

Coursework Report

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1 Introduction

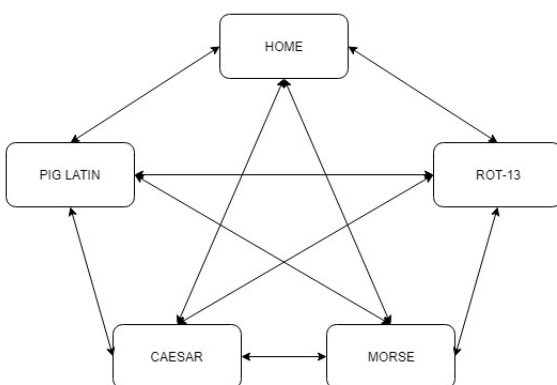
This aim of this coursework was to design a website showcasing a collection of classic ciphers. The website had to be made using HTML (Hypertext Markup Language), CSS (Cascading Style Sheets) and JavaScript. The site must allow users to try out the ciphers themselves by encrypting and decrypting their own messages.

I designed my site to implement a total of four ciphers: Caesar; ROT-13 (a variation of the Caesar Cipher); Morse Code and Pig Latin. My background reading consisted of reading from Practical Web Design for Absolute Beginners written by Adrian W. West and exercises from <https://www.w3schools.com>.

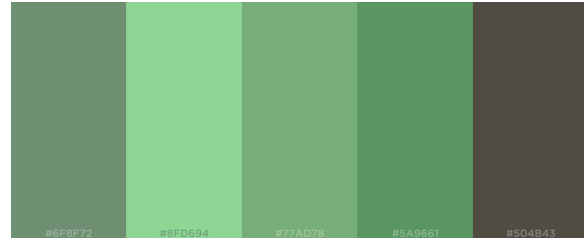
2 Software Design

In order to ensure that my site had good functionality I decided it would need to fit the following criteria:

1. The site must be easy to navigate. The user must be able to clearly see how to navigate to other pages at first glance, the navigation method must be consistent throughout the site on every page. Every page should be able to be navigated to from every other page:



2. The site must be visually appealing. There should be consistency in the colours and an appropriate colour scheme will be used. To achieve this I used colors.co, a website used to generate aesthetically pleasing colour schemes. I chose a green scheme from: <https://colors.co/6f8f72-8fd694-77ad78-5a9661-504b43>



I also used a selection of images to complement large amounts of text.

3. The contents of the site should be clearly laid out and easy to read. I chose to use black as the font colour to minimise eyestrain for the user as well as keeping the text easy to read. Using the HTML and CSS files I was able to lay my pages out using rows and columns using `<div>` tags, these minimise large amounts of blank space whilst keeping the contents structured.

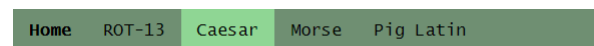
My plan to create the site was as follows:

1. Create the websites main pages, completing my design using HTML and CSS. Doing this would allow me to focus on the JavaScript functionality entirely without having to mess with the rest of the site.
2. Implement the ciphers with both Encoding and Decoding functions using JavaScript.

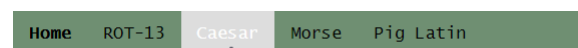
3 Implementation

Before I started on my JavaScript I wanted to get a basic layout set up for the website using HTML and CSS.

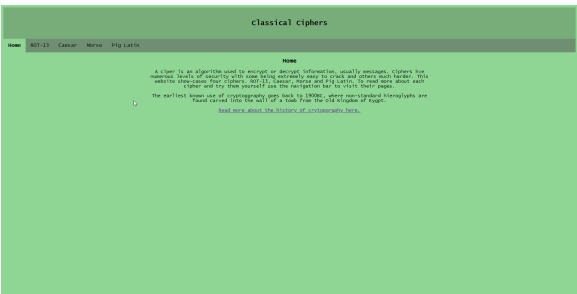
I started with a navigation bar at the top of the website for easy navigation. This was designed using a combination of HTML and CSS and was altered over time to make it look as visually appealing as possible. The bar is in the same position on every page and the current page is clearly highlighted. The home page is the left most element and has bold text as to stand out:



