 3 seconds.