



Encryption Key

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Cyber Security

Group: Four

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CONTRIBUTION PERCENTAGE

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Project Overview

Encryption key platform is a free platform concerned with teaching the method of encryption and decryption for many old and new Ciphers, and its developers are very interested in facilitating the learning method, and its supervisors aspire to be an integrated platform for everyone who wants to learn encryption and decryption for many of ciphers, what distinguishes this platform is that it works in both Arabic and English and shortens a lot of the learner's time in terms of research and investigation in the required code, and we aspire that our platform will be a destination for all trainers and trainees in all educational commission, So that it is a curriculum for learning and knowledge, and we will plan in the future to provide academic training courses on the platform, and we will also apply user experience (UX) rules on our platform so that all users can use all the tools of our platform because it will be easy to use for adults, children, learners and uneducated and will be our target audience with different abilities through the use of icons that will help people who suffer from the inability to read or understand Arabic and English and we will take into account the blind by observing how to read the browser The idea of the platform will be similar to Google Translate, which is used by an infinite number of people around the world so that the user can paste or write the phrase he wants to encrypt and then choose the cipher from the drop-down list and type the key from then the platform will give him the ciphertext with ease and ease, and in order not to distract the user, we will put a link at the bottom of each tool to go to the detailed explanations for each cipher and there will be a box in the lower right corner of the screen with an explanation Simplified for each cipher.

As a group, we believe that our platform will solve the problem of the great challenges faced by male and female students in understanding many ciphers, and we also expect the number of users of our platform to increase with the obsolescence of years in light of the direction of our dear Kingdom in activating cybersecurity sciences in the intermediate and secondary stages.

This platform will contribute to gaining a lot of visitors' integrated knowledge of encryption methods, and this will be a free social contribution and free learning for a party to encrypt and decrypt the most important old or new ciphers.



Chapter (1)

INTRODUCTION

PROBLEM STATEMENT

What is problem?

The problem for establishing this project lies around the lack of Arab resources that help and contribute to understanding Applied Cryptography and conducting encryption operations automatically, quickly and accurately, and collecting many ciphers in one place, and this project will contribute, with the grace and power of God, to increasing society's awareness of cryptography and scientific excellence among students of cybersecurity at the level of the Kingdom of Saudi Arabia in particular and at the level of the Arab world in general.

Why there is a problem?

Usually, the methods of education in the Applied Cryptography course differ from one trainer to another, and this distracts the focus of male and female students in understanding this important course in the specialty of cybersecurity in particular and in other disciplines in general, so we as a group will strive to unify trainers to take information from our platform, which we will enter accurate and value-added information to it, and we will facilitate the method of education so that the target audience for this platform is the entire community, whether they are young or old. This platform will not be limited to a specific category.

How you are going to address the problem?

We will seek as a group to provide globally approved sources that deal with cryptography in one platform, this platform will support Arabic and English languages, and also we will facilitate the understanding of Applied Cryptography, and we will start at the beginning of our project by adding 5 ciphers through which the user can encrypt plaintexts and also can decrypt ciphertext, and then we will add a lot of codes through continuous updates on the platform.

Expected result and its significance :

We expect this project to be pioneering in the future, as we believe that it will contribute very significantly to the development of cryptography and will serve as a social service for students and everyone who wants to learn how to encrypt and decrypt using many Ciphers, whether old or new.

PROJECT IMPACT

Impacted persons of project:



Encryption
Teachers

Figure 1.



Students

Figure 2.



People of
different
abilities

Figure 3.

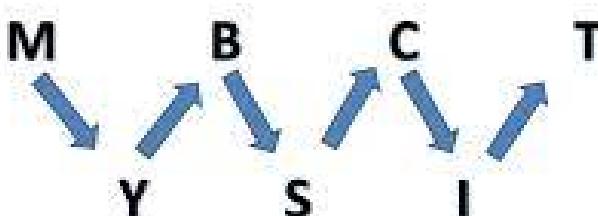


Non-native
Arabic and
English speakers

Figure 4.

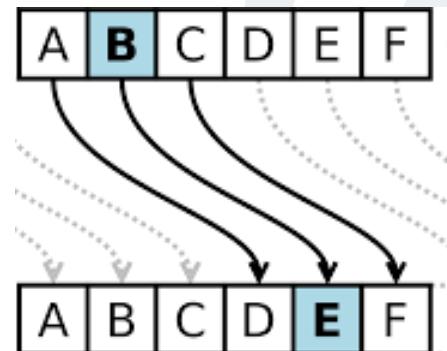
PROJECT SCOPE

With this site we will cover the following ciphers:



RAIL FENCE CIPHER

Figure 4.



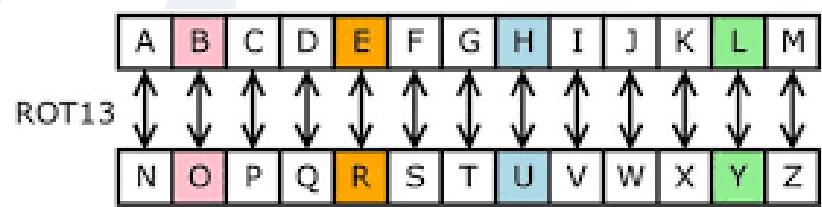
CAESAR CIPHER

Figure 5.

P	L	A	Y	F
I	R	B	C	D
E	G	H	K	M
N	O	Q	S	T
U	V	W	X	Z

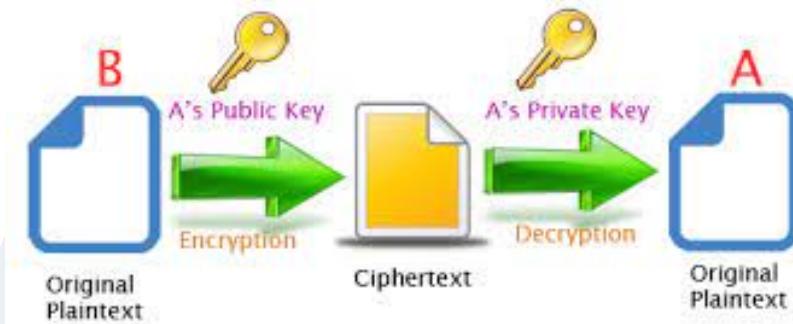
PLAYFAIR CIPHER

Figure 6.



MONO-ALPHABETIC CIPHER

Figure 7.



RSA ALGORITHM

Figure 8.



AES ALGORITHM

Figure 9.

Things that are outside the limits of the project:

1. Hashing algorithms will not be discussed.
2. Video training sessions but may be a futuristic idea.
3. Support languages other than Arabic and English.

