Coursework Report

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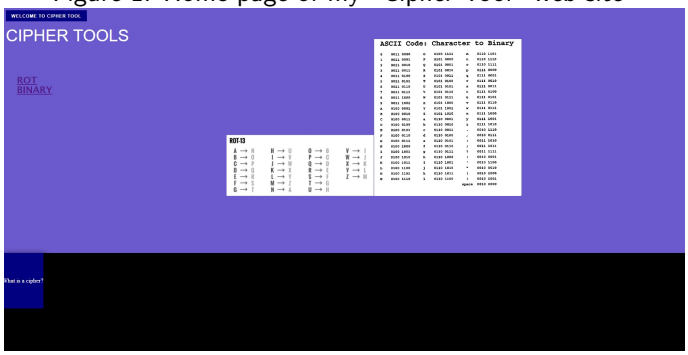
1 Introduction

This is my report for Web Technologies assessment 1. In addition, i was specified to construct a Cipher web site from scratch with ciphers that will encode as well as decode text. My site is separated in 3 different pages.From my home page "index.html" you can navigate through the other two pages and use the tools (you can also learn what a cipher is by hovering over "what is a cipher?"). My other two pages contain my two cipher tools which are binary and rot ciphers. I had to code in JavaScript to generate their functionality of enciphering and deciphering text in an external JavaScript file.. Every web page has its own "design.css" file which deals with the design of each of the pages. Since i wanted to add animations as well, i went little bit beyond the covered knowledge and looked up "CSS Tricks" website and checked the way of doing a transition.

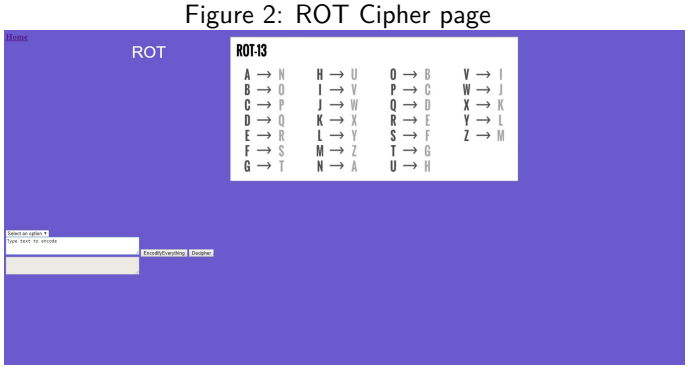
2 Design

Figure 1: Home page of my "Cipher Tool" web site



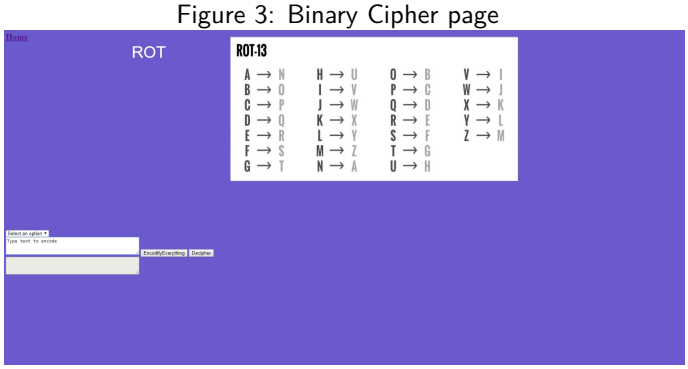
For my software design i decided to use one home page that can navigate to my two ciphers pages "ROT cipher" and "BINARY ciphers". You can access this pages by simply clicking on the hyperlinks from the home page that navigate to the specific page. Therefore if you access one of the ciphers page, in order to select the other cipher tool click the home button on the top left corner of the page. By navigating back to the home page, you can then select the other desired cipher tool. This is how i planned to navigate through my web site. Furthermore, i planned to make my web site easy to use and not tiring when browsing. I chose to keep a consistent layout i find very nice in my personal experience through browsing in other web sites of the web. In my home page i used two images for presentation of the two ciphers that i include in my web site. Where i also used in the two cipher pages as well so the user can understand the operation happening on the background. In addition, i planned of having a dark themed footer that will have hover css transition. When the cursor hovers above the small navy blue square that writes the text "What is a Cipher?", the navy blue square becomes a rectangle purple in color that extends to the answer of the following question. Moreover, there are two more pages to plan, ROT and Binary. Both of the pages are similar regarding there layout and design. Both pages have the same colors as the home page. Also ROT and Binary have the footer css transition as well revealing their definition. The main actions though happening in these two pages are the input text area and the output text area. In ROT cipher page there is a drop down selection menu where you can select the number of Rotation (ROT) that you desire to encipher your inputted text. After, hitting the encipher everything button next to the text input-area, using an external JavaScript file the button should turn the plain-text into a ROT secret message that you can decipher with the button next to it as soon as you insert the secret message to the input-area and hit decipher. Hit home hyperlink to navigate back to the home page

Figure 2: ROT Cipher page



and click the Binary page to navigate to it. Then there is the same design as ROT page apart from the drop down menu and the photograph that shows letters converted into binary numbers. The process is mostly the same without selecting

Figure 3: Binary Cipher page



a different kind of shift of the specific cipher.

