Coursework

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1   Introduction

The aim of the coursework is to design and implement a website to show created ciphers in javascript. The website contains pages about classical ciphers, home page and a design page. It was implemented using HTML, CSS and Javascript.

Researched ciphers and decided to go with two simple ciphers using pseudocodes from tutorials and course discussions. Created an Atbash cipher researched in java and implemented in javascript after trial and error. The most useful website for cipher research was Cipher tools (http://rumkin.com/tools/cipher/).

2   Software Design

I decided to divide the page in sections. The first would be a top sticky navigation bar, followed by a parallax header. The navigation bar would overlay the elements and stay sticky on top. The second section would be the main body containing the general elements and information. The website would include a smooth scrolling implemented in javascript and have interactive cards that would link to ciphers individual pages.
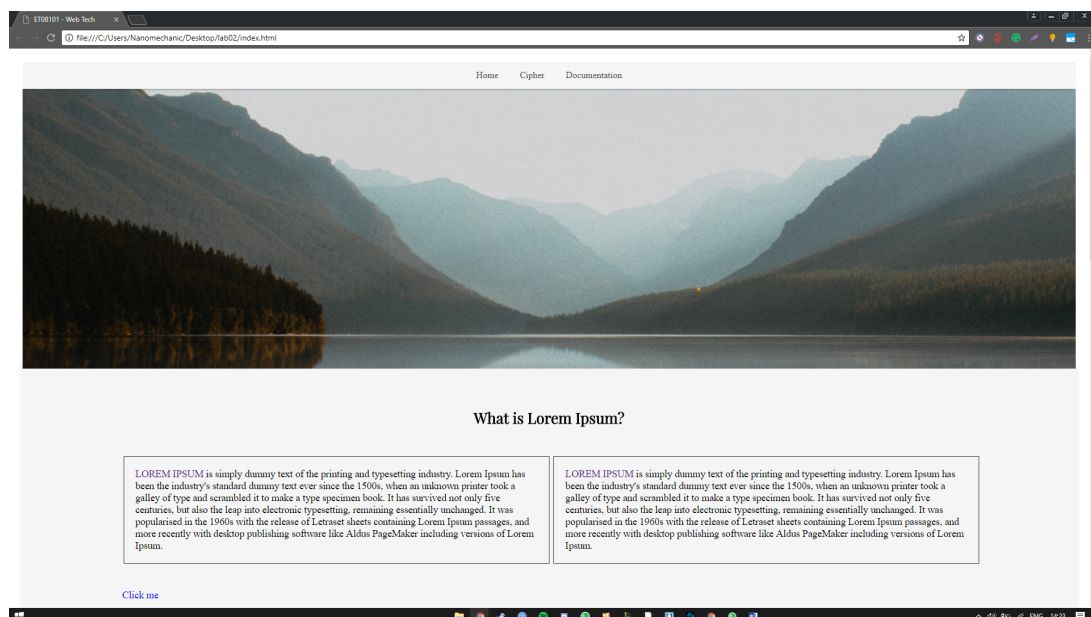

Figure 1: **Initial Design** - My initial plan was to make a single page website with few interesting techniques

Navigation:

Home (with About and Ciphers anchors on the same page) $\rightarrow Design$

From Ciphers section from home page $\rightarrow CaesarCipherpage, AtbashCipherpage, VigenereCipherpage$

From Caesar Cipher page, Atbash Cipher page, Vigenere Cipher page $\rightarrow Homepage, Designpage$

Implementation

During the weeks, I noticed that a trend towards a specific design was occurring among my classmates. I decided to take a different approach and try to differentiate my website from others with an artistic style. I still wanted to keep the parallax effect and decided to create a masked header that would contain CIPHER title and parallax effect for inside the letters.