PROJECT SCOPE

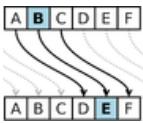
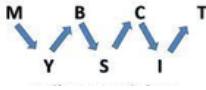
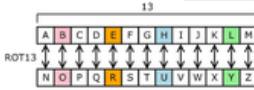
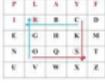
Cipher Name	Explain
 CAESAR CIPHER	<ul style="list-style-type: none"> The Caesar Cipher, used by Julius Caesar around 58 BC, is a substitution cipher that shifts letters in a message to make it unreadable if intercepted. The Caesar Cipher is a simple method to encrypt a secret text by rotating the plaintext by the value of the key . Where the cipher text is becoming “DE” if an important message was “AB”, and the key is equal to 3[1].
 RAIL FENCE CIPHER	<ul style="list-style-type: none"> Is a transposition cipher algorithm that randomizes the order of message letters. This algorithm involves writing plaintext down successively which has an upper row and a lower row. While the ciphertext is obtained by reading the letters based on the line. The Rail Fence Cipher algorithm arranges plaintext in a zig-zag manner by going down and up according to the column and row sizes specified by the key [2].
 MONO-ALPHABETIC CIPHER	<ul style="list-style-type: none"> We saw the Caesar shift cipher and the multiplication cipher, but their keyspaces are very small. So now we move on to the general monoalphabetic substitution cipher. Here, the key is a rearrangement (a permutation) of the alphabet. Letters of the plaintext are replaced by their corresponding letters in the key. For example, if our key is [3]. k = FLYINGSAUCERBDHJKMOPQTVWXZ then letters are replaced as follows: plaintext: ABCDEFGHIJKLMNOPQRSTUVWXYZ ciphertext: FLYINGSAUCERBDHJKMOPQTVWXZ

Table 1.1 ciphers

PROJECT SCOPE

Cipher Name	Explain
 PLAYFAIR CIPHER	<ul style="list-style-type: none"> The British war office utilized the polygram substitution playfair cipher, discovered by Charles Wheatstone and playfair baron in 1854, to encrypt secret messages in pairs of letters until the beginning of the 20th century. Users tend to use an easy-to-remember phrase to obtain the key matrix, from which the repeating characters in the key phrase are removed and append to them the unallocated letters in alphabetical order. The key is formulated in $2D5 \times 5$ matrix (25 entries from English letters except the character 'J' is removed) and thus it offer up to $25! = 15,511,210,043,330,985,984,000,000$ possible keys. The secret message must be rearranged somewhat (i.e., J's must be replaced with I's, divide the message into groups as pairs of characters, don't allow duplicate letters in the same pair-if they happen insert the letter Z between them, add Z at the end of message if an odd pair is occur) prior of using the playfair cipher encryption rules. On the other hand, the decryption rules is merely the reverse process of encryption, such that, each character is altered by the one on its left in the extended key if the pairs of characters are in the same row of the key, else replace each of them by the upper one of it if the two characters located in the same column, otherwise follow exactly the same intersection rule in encryption [4].
 AES ALGORITHM	<ul style="list-style-type: none"> The Advanced Encryption Standard (AES) algorithm is one of the most used ones for secure data storage and transmission. The AES encryption and decryption framework are independent and distinctive. Each of the three key sizes that AES can handle 128, 192, and 256 bits. As the length of the key determines how many rounds are played. AES employs 10 rounds for 128-bit keys, 12 rounds for 192-bit keys, and 14 rounds for 256-bit keys, with the number of rounds determined by the key size. An (AES) encryption technique was applied in Blockchain to provide more security for data during transferring process as the following is first applied AES algorithm to the contents of the specified text file. The encrypted data file is then delivered to a hash function, which uses the SHA-256 hashing technique to generate a hash code. Next, the encrypted file is transferred to the customer [5].
 RSA ALGORITHM	<ul style="list-style-type: none"> The RSA (Rivest-Shamir-Adleman) cryptography system is a popular public-key cryptography system. It derives its security from the challenging nature of factoring the product of two huge prime integers. RSA cryptography encrypts data using a public key and decrypts it with a private key. The public key can be freely transmitted, whilst the owner keeps the private key private. RSA cryptography is frequently used in secure communication, digital signatures, and sensitive data encryption. Longer key sizes are necessary to maintain the same degree of security as computers become more powerful [6].

AIMS AND OBJECTIVES

The overall goal of the project:

The community, led by male and female students and teachers, gained basic concepts in cryptography in the easiest and most enjoyable way possible.

The goals and objectives of the Encryption Key platform are:

1. Draw a clear and easy way to encrypt and decrypt many ciphers.
2. Provide a clear curriculum for many ciphers.
3. Contribute to the dissemination of cryptography among the general public of society and make it a science of great importance.
4. Collect educational content for many ciphers on one site.
5. The strategic goal of the platform is for there to be free digital training courses on the platform.
6. Learning applied cryptography is a difficult and complex topic, but our site makes this task easy for you. Here you'll find different learning methods, including video lessons and practical examples that help you understand the basics quickly and easily.
7. We aspire to make our platform a destination for many users, whether they are trainees or teachers.
8. Provide all the necessary tools to encrypt and decrypt most of the encryption algorithms.
9. This platform aims to provide comprehensive and detailed educational resources on encryption algorithms. Here you will find interactive lessons and practical exercises that will help you understand the basics of cryptography and improve your encryption comprehension skills.
10. Whether you are a beginner in cryptography or have previous experience, this platform will help you gain the skills you need to develop yourself and join the modern technology industry.

EXISTING SOLUTIONS AND THEIR LIMITATIONS

What are other existing solutions :



Figure 10.

A site with a lot of calculators for everything and from the calculators on this site (Playfair cipher) that are very important for cybersecurity professionals and learners in the field of cryptography.

[Click Here for visit it](#)



Figure 11.

A site with a lot of calculators for everything and from the calculators on this site (Cryptography Caesar Cipher Converter) that are very important for cybersecurity professionals and crypto learners.

[Click Here for visit it](#)

How did they solve the problem; and their limitations:

1. Their sites do not support the Arabic language.
2. Their sites are general for all calculators while ours is for ciphers.
3. There are no details of the encryption and decryption processes at other sites.
4. There is a great difficulty when dealing with other sites because they do not care completely about the user experience (UX).
5. On other sites, there is no training curriculum for each cipher, as on our site, because it is not intended for encryption and decryption, but rather general for all sciences.
6. Other sites are full of annoying ads.

EXISTING SOLUTIONS AND THEIR LIMITATIONS

Clarify how we will address or solve the problems? (Generally):

We will solve these problems by making our site support Arabic and English and support people with different abilities and non-native speakers of Arabic and English through symbols, and we will make our platform directed to users who wish to develop their capabilities in the specialty of cryptography, and we will take care of the smallest details about user experience (UX), we will provide specialized curricula In encryption, our site is completely free and ad-free.

Suggested solution to address the issue:

Applied cryptography is one of the most important skills that individuals must acquire in this digital age, as it facilitates many things for them and saves time and effort.

However, many have difficulty learning this science, whether because of the lack of available lessons or the difficulty of understanding concepts. Therefore, we offer a proposed solution to teach the community applied cryptography through a website.

