Lab 9

Re-submit Assignment

Due Nov 14 by 11:59pm **Points** 100 **Submitting** a file upload

CS-546 Lab 9

Fibonacci & Prime Number Checker

For this lab, you will be using HTML, CSS, and JavaScript on the user's browser to make a simple application that first calculates the **Fibonacci (https://en.wikipedia.org/wiki/Fibonacci_number)** of a given index and then will check if that is a Prime Number.

The Fibonacci value of an index is the sum of the previous two Fibonacci values; **the Fibonacci of any number less than 1 is 0**; **the Fibonacci Value of 1 is 1**; the Fibonacci value of all other numbers is the sum of the previous two Fibonacci numbers.

Here is a sample list of the indexes (this will be what the user inputs) and the value (this is what you are calculating). The values are **NOT** just limited to this list but for **ALL** Fibonacci index/values.

Index	Value	Description
0	0	Fibonacci of anything less than 1 is 0
1	1	Fibonacci of 1 is 1
2	1	Fibonacci of 2 is Fibonacci(1) + Fibonacci(0)
3	2	Fibonacci of 3 is Fibonacci(2) + Fibonacci(1)
4	3	Fibonacci of 4 is Fibonacci(3) + Fibonacci(2)
5	5	Fibonacci of 5 is Fibonacci(4) + Fibonacci(3)
6	8	Fibonacci of 6 is Fibonacci(5) + Fibonacci(4)
7	13	Fibonacci of 7 is Fibonacci(6) + Fibonacci(5)
8	21	Fibonacci of 8 is Fibonacci(7) + Fibonacci(6)
9	34	Fibonacci of 9 is Fibonacci(8) + Fibonacci(7)
10	55	Fibonacci of 10 is Fibonacci(9) + Fibonacci(8)
11	89	Fibonacci of 11 is Fibonacci(10) + Fibonacci(9)

And so on.

You will create an express server with a single page at the location `/` that will provide the user with a web page with a form to allow the user to enter an index (a number), when the form is submitted, the

system will then calculate the Fibonacci value for the index inputted and then also to check if the returned Fibonacci value is a prime number. **The entire checking operation will be done using client-side JavaScript**.

The Server

Your server this week should not do any of the processing or calculations. Your server only exists to allow someone to get to the HTML Page and download the associated assets to run the Fibonacci & prime number checking page.

`/` The Whole Fibonacci & Prime Number Checker

Your page should have a few basic user interface elements:

- A header tag, with an h1 naming your site, with a title for your page
- A footer with your name, student ID, and any other info about yourself you wish to include
- A single ordered list with an id of `results`. All of the results for each index the user inputted and that has been calculated so far (until you refresh the page) will appear in this list as list items. Numbers that are prime will be colored in *green (see precise hex code below)*, while numbers that are not will be colored in *red (see precise hex code below).*
- . You must use the CSS classes below to color these items.

  So for example, say the user entered index 4 the first time and then an index of 6 the 2nd time. It would output displayed on the page would be: (You MUST write the output exactly as shown below "The Fibonacci of X is Y." (No quotes and don't forget the period at the end.)
  - **The Fibonacci of 4 is 3.**
  - **The Fibonacci of 6 is 8.**

Since 3 is a prime number and 8 is not. Remember we are calculating if the Fibonacci Value is prime (not the index)

Your page will have a form with the following:

- A label with a `for` attribute referencing your input
- A input with a `name` and `type` of `number`
- A button to submit the form

Using JavaScript in your browser only, you will listen for the form's `submit` event; when the form is submitted, you will:

- Get the value of the input text element (this will be the Fibonacci index)
- Calculate the Fibonacci value for the given index
- Determine whether or not the number is a prime number

- Add a list item to the `#results` list of numbers you have checked. This list item should have a class of `is-prime` if it is a prime number, or `not-prime` it is not.

If the user does not have a value for the input when they submit, you should not continue checking and instead should inform them of an error somehow.

The style

You will style your page using at least 10 CSS selectors for general CSS styling. You will place the CSS in its own file.

You *must* style the `is-prime` class to make text have a `color` of `#00E676` for numbers that are prime and `not-prime` class to make text have a color of `#FF3D00` for numbers that are not prime

References and Packages

Basic CSS info can easily be referenced in the **MDN CSS tutorial (https://developer.mozilla.org/en-US/docs/Web/Guide/CSS/Getting_started)** .

Requirements

1. All previous requirements still apply.
2. You **must remember** to update your package.json file to set `app.js` as your starting script!
3. **Your HTML must be valid (https://validator.w3.org/#validate_by_input)** or you will lose points on the assignment.
4. Your HTML must make semantical sense; usage of tags for the purpose of simply changing the style of elements (such as `i`, `b`, `font`, `center`, etc) will result in points being deducted; think in terms of content first, then style with your CSS.
5. **You can be as creative as you'd like to fulfill front-end requirements**; if an implementation is not explicitly stated, however you go about it is fine (provided the HTML is valid and semantical). Design is not a factor in this course.
6. **Your client side JavaScript must be in its own file and referenced from the HTML accordingly**.
7. All inputs must be properly labeled!