

# Coursework Report

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## 1 Introduction

The goal of this assignment is to create and design a website that introduces classical ciphers. The site must have the ability to encode and decipher them as well as explain their functionality to people that are not familiar with the art of encoding. The perimeter of the task is that there must be an index page which must present the main page of the site and additional site for every cipher that is implemented. The tools allowed to be used are HTML as main language for creating the sites, CSS for styling and presentation and Java for functionality and responsiveness. No additional languages or libraries were used. The site is in its early stages and support small numbers of substitution ciphers like Rot 13, Caesar Cipher, Atbash Cipher and more will come as the site gets more developed. The design used has gone through couple of different stages and claimed some arguably new features in the process.

## 2 Software Design

The process of development of this site can be separated in three different stages in which it changed drastically from one version to the next. The first version of the site was created by sketches written down on a piece of paper and had many mistakes and unsuitable for the task choices. Some of the first mistakes were no header or footer and integrated inline menu, that have been substituted with added header and footer with left side menu. That design has been upgraded heavily to the third version adding: Background Logo picture Some text coloring Adding site responsiveness Moving the menu to the right side

The movement of the menu took a lot of research and some small personal experiment in which between 15 random people from university and work were asked which side do they prefer the menu given the two options. 13 of them preferred the right side and after asking them why 7 of them related to using their right arm on a touch screen or mobile device. The general design of the page followed the Z looking pattern established by specialist in 2004 and the color scheme follows the theme of a paper and ink used in the classical period when most of those ciphers originated. The Navigational diagram was determined first as it was needed to be established so that the site could be constructed. All the external files as images are stored in folders and all the ciphers are separated from the index file in a folder for clear and tidy file management. The navigation of the files for the site was sketched

on paper, so this is representation of the file in relevance to the main folder containing the index.html.

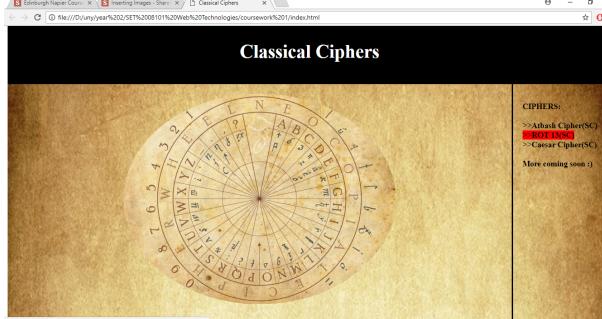
```
Index.html
Index.css
Images(folder)
BackGround.jpg
... - Logo.gif
... - SubstitutionExample.png
... - TranspositionCipher.jpg
Ciphers(folder)
... - Cipher.css
... - Ciphers.js
... - Atbach.html
... - ROT13.html
... - ...
... - Other ciphers
```

The css and js for the ciphers are the same only the html with the content of the different ciphers are different. The java file is the same for all the ciphers as the processes are separated in functions that are reusable in many of the cases.

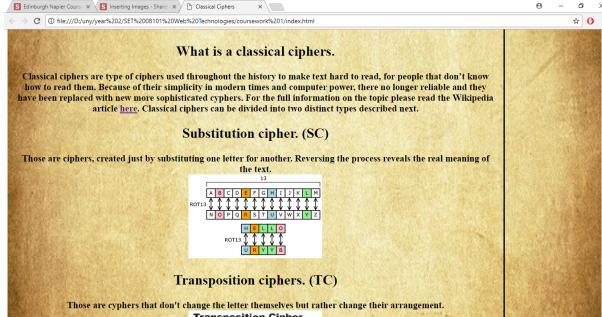
## 3 Implementation

The site was created to be easy to use and as responsible as possible without using external add-ons. The main purpose of is to inform and educate people what is a classical cipher and how to use them. It does that by giving a short description of the general idea as well as one for every cipher included, also linking extended informationâŽs as URLsâŽs from free and reliable sources as Wikipedia and some videos that I found on YouTube as easy and fast alternative to the reading. The overall theme is meant to imitate paper with black borders as it is giving it clean look. The menu are on the right side in intention of future integration on smaller devices with touch screen as it is more convenient to be navigated with the right thumb while holding the device. The navigation is responsive and interactive as well as all external URLsâŽs included throughout the site.