The site includes educational content covering all levels, from beginners to professionals. The content includes illustrated lessons and a detailed explanation of the concepts and tools needed to advance in understanding applied cryptography.

The content is characterized by an easy and clear style that makes it easier for individuals to understand and apply concepts correctly.

With this proposed solution, the community can learn applied cryptography in an easy, organized, anytime, anywhere, helping them improve their skills and achieve their goals in this scientific field.

We hope that this solution will be beneficial to society and contribute to the development of the digital and technical skills of individuals and educational institutions.

CHAPTER (2)

Literature Review

This chapter will discuss previous cases related to our platform:

In the world of modern technology, applied code analysis has become a fundamental thing in the programming process. However, competing platforms for applied code analysis are increasingly emerging.

The disadvantage of these platforms is that they do not provide a variety of analytical services and tools, which help users analyze applied code in an easy and efficient way.

The platforms do not include competition for applied code analysis and do not have many analytical services and tools, including: static and dynamic analysis platforms, performance analysis platforms, security analysis platforms, and quality analysis platforms.

The most prominent problems that plague other sites:

- Their sites are difficult and do not support the Arabic language.
- Their locations are general for all calculators.
- There are no details of encryption and decryption operations at competing sites.
- On other sites there is no training methodology for each cipher
- Competitors' sites are full of annoying ads.

Problems that we will address:

- Our platform supports both Arabic and English.
- Our platform is for encryption and decryption only.
- Very in-depth analysis of encryption and decryption in an excellent way.
- We will provide an integrated approach to encryption and decryption.
- We will not add any advertisements to our site at all.

BACKGROUND SECTION

We aspire that our platform will be considered one of the most important tools used in the computer world, as it helps teach beginners how to protect sensitive data and information from unauthorized access.

In this report, we will talk about the main purpose of our platform and the importance of using it in the modern digital world.

The main goal of our platform is to teach how to protect sensitive data and information from unauthorized access for beginners.

Our platform relies on converting data into an incomprehensible format using encryption algorithms, to teach beginners how to encrypt and decrypt many world-famous ciphers.

In addition to teaching beginners how to protect data, our platform helps maintain the privacy of users and sensitive information that is traded through lessons on the platform.

This is done by encrypting messages and information sent between users, in order to prevent any third party from accessing this information and using it for any illegal purpose

Our platform is usually used for many purposes in the modern digital world, and the most important of these purposes are:

- Learn how the most important ciphers taught in the global curriculum are encrypted.
- Learn to protect sensitive data and information.
- Learn to maintain users' privacy and sensitive information.
- Learn to protect against hacking and electronic intrusions.

We aspire that our platform will be an essential tool in the modern digital world, as it will help teach the community how to work the most famous ciphers, protect sensitive data and information, maintain the privacy of users, and protect against piracy and electronic intrusions.

BACKGROUND SECTION

The meaning of cryptography is general :

Encryption in cybersecurity means converting data from a readable format to an encrypted one. Encrypted data can be read or processed only after it has been decrypted. Encryption is the basic building block of data security. It is the simplest and most important way to ensure that computer system information is not stolen or read by someone who wants to use it for malicious purposes.

BACKGROUND SECTION

EXPLAIN DIFFICULT TERMS:

Terminology	Explain
Cryptography	The art and science of keeping messages secure[22].
Cipher	is the mathematical function used for encryption and decryption[22].
cryptographic algorithm	is the mathematical function used for encryption and decryption[22].
Encryption	The process of disguising a message in such a way as to hide its substance[22].
Decryption	The process of turning ciphertext back into plaintext[22].
Plaintext	A message is plaintext (sometimes called cleartext)[22].
Ciphertext	An encrypted message [22].
UX	User Experience (UX) It is a truly extended and distinct perspective on the quality of interactive technology: away from products and problems to humans and the drivers of positive experience [23].

Table 2. Terminology

RELATED WORK SECTION

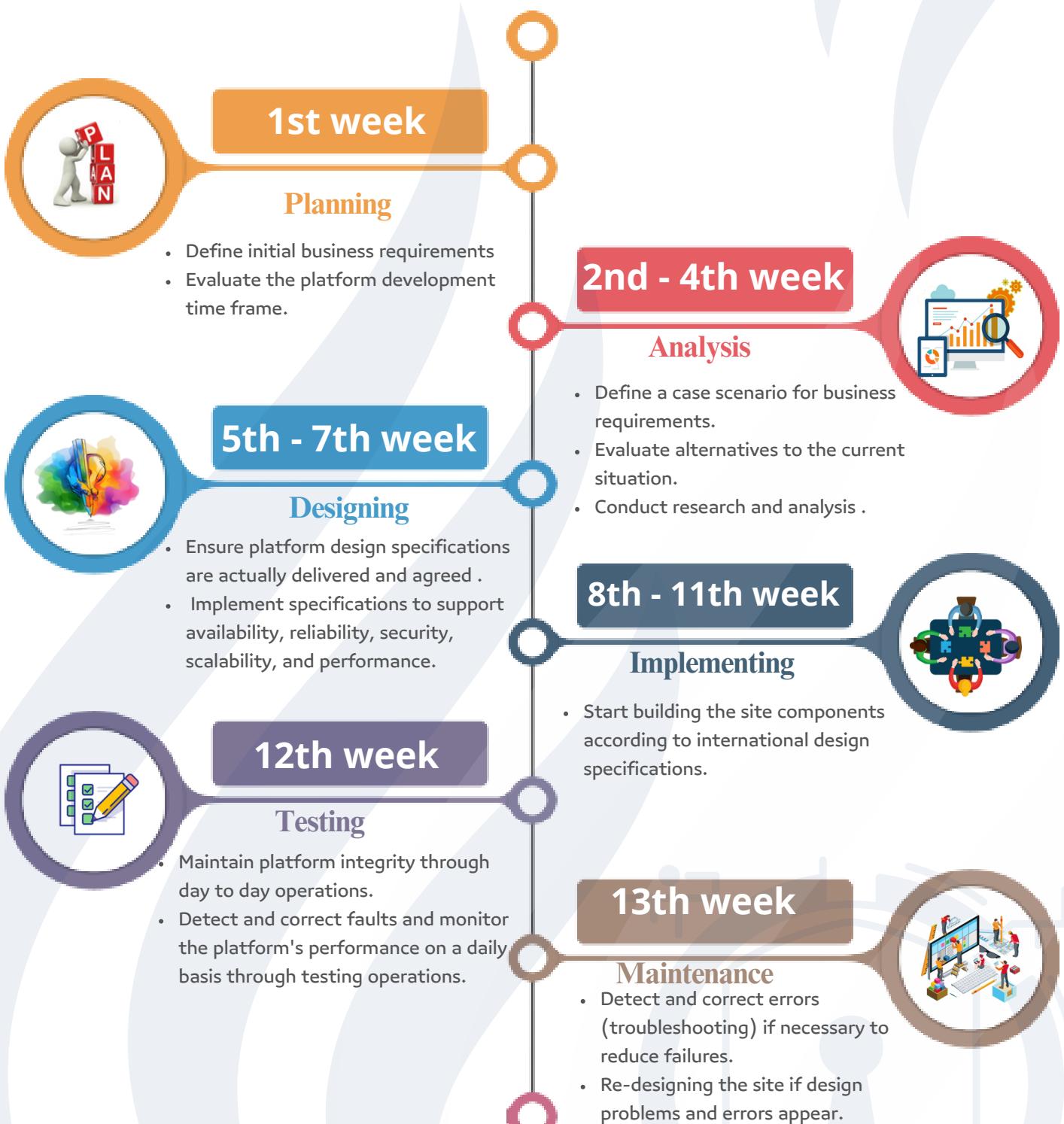
Platform Name	Features	Defects	Addressing the problem
 MYMATHTABLES	<ul style="list-style-type: none"> • Ease of use. • General simplified cipher analysis 	<ul style="list-style-type: none"> • A forked platform in all sciences such as mathematics and physics. • Does not support Arabic. • Analysis is not on the input text. 	<ul style="list-style-type: none"> • Customize our encryption platform only • Arabic language support. • Detailed analysis of the ciphers.
 PLANETCALC	<ul style="list-style-type: none"> • The possibility of sharing a calculator. • The possibility of commenting on the ciphers 	<ul style="list-style-type: none"> • The ads are annoying. • The design is not based on UX rules. • Does not support Arabic. 	<ul style="list-style-type: none"> • Not to place ads on our platform. • Fully based on UX rules. • Support for Arabic and English languages
 EDUCBA	<ul style="list-style-type: none"> • Very detailed explanation of the ciphers. • Excellent illustrations of cutlets 	<ul style="list-style-type: none"> • Lack of calculators for encryption and decryption. • Not free. • Does not support Arabic. 	<ul style="list-style-type: none"> • The basis is the presence of encryption and decryption calculate. • Our platform is completely free. • Support for Arabic and English languages
 CYBERSECURITY	<ul style="list-style-type: none"> • Specialist in applied ciphers. • It contains most of the applied cipher algorithms both old and new. 	<ul style="list-style-type: none"> • Their design is based on the old design. techniques of facades. • Navigating between algorithms is very difficult. • Does not support Arabic. 	<ul style="list-style-type: none"> • Our design will be with the latest technology. • Navigating between algorithms will be in simple clicks. • Support for Arabic and English languages
 cryptii	<ul style="list-style-type: none"> • It provides most UX rules. • It contains most of the applied cipher algorithms both old and new. 	<ul style="list-style-type: none"> • Lack of analysis of the encryption method. • Too many unnecessary options. • Does not support Arabic. 	<ul style="list-style-type: none"> • Instant analysis of everything you type in the plain text box. • Make only available options that bind the learner. • Support for Arabic and English languages