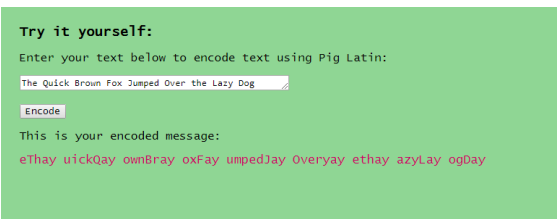
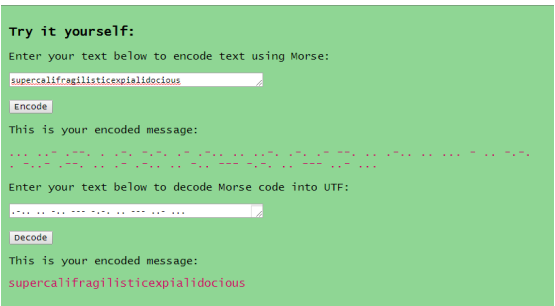
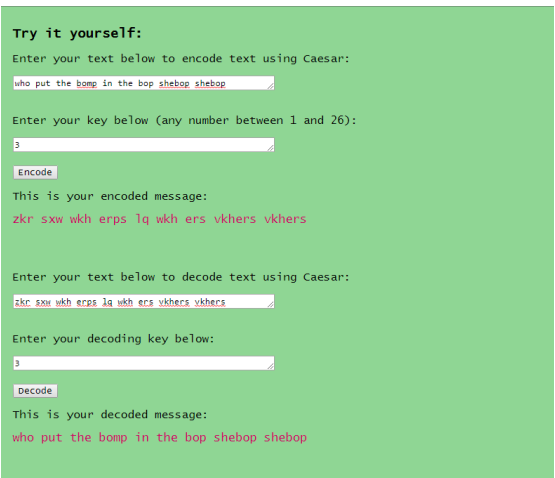
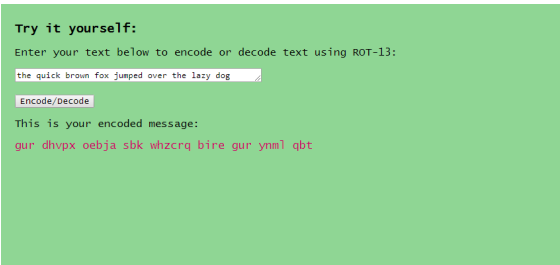
The navigation bar above shows what the user would see when on the Caesar cipher page. If the user hovers over any of the navigation bar buttons they change colour, this helps show which page the click will take the user and adds an element of interactivity:



I also included a header above the navigation bar that reads "Classical Ciphers" and tweaked the colour scheme usage until I found a layout I was happy with:



My "Try it yourself" sections of each cipher all have similar designs. An area for the user to input text, an area for the user to input a key (where applicable), an area for the output text to appear as well as the same but for decoding. Here is the try it yourself section for each cipher including test inputs:



4 Critical Evaluation

I am very pleased with my websites design. The simplicity makes it clear to the user how to navigate around the site. The "Try for yourself" sections are easy to use, providing the user with instructions.

My website includes four ciphers (although one is a variation of another). I am most happy with my Pig Latin cipher as it works with lowercase and uppercase characters as well as using multiple words. The Pig Latin cipher took the longest to get working and unfortunately I could not figure out a decoding function in time however I plan on revisiting it at some point to further my learning.

My Morse Code cipher works using lowercase and uppercase characters and has both encoding and decoding functions which work as intended, something I would have like to have implemented is the ability to play back the Morse code through your browser.

My ROT-13 and Caesar ciphers work almost identically, with the Caesar cipher allowing the user to input their own key. These are both functioning well but do not support uppercase characters.

Overall my site mostly met all the requirements set in the coursework descriptor as it implements three completely different ciphers with information about each and links for the user to read more about them as well as learn about the history of ciphers.

5 Personal Evaluation

Through this coursework I have learned lots about styling a website using HTML and CSS as well as giving it functionality and interactive elements using JavaScript. I enjoyed working on the website, although the JavaScript, especially, was tricky at times.

Most problems I encountered were solved by researching the issue and applying the information I found and continuing until I found a new problem.

I feel I have developed a reasonable skill set making me prepared for the next Coursework. Web Technologies is an area of Computing that I have discovered I particularly enjoy.

References

Images Used:

https://en.wikipedia.org/wiki/Morse_code/media/File:J38TelegraphKey

https://en.wikipedia.org/wiki/Caesar_cipher/media/File:Caesar_cipher