3 Implementation

Furthermore, after planning what my design was going to be, it was now time to start implementing what i had in mind. I decided to use three .html files for my three pages, three .css files for the design of these pages and two .js files for the functionality of my cipher tools. My goal in this part was to have a specific file to edit when it comes it comes to design my .css or to edit the structure of my .html and as well the functionality of my .js. My "index.html" which is my main page where my navigation hyperlinks are has links that map to the path of the other html files (rot.html binary.html). The design of the page is all written in my index.css file

Figure 4: Index.html source which illustrates the link connecting my css file and my images

```
<head>
    <link rel="stylesheet" type="text/css" href="index.css">
    <title>CIPHER TOOL</title>
</head>

<body >


    <h1>WELCOME TO CIPHER TOOL</h1>
    <h2>CIPHER TOOLS</h2>
    <h3><a href="rot.html">ROT</a> </h3>
    <h3><a href="binary.html">BINARY</a></h3>
    <img src="binary.jpg"> </img>
    <img class="rotPic"; src="rot.jpg"> </img>
```

Figure 5: Index.css source which illustrates the design of the elements in the page

```
html,body{height: 100%;}

    body{background-color:Slateblue;}

    h3{color: #adb7bd; font-family: 'Lucida Sans', Arial, sans-serif;
        font-size: 25px; line-height: 26px; text-indent: 30px; margin: 0; }

    h2{ color: #ffffff; font-family: Lato, sans-serif; font-size: 45px;
        font-weight: 300; line-height: 58px; margin: 0 0 58px; position:relative;
        top:-20px;}

    h1 {background: navy; color: #ffffff; display: inline-block;
        font-family: Lato, sans-serif;
        font-size: 12px; font-weight: bold;
        line-height: 12px; letter-spacing: 1px;
        margin: 0 0 30px;
        padding: 10px 15px 8px;
        text-transform: uppercase; }
    .rotPic{position: relative;
        width: 400px;
        height:700px;
        right:-195px;
        right:-195px;
        top:-150px;
    height:auto;}
    img {position: relative;
        width: 400px;
        height:400px;
        right:-1000px;
        top:-150px;
        height:auto;}


    footer{background-color:black;
    position: relative;
        left: -10px;
        width: 1920px;
        height:400px;}
```

which is all the formatting of all the elements within the page. For ROT page i used div to provide the input and output text area on my html file and also i had to construct a JavaScript file in order to create the functionality of my web site. For ROT page i used div to provide the input and output text area on my html file and also i had to construct a JavaScript file in order to create the functionality of my web site. For my Binary page i used a similar way to construct the html bit of it, although i used a different way to implement. If you type capital letters or lower case letters, it doesn't make a difference to its functionality it will have the correct output.

Figure 6: rot.js source which illustrates the functionality of rot page

```
function encode()
{
    var plain_text = document.getElementById("inputmessage").value;
    var cypher_text = [];
    var alphabet=['a','b','c','d','e','f','g','h','i','j','k','l','m','n','o','p',
                  'q','r','s','t','u','v','w','x','y','z'];
    var alphabetU=['A','B','C','D','E','F','G','H','I','J','K','L','M','N','O','P',
                   'Q','R','S','T','U','V','W','X','Y','Z'];

    var x = document.getElementById("rotX");

    if(x.value != "")
    {
        for(var idx=0; idx<plain_text.length; idx++)
        {
            var  uorl = 0;

            if(plain_text[idx]== plain_text[idx].toUpperCase())
                uorl=1;
            else uorl=2;

            if(uorl==1)
                input = alphabet.indexOf(plain_text[idx]);
            else input=alphabetU.indexOf(plain_text[idx]);

            if(input == -1)
            {
                cypher_text.push(plain_text[idx]);
            }
            else
            {
                var coded = (input+parseInt(x.value))%26;
                if(uorl==1) var letter = alphabet[coded];
                else var letter = alphabetU[coded];
                cypher_text.push(letter);
            }
        }
    }
    document.getElementById("outputmessage").innerHTML = cypher_text.join("");
}
```

Figure 7: binary.js source which illustrates the functionality of binary page

```
function encode() {
  var output = document.getElementById("outputmessage");
  var input = document.getElementById("inputmessage").value;
  output.value = "";
  for (var i = 0; i < input.length; i++) {
      output.value += input[i].charCodeAt(0).toString(2) + " ";
  }
}

function decode() {
  var output = '';

  var input = document.getElementById("inputmessage").value;
  var splitInput = input.split(" ");
  for (i = 0; i < splitInput.length; i++) {
    output += String.fromCharCode((parseInt(splitInput[i], 2)));
  }
  document.getElementById("outputmessage").value = output;
}
```

4 Critical Evaluation

A comparison against the requirements set out in this document is that i managed to create a web site with three pages, two of the three being two different individual functional ciphers. I was asked to have at least one of each file types : .html, .css, .js. I organized them differently but i still have the minimum files expected to have. I definitely don't have the best web site in the world since i am a beginner developer, but there were some improvements or further study elements that i could add to the website. I could make a navigation menu to make everything more organized and not floating although there are well accommodated on the layout. I could also add some more complex ciphers, or a forum page with help and questions regarding ciphers. -

5 Personal Evaluation

In my opinion i learned lots of things from this assessment like constructing my own html web page then expanding that into something beautiful and finally make it interactive and functional. I faced some challenges throughout make working experience with the layout of the page with the further reading transitions and other parts of the assignments so i used W3Schools web site which helped me a lot to get a better understanding of how something works and use it in my own way.

6 Conclusion

In conclusion so far web technology is very interesting and i want to develop further my knowledge as a web developer to have the strength and capabilities to build more powerful web sites and make the web a better place.

References

https://www.w3schools.com/,https://css-tricks.com/

word count: 1119 words