Table 3.

CHAPTER (3)

Methodology

TIMELINE



METHODOLOGY

After we discussed the methodology in a simple way in the first section, we will discuss it here in detail, as shown in the following table:

Phase	Deliverables
Planning	<p>Deliverables planning:</p> <ol style="list-style-type: none">1. Define initial business requirements based on objectives, facilities, and user needs.2. Evaluate the platform development time frame.3. Code testing by all team members.
Analysis	<ol style="list-style-type: none">1. Define a case scenario for business requirements.2. Evaluate alternatives to the current situation.3. Conduct research and analysis to evaluate the practical approach.
Designing	<ol style="list-style-type: none">1. Ensure platform design specifications are actually delivered and agreed with details to meet and approve current technical and business requirements.2. Implement specifications to support availability, reliability, security, scalability, and performance.
Implementing	<p>Start building the site components according to international design specifications.</p>
Testing	<ol style="list-style-type: none">1. Maintain platform integrity through day to day operations.2. Detect and correct faults and monitor the platform's performance on a daily basis through testing operations.
Maintenance	<ol style="list-style-type: none">1. Detect and correct errors (troubleshooting) if necessary to reduce failures.2. Re-designing the site if design problems and errors appear.

PROJECT PLANNING



Creating an encryption site requires careful planning and execution.



It is important to consider the purpose of the site, the target audience, and the level of security needed.



The first step is to determine the type of encryption algorithm to add.



Another important consideration is the user interface design. The site should be easy to navigate and use, while also providing a high level of security. It is important to test the site thoroughly before launching it, to ensure that all potential vulnerabilities have been addressed.

ANALYSIS

Determining Requirements:

We must provide the work requirements of hardware and software necessary to create a cryptography site, which are as follows:

Functional Requirements:

Req ID	Description
1	<ul style="list-style-type: none">Initial sketch of the website design.
2	<ul style="list-style-type: none">Meeting team members and distributing tasks to them in proportion to their abilities.
3	<ul style="list-style-type: none">Reserving the appropriate space on the server and preparing the necessary materials to start work
4	<ul style="list-style-type: none">Paying attention to preparing the website logo and designing the website in accordance with the logo.
5	<ul style="list-style-type: none">Ensuring that the curriculum is equipped with an explanation of the codes in an approved scientific way.
6	<ul style="list-style-type: none">We have built the platform on servers with free hosting, and its features are as follows:

Platform Name	Explain
 <u>Netlify</u>	<ul style="list-style-type: none">Netlify is a platform for web developers to host their sites in the cloud without managing any servers in the back-end where application logic and database works. Updates to the Web applications can be automated by integrating any git based Version Control System supported by Netlify.It can have dynamic functionalities which change constantly. Netlify builds its own kind of file storage and management system to push updates both to Git providers and Netlify simultaneously getting connected to the repository.Every update/changes made to the content is distributed across the servers spread over in the content delivery network (CDN) and pre-built as static pages with file optimization before being delivered to the users. Visitors of a website in Netlify get the pre-loaded version of website from a geographically nearest server reducing the loading time [12].

Table 4. Functional Requirements

ANALYSIS

Non-Functional Requirements :

Req ID	Description
1	Team members are on the basis of programming so that everyone can help.
2	Preparing the necessary programs and tools for design and programming
3	Constant monitoring of the site in order to ensure the validity of all links and update information in line with scientific development.
4	In the following, we will talk in detail about the programs and tools used in designing and programming the site:

ANALYSIS

Non-Functional Requirements :

Tool Name	Explain
 Visual Studio Code	<ul style="list-style-type: none"> Visual Studio Code, also commonly referred to as VS Code,[7] is a source-code editor made by Microsoft with the Electron Framework, for Windows, Linux and macOS.[8] Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git. Users can change the theme, keyboard shortcuts, preferences, and install extensions that add functionality.
 Node.js	<ul style="list-style-type: none"> One of the more interesting developments recently gaining popularity in the server-side JavaScript space is Node.js. It's a framework for developing high-performance, concurrent programs that don't rely on the mainstream multithreading approach but use asynchronous I/O with an event-driven programming model [9].
 Github	<ul style="list-style-type: none"> is an Internet hosting service for software development and version control using Git. It provides the distributed version control of Git plus access control, bug tracking, software feature requests, task management, continuous integration, and wikis for every project.[10] Headquartered in California, it has been a subsidiary of Microsoft since 2018[11]. It is commonly used to host open source software development projects.