Figure 2: **Overlay Parallax** - CSS EFFECT

I use the same technique with a color gradient overlay for ABOUT title. To make something different, I created a simple interactive navigation menu in the right corner of the screen with a fixed position and simple CSS effects. The next section contains a parallax background with floating rectangles in the main division. The rectangles represent a pathway to the three cipher pages.
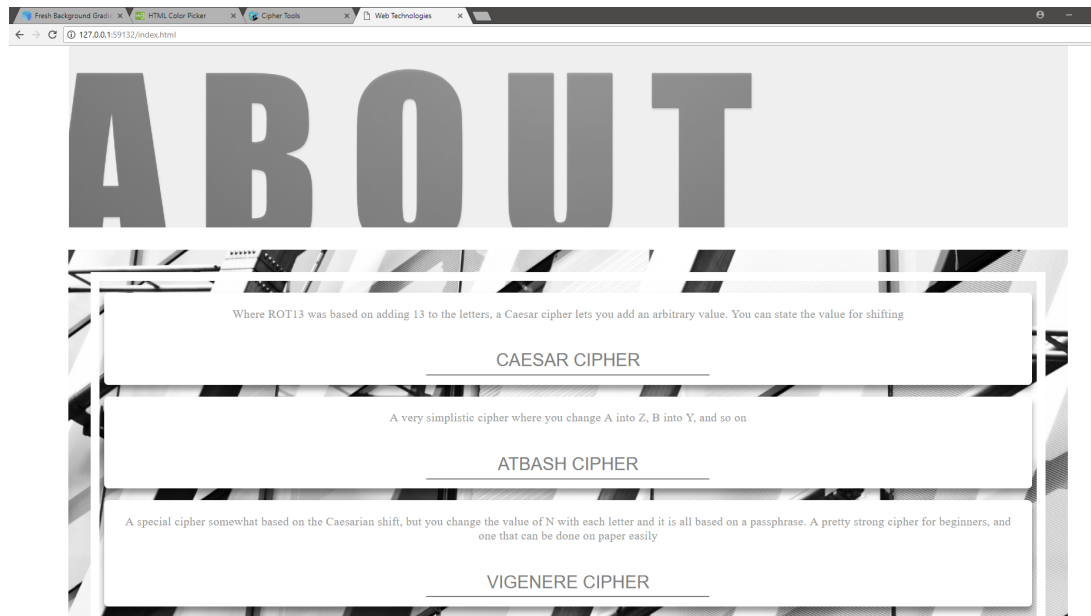
Figure 3: **ABOUT and CIPHERS sections**

3   Critical Evaluation

The website is not heavy on performance and has a rather minimalist approach. I had in mind, from the beginning to make the navigation a smooth scroll but I did not find a reliable way to make it work only with Javascript. My issue was the page focus after the execution of a focus to scroll through the website. I know how to implement this technique with jquery and for my future coursework, I will try to make the website more interactive and responsive. For individual cipher's page, I decided to go with a simple design and approach. I believe that too many elements can impact a website in an unwanted way. The requirements asked for an area for displaying the enciphered version of the message. I considered that it did not ask for a separate area and decided to make one text area for bot encrypted and decrypted messages to make the user experience fluent.

4   Personal Evaluation

The ciphers created for this coursework really helped me understand better how to use javascript and motivated me to research in depth techniques, in order to achieve my goals. As I was not experienced in javascript I decided to create some ciphers in java and then translate them in javascript. This ended up being one of the most interesting parts of the coursework for me. I discovered the similarities between the two languages. I learned that a lot of methods and functions used in java can be translated to javascript using the same approach. Experimenting with different techniques thought me how to better interact with the website using javascript. In my opinion, this coursework was a good way for us to understand the basics of web development. I realized what my level of knowledge is. I focused more on using this opportunity to relearn the basics and expand my javascript knowledge. In the end, looking at the website, I believe that it does not show my full potential. I could have done a better job overall, planning my steps carefully in advance and having a more organized environment. But I really enjoyed working on the coursework, creating styles for my website and evolving in the process.

References

Main websites used for this coursework

Both images used:
https://www.pexels.com/search/structure/

Cipher Research:
http://rumkin.com/tools/cipher/

Color Picker
https://www.w3schools.com/colors/colors$_p$icker.aspBackgroundPicker
https://webgradients.com/

Javascript research
https://www.w3schools.com
https://stackoverflow.com/questions/tagged/javascript?sort=featuredpageSize=15

Vigenere Tutorial
https://www.nayuki.io/page/vigenere-cipher-javascript