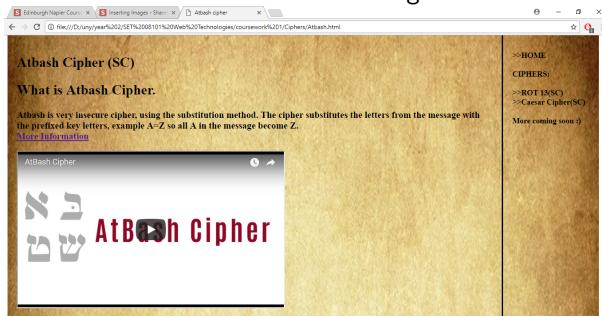
Picture of the main page.



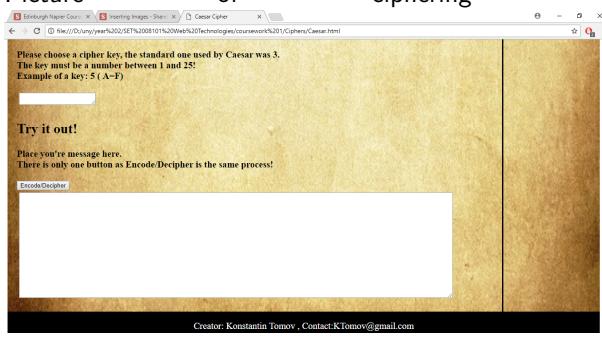
Picture of the information block.



Picture of integrated video.



Picture of ciphering block.



## 4 Critical evaluation

In my opinion the side has most of the assessment requirement but is lacking in visual attributes which are hard to make without libraries or enormous time to spend on each one. The site has some responsiveness but is missing the pleasing animation to make it really be in tartaning to use, also the information provided could be more complete, but it compensates with the links and videos providing additional

information on the subject. The lack of custom images and beret tuned border is frustrating in comparison to profession site. A list of future upgrades and improvements:

- More classical cipher to be added to the site.
- Custom images and borders.
- Better menu with borders and background on the separate buttons
- Updated and more extensive information for every cypher.
- Animations.
- Some sound effects.

From programing point, the only issue that I am expecting in the future is that the java script for the more complicated cipher will need to be separated as if all the crisp are loading on all the cipher pages, that will be unnecessary and costly on the loading time and responsiveness on the site and browser. I still think that for the smaller and not complicated cipher combining the .js file is more efficient as they could share some part of the code.

## 5 Personal Evaluation

This project was one of the most time-consuming project I have picked up in the last year, as I had no idea of ciphers and how they work. Every step of the way there was something new that I had to research from free images to information on ciphers and how to write a report. In my opinion the programing part was the easiest part of the assignment.

The only reason I made only the 3 easiest ciphers is that I couldn't understand how the more sophisticated ones work and I had a time restriction which doesn't allow me to start reading on ciphers from the beginning as this my first encounter with them. The hardest part for me was to make this report, as it took more than a week and I am only half way of the requirement. I was unaware how hard is it to write a report, especially on second language and no amount of research helped. Also, every time I have read it I had to make a new one until now as I am out of time.

Overall, I enjoyed researching the different subject involved in the project and I learned a lot in almost every field of web development. That helped me define some my weaknesses so that I can concentrate working on them, writing reports for example.

## References

- <https://www.youtube.com>
- <https://www.w3schools.com>
- <https://mva.microsoft.com/>
- [https://en.wikipedia.org/wiki/Main\\_Page](https://en.wikipedia.org/wiki/Main_Page)
- <http://practicalcryptography.com/ciphers/classical-era/>