Table 5.1 Non-Functional Requirements

ANALYSIS

Non-Functional Requirements :

Programming Languages:	Explain
 HTML	<ul style="list-style-type: none"> HTML is one of the most important coding systems in the world. Behind every web page is a page of HTML code. HTML, or hypertext markup language, is a markup language used to create web pages. Markup languages are computer languages that are made for working with text. Markup languages provide a format for text files. This determines the text's style and the layout of the web page [13].
 CSS	<ul style="list-style-type: none"> Cascading Style Sheets (CSS) allow you to specify styles for various Web page elements. A style is a rule that defines the appearance of a Web page element. A style sheet is a series of rules that defines the style for a Web page or an entire Web site. With a style sheet, you can alter the appearance of a Web page or pages by changing characteristics such as font family, font size, margins, and link specifications, as well as visual elements such as colors and borders. CSS is not used to add any content to your Web site; it just makes your content look more stylish. With CSS you can specify the style for an element within a single Web page or throughout an entire Web site [14].
 JavaScript	<ul style="list-style-type: none"> The JavaScript programming language is widely used for web programming and, increasingly, for general purpose computing. As such, improving the correctness, security and performance of JavaScript applications has been the driving force for research in type systems, static analysis and compiler techniques for this language [15].
 TypeScript	<ul style="list-style-type: none"> TypeScript extends JavaScript with optional type annotations that are, by design, unsound and, that the TypeScript compiler discards as it emits code. This design point preserves programming idioms developers are familiar with, and allows them to leave their legacy code unchanged, while offering a measure of static error checking in parts of the program that have type annotations. We present an alternative design for TypeScript, one where it is possible to support the same degree of dynamism, but where types can be strengthened to provide hard guarantees.[16].

Table 5.2

ANALYSIS

Non-Functional Requirements :

Frameworks	Explain
 NestJS	<ul style="list-style-type: none"> • One of the rising Node.js frameworks is NestJS – a framework for developing scalable and effective server-side applications. . Nowadays, NestJS is the most popular Node.js framework on Github with more than 23000 Github stars. Star is a vital metric about the software project evolution on Github. [17].
 Angular	<ul style="list-style-type: none"> • Angular is a front - end web development platform that operates as a JavaScript framework . • Angular is not to be confused with a JavaScript library, like jQuery. • Angular is similar to platforms such as Polymer, Aurelia and React. This open source framework was developed by Google under the MIT License in 2010 and has since received several upgrades and facelifts to keep up with the times. [18].

Table 5.3 Non-Functional Requirements

Databases	Explain
 JSON	<ul style="list-style-type: none"> • Lightweight data-interchange format. • Simple format. • JSON is a text format • Represent configuration information. • Implement communication protocols[19].
 PostgreSQL	<ul style="list-style-type: none"> • PostgreSQL also known as Postgres, is a free and open-source relational database management system (RDBMS) emphasizing extensibility and SQL compliance.. Anyone who is creating an application with nontrivial amounts of data can benefit from using a database. PostgreSQL is an excellent implementation of a relational database, fully featured, open source, and free to use [20].
 Firebase	<ul style="list-style-type: none"> • The Firebase Realtime Database is a NoSQL cloud-based database that syncs data across all clients in realtime, and provides offline functionality. Data is stored in the Realtime database as JSON, and all connected clients share one instance, automatically receiving updates with the newest data. [21].

Table 5.4 Non-Functional Requirements

DESIGNING

Under design phase all technical design packages and drawings were submitted. Furthermore, all installation phases will be tested and approved prior going to the next level.

Here is the main menu of the site and the main page also shows the coding page	Here is the site's logo	To choose the language of the site	In order to communicate with those responsible for the site
<p>This is the main interface of the platform. The HTML language was used in the design of the interface, and CSS language were used in coordinating colors and fonts, in addition to using and JavaScript to program the behavior of web pages.</p>			

Table 6.1 Designing

DESIGNING

The main page is the page dedicated to encoding and decoding operations, and you will see two boxes, one of which you will put the text you want to encode and then choose the key to see the result in the other dialog box, and vice versa. When you want to decrypt you just have to reverse the key on the top to decrypt and just below it you can choose one of the ciphers you want to work on as shown in the picture

Type the text you want to encrypt

The ciphertext will appear here

Encryption Key
1

0 / 500

Send feedback

This is an example of encrypting a cipher word with a key of three. Let's see the result on the other side. You can also copy the result by clicking on the copy icon or share the result on social media.

Below on the left side we will see an overview of the ciphers and, on the right side, a detailed explanation of the process.

Choose an algorithm: Caesar, ZigZag, Mono, Play Fair, AES, RSA

Encryption

X

C

HQBFBWSLRLQ

WHAT DO YOU KNOW ABOUT CAESAR'S ALGORITHM?

1. The Caesar Cipher, used by Julius Caesar around 58 BC, is a substitution cipher that shifts letters in a message to make it unreadable if intercepted.
2. The Caesar Cipher is a simple method to encrypt a secret text by rotating the plaintext by the value of the key . Where the cipher text is becoming "DE" if an important message was "AB", and the key is equal to 3 [1]

[[1]- Msallam, M. M., & Aldoqhan, F. (2023). Multistage Encryption for Text Using Steganography and Cryptography. Journal of Techniques, 5(1), 38-43 APA.

CURRENT PROCESS DETAILS:

The basic order of the letters of the alphabet is as follows:

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
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

Sort after offset:

D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C
3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	0	1	2

When using key #3 the order will be like this:

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
D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C

How did we get this result?

- C = (E + 3)mod(26) = (4 + 3)mod(26) = 7 == H
- C = (N + 3)mod(26) = (13 + 3)mod(26) = 16 == Q
- C = (C + 3)mod(26) = (2 + 3)mod(26) = 5 == F
- C = (R + 3)mod(26) = (17 + 3)mod(26) = 20 == U
- C = (Y + 3)mod(26) = (24 + 3)mod(26) = 27 == B
- C = (P + 3)mod(26) = (15 + 3)mod(26) = 18 == S

DESIGNING

When you click on the ciphers, you'll find a brief explanation of how to navigate the blades easily.

The image displays three vertically stacked screenshots of a web-based cipher guide. Each screenshot shows a navigation bar at the top with links for Caesar, ZigZag, Mono, Play Fair, AES, and RSA. The central content area has a red header bar with the cipher name. Below the header, there is a descriptive text block and a reference section at the bottom.

Screenshot 1: Mono Alphabetic

Description:

- We saw the Caesar shift cipher and the multiplication cipher, but their keyspaces are very small. So now we move on to the general monoalphabetic substitution cipher. Here, the key is a rearrangement (a permutation) of the alphabet. Letters of the plaintext are replaced by their corresponding letters in the key.
- For example, if our key is [3].
- $k = \text{FLYINGSAUERCERBDHJKMOPQTVWXZ}$
- then letters are replaced as follows:

plaintext: ABCDEFGHIJKLMNOPQRSTUVWXYZ

ciphertext: FLYINGSAUERCERBDHJKMOPQTVWXZ

Reference

[4]- Al-Hassani, M. D., & Gaata, M. T. (2023). Development of playfair cryptosystem based on generation a multi-dimensional key matrix. Bulletin of Electrical Engineering and Informatics, 12(3), 1849-1856.

Screenshot 2: Play Fair

Description:

The British war office utilized the polygram substitution playfair cipher, discovered by Charles Wheatstone and playfair baron in 1854, to encrypt secret messages in pairs of letters until the beginning of the 20th century. Users tend to use an easy-to-remember phrase to obtain the key matrix, from which the repeating characters in the key phrase are removed and append to them the unallocated letters in alphabetical order. The key is formulated in 2×5 matrix (25 entries from English letters except the character 'J' is removed) and thus it offer up to $25! / (5! \cdot 21!) = 43,330,985,984,000,000$ possible keys. The secret message must be rearranged somewhat (i.e., 'J's must be replaced with 'I's, divide the message into groups as pairs of characters, don't allow duplicate letters in the same pair-if they happen insert the letter Z between them, add Z at the end of message if an odd pair is occur) prior of using the playfair cipher encryption rules. On the other hand, the decryption rules is merely the reverse process of encryption, such that, each character is altered by the one on its left in the extended key if the pairs of characters are in the same row of the key, else replace each of them by the upper one of it if the two characters located in the same column, otherwise follow exactly the same intersection rule in encryption [4].

Reference

[4]- Al-Hassani, M. D., & Gaata, M. T. (2023). Development of playfair cryptosystem based on generation a multi-dimensional key matrix. Bulletin of Electrical Engineering and Informatics, 12(3), 1849-1856.

Screenshot 3: Advanced Encryption Standard (AES)

Description:

The Advanced Encryption Standard (AES) algorithm is one of the most used ones for secure data storage and transmission. The AES encryption and decryption framework are independent and distinctive. Each of the three key sizes that AES can handle 128, 192, and 256 bits. As the length of the key determines how many rounds are played. AES employs 10 rounds for 128-bit keys, 12 rounds for 192-bit keys, and 14 rounds for 256-bit keys, with the number of rounds determined by the key size. An (AES) encryption technique was applied in Blockchain to provide more security for data during transferring process as the following is first applied AES algorithm to the contents of the specified text file. The encrypted data file is then delivered to a hash function, which uses the SHA-256 hashing technique to generate a hash code. Next, the encrypted file is transferred to the customer [5].

Reference

[5]- Hashim, A. N. (2023). Blockchain technology, methodology behind it, and its most extensively used encryption techniques. Al-Salam Journal for Engineering and Technology, 2(2), 140-151.

Table 6.3 Designing

DESIGNING

On the About Us page, we will see information about the work team responsible for creating and developing the site

ABOUT US

بداية التطوير	تاريخ التسليم
31/03/2023	31/05/2023

We are a group of trainees who, through this work, dedicate our college to this work, which will contribute to increasing awareness and knowledge in a scientific field that is one of the most important sciences.

The Encryption Key platform is a free platform that teaches the encryption and decryption method for many old and new ciphers. Its supervisors are very interested in facilitating the learning method, and its supervisors aspire to be an integrated platform for everyone who wants to learn encryption and decryption for ciphers. What distinguishes this platform is that it works in both languages, Arabic and English, and it shortens a lot of the learner's time in terms of research and investigation in the required code, and we aspire that our platform will be a destination for all trainers and trainees in all educational institutions, so that they can benefit from this method for learning and knowledge, and we will plan in the future to provide academic training courses on the platform, and we will also apply the user experience (UX) on our platform so that all users can use all the tools of our platform because it will be easy to use for adults and children, especially those who are uneducated, and it will be from our target audience with different abilities through the use of icons that will help people who suffer from the inability to understand the Arabic and English languages, and we will take care of the blind. By observing how the browser reads the voice of our platform, the user will be able to understand the platform well. The platform will be similar to the Google Translator that is used by an infinite number of people around the world so that the user can paste or write the text he wants to encrypt and then choose the code from the drop-down list and write the key after that. The platform will be able to give him the cipher text easily and quickly. In order not to distract the user, we will place a link at the bottom of each tool to go to the detailed explanations of each cipher, and there will be a simplified explanation of each cipher in the lower right corner of the screen.

As a group, we believe that our platform will solve the problem of the great challenges faced by male and female students in understanding a lot of codes and ciphers, and we also expect that the number of users of our platform will increase with the passing of the years in light of the direction of our dear Kingdom in the field of cybersecurity sciences in the intermediate and secondary stages.

Our platform will contribute to gaining a lot of visitors with integrated knowledge in encryption methods, and this will be a free social contribution and a way to spread knowledge and ways to encrypt and decrypt the most important old or new ciphers.

WORK TEAM

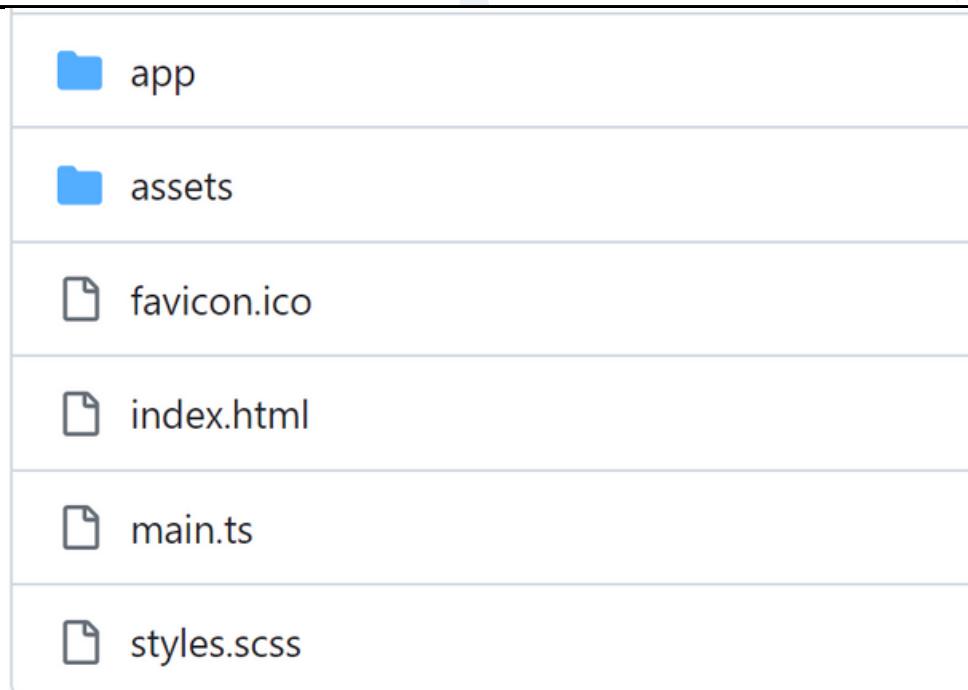


Table 6.4 Designing

IMPLEMENTING

At this stage, the platform codes will be implemented, starting with the main interface, the main menu, and the list of ciphers, and they will be discussed in detail:

The interface of the main page was designed using the HTML language , in addition to using JavaScript, Angular and Bootstrap



```
1 <!doctype html>
2 <html lang="en">
3 <head>
4   <meta charset="utf-8">
5   <title>Encryption Key - انتاج الشفر</title>
6   <base href="/">
7   <meta name="viewport" content="width=device-width, initial-scale=1">
8   <link rel="icon" type="image/x-icon" href="assets/img/logos/fav. icon.png">
9   <link rel="preconnect" href="https://fonts.gstatic.com">
10  <link href="https://fonts.googleapis.com/css2?family=Roboto:wght@300;400;500&display=swap" rel="stylesheet">
11  <link href="https://fonts.googleapis.com/icon?family=Material+Icons" rel="stylesheet">
12  <link rel="stylesheet" href="https://cdn.materialdesignicons.com/5.4.55/css/materialdesignicons.min.css">
13 </head>
14 <body class="mat-typography">
15   <app-root></app-root>
16 </body>
17 </html>

1 import { platformBrowserDynamic } from '@angular/platform-browser-dynamic';
2
3 import { AppModule } from './app/app.module';
4
5
6 platformBrowserDynamic().bootstrapModule(AppModule)
7   .catch(err => console.error(err));
```

Table 7.1 Implementing

IMPLEMENTING

Controlling colors and fonts using the CSS language to entire web page, in addition to using JavaScript and Angular

```
1  @import "src/assets/scss/_variables";
2  @import url("https://fonts.googleapis.com/icon?family=Material+Icons|Material+Icons+Outlined");
3
4
5  /* You can add global styles to this file, and also import other style files */
6  * :not(mat-icon) {
7    font-family: $accent-font !important;
8  }
9
10 html,
11 body {
12   height: 100%;
13 }
14
15 body {
16   margin: 0;
17   font-family: Roboto, "Helvetica Neue", sans-serif;
18 }
19
20 .toolbar {
21   background-color: $primary-color !important;
22   color: $basic-color;
23   box-shadow: $box-shadow;
24 }
25
26 .logo {
27   height: auto;
28   width: 100%;
29   border: $border-color 1px solid;
30   border-radius: 10px;
31   margin-top: 1.5rem;
32 }
33
34
35 .report-img{
36   height: 100px;
37   width: auto;
38   border: $border-color 1px solid;
39   border-radius: 10px;
40   margin: 3px;
41 }
42
43 .staff-img {
44   height: auto;
45   width: 259px;
46   border: $border-color 1px solid;
47   border-radius: 10px;
48   margin-top: 1.5rem;
49 }
50
51
52 .mat-nav-list-ar {
53   margin-top: 1.2rem !important;
```

Table 7.2 Implementing

IMPLEMENTING

Controlling colors and fonts using the CSS language to entire web page, in addition to using JavaScript and Angular

```
55      a {
56        i {
57          font-size: x-large;
58          color: $primary-color !important;
59          margin-left: 0.2rem;
60        }
61
62        border: $border-color 1px solid;
63        border-radius: 10px !important;
64        width: 90% !important;
65        vertical-align: middle !important;
66        padding-top: 0.5rem !important;
67        margin-bottom: 0.5rem;
68        color: $primary-color !important;
69      }
70
71      a:hover {
72        font-size: xx-large;
73
74        i {
75          font-size: xx-large;
76        }
77
78        background-color: $warn-color;
79      }
80      .mat-nav-list-en {
81        margin-top: 1.2rem !important;
82
83      a {
84        i {
85          font-size: x-large;
86          color: $primary-color !important;
87          margin-right: 0.2rem;
88        }
89
90        border: $border-color 1px solid;
91        border-radius: 10px !important;
92        width: 90% !important;
93        vertical-align: middle !important;
94        padding-top: 0.5rem !important;
95        margin-bottom: 0.5rem;
96        color: $primary-color !important;
97      }
98
99    }
```

Table 7.3 Implementing

IMPLEMENTING

Controlling colors and fonts using the CSS language to entire web page, in addition to using JavaScript and Angular

```
108     }
109
110    .bg-primary {
111      i {
112        font-size: xx-large !important;
113      }
114
115      background-color: $primary-color !important;
116    }
117
118    .bg-accent {
119      i {
120        font-size: xx-large !important;
121      }
122
123      background-color: $accent-color !important;
124
125      .bg-warn {
126        i {
127          font-size: xx-large !important;
128        }
129
130        color: black !important;
131        background-color: $warn-color !important;
132        font-weight: bold;
133      }
134
135    .bg-F5 {
136      i {
137        font-size: xx-large !important;
138      }
139
140      border-radius: 0 0 0 9px;
141      background-color: #F5F5F5 !important;
142    }
143
144    .bg-F5-en {
145      i {
146        font-size: xx-large !important;
147      }
148
149      border-radius: 0 0 9px 0;
150      background-color: #F5F5F5 !important;
151    }
```

Table 7.4 Implementing

IMPLEMENTING

Controlling colors and fonts using the CSS language to entire web page, in addition to using JavaScript and Angular

```
153  hr {
154    display: block;
155    height: 1px;
156    border: 0;
157    border-top: 1px solid $border-color;
158    margin: 1em 0;
159    padding: 0;
160  }
161
162  .div-center {
163    margin-top: 1rem;
164    text-align: center;
165
166    a {
167      text-decoration: none;
168      color: $primary-color;
169    }
170  }
171
172  .main-card {
173    margin-top: 1.5rem;
174    min-height: 80vh !important;
175    width: 100%;
176  .ciphers-card {
177    width: 95% !important;
178    margin-top: 1.5rem !important;
179    // margin: 1.5rem !important;
180
181    border-radius: 15px;
182    box-shadow: $box-shadow-2;
183  .header-ciphers {
184    border-bottom: $border-color 1px solid;
185    height: 40px;
186    padding: 10px;
187
188    ul {
189      label {
190        margin-left: 10px;
191        display: inline;
192      }
193
194      list-style-type: none;
195
196      li {
197        display: inline;
198        margin-left: 0.5rem;
199
200        button {
201          border: $border-color 1px solid;
202          border-radius: 10px;
203          padding: 0.1rem 1rem;
204        }
205      }
206    }
207  }
208
209  .ciphers-card {
210    margin-top: 1.5rem;
211    padding: 10px;
212
213    ul {
214      li {
215        margin-left: 10px;
216        display: inline;
217
218        button {
219          border: $border-color 1px solid;
220          border-radius: 10px;
221          padding: 0.1rem 1rem;
222        }
223      }
224    }
225  }
226
227  .ciphers-card {
228    margin-top: 1.5rem;
229    padding: 10px;
230
231    ul {
232      li {
233        margin-left: 10px;
234        display: inline;
235
236        button {
237          border: $border-color 1px solid;
238          border-radius: 10px;
239          padding: 0.1rem 1rem;
240        }
241      }
242    }
243  }
244
245  .ciphers-card {
246    margin-top: 1.5rem;
247    padding: 10px;
248
249    ul {
250      li {
251        margin-left: 10px;
252        display: inline;
253
254        button {
255          border: $border-color 1px solid;
256          border-radius: 10px;
257          padding: 0.1rem 1rem;
258        }
259      }
260    }
261  }
262
263  .ciphers-card {
264    margin-top: 1.5rem;
265    padding: 10px;
266
267    ul {
268      li {
269        margin-left: 10px;
270        display: inline;
271
272        button {
273          border: $border-color 1px solid;
274          border-radius: 10px;
275          padding: 0.1rem 1rem;
276        }
277      }
278    }
279  }
280
281  .ciphers-card {
282    margin-top: 1.5rem;
283    padding: 10px;
284
285    ul {
286      li {
287        margin-left: 10px;
288        display: inline;
289
290        button {
291          border: $border-color 1px solid;
292          border-radius: 10px;
293          padding: 0.1rem 1rem;
294        }
295      }
296    }
297  }
298
299  .ciphers-card {
300    margin-top: 1.5rem;
301    padding: 10px;
302
303    ul {
304      li {
305        margin-left: 10px;
306        display: inline;
307
308        button {
309          border: $border-color 1px solid;
310          border-radius: 10px;
311          padding: 0.1rem 1rem;
312        }
313      }
314    }
315  }
316
317  .ciphers-card {
318    margin-top: 1.5rem;
319    padding: 10px;
320
321    ul {
322      li {
323        margin-left: 10px;
324        display: inline;
325
326        button {
327          border: $border-color 1px solid;
328          border-radius: 10px;
329          padding: 0.1rem 1rem;
330        }
331      }
332    }
333  }
334
335  .ciphers-card {
336    margin-top: 1.5rem;
337    padding: 10px;
338
339    ul {
340      li {
341        margin-left: 10px;
342        display: inline;
343
344        button {
345          border: $border-color 1px solid;
346          border-radius: 10px;
347          padding: 0.1rem 1rem;
348        }
349      }
350    }
351  }
352
353  .ciphers-card {
354    margin-top: 1.5rem;
355    padding: 10px;
356
357    ul {
358      li {
359        margin-left: 10px;
360        display: inline;
361
362        button {
363          border: $border-color 1px solid;
364          border-radius: 10px;
365          padding: 0.1rem 1rem;
366        }
367      }
368    }
369  }
370
371  .ciphers-card {
372    margin-top: 1.5rem;
373    padding: 10px;
374
375    ul {
376      li {
377        margin-left: 10px;
378        display: inline;
379
380        button {
381          border: $border-color 1px solid;
382          border-radius: 10px;
383          padding: 0.1rem 1rem;
384        }
385      }
386    }
387  }
388
389  .ciphers-card {
390    margin-top: 1.5rem;
391    padding: 10px;
392
393    ul {
394      li {
395        margin-left: 10px;
396        display: inline;
397
398        button {
399          border: $border-color 1px solid;
400          border-radius: 10px;
401          padding: 0.1rem 1rem;
402        }
403      }
404    }
405  }
406
407  .ciphers-card {
408    margin-top: 1.5rem;
409    padding: 10px;
410
411    ul {
412      li {
413        margin-left: 10px;
414        display: inline;
415
416        button {
417          border: $border-color 1px solid;
418          border-radius: 10px;
419          padding: 0.1rem 1rem;
420        }
421      }
422    }
423  }
424
425  .ciphers-card {
426    margin-top: 1.5rem;
427    padding: 10px;
428
429    ul {
430      li {
431        margin-left: 10px;
432        display: inline;
433
434        button {
435          border: $border-color 1px solid;
436          border-radius: 10px;
437          padding: 0.1rem 1rem;
438        }
439      }
440    }
441  }
442
443  .ciphers-card {
444    margin-top: 1.5rem;
445    padding: 10px;
446
447    ul {
448      li {
449        margin-left: 10px;
450        display: inline;
451
452        button {
453          border: $border-color 1px solid;
454          border-radius: 10px;
455          padding: 0.1rem 1rem;
456        }
457      }
458    }
459  }
460
461  .ciphers-card {
462    margin-top: 1.5rem;
463    padding: 10px;
464
465    ul {
466      li {
467        margin-left: 10px;
468        display: inline;
469
470        button {
471          border: $border-color 1px solid;
472          border-radius: 10px;
473          padding: 0.1rem 1rem;
474        }
475      }
476    }
477  }
478
479  .ciphers-card {
480    margin-top: 1.5rem;
481    padding: 10px;
482
483    ul {
484      li {
485        margin-left: 10px;
486        display: inline;
487
488        button {
489          border: $border-color 1px solid;
490          border-radius: 10px;
491          padding: 0.1rem 1rem;
492        }
493      }
494    }
495  }
496
497  .ciphers-card {
498    margin-top: 1.5rem;
499    padding: 10px;
500
501    ul {
502      li {
503        margin-left: 10px;
504        display: inline;
505
506        button {
507          border: $border-color 1px solid;
508          border-radius: 10px;
509          padding: 0.1rem 1rem;
510        }
511      }
512    }
513  }
514
515  .ciphers-card {
516    margin-top: 1.5rem;
517    padding: 10px;
518
519    ul {
520      li {
521        margin-left: 10px;
522        display: inline;
523
524        button {
525          border: $border-color 1px solid;
526          border-radius: 10px;
527          padding: 0.1rem 1rem;
528        }
529      }
530    }
531  }
532
533  .ciphers-card {
534    margin-top: 1.5rem;
535    padding: 10px;
536
537    ul {
538      li {
539        margin-left: 10px;
540        display: inline;
541
542        button {
543          border: $border-color 1px solid;
544          border-radius: 10px;
545          padding: 0.1rem 1rem;
546        }
547      }
548    }
549  }
550
551  .ciphers-card {
552    margin-top: 1.5rem;
553    padding: 10px;
554
555    ul {
556      li {
557        margin-left: 10px;
558        display: inline;
559
560        button {
561          border: $border-color 1px solid;
562          border-radius: 10px;
563          padding: 0.1rem 1rem;
564        }
565      }
566    }
567  }
568
569  .ciphers-card {
570    margin-top: 1.5rem;
571    padding: 10px;
572
573    ul {
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575        margin-left: 10px;
576        display: inline;
577
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580          border-radius: 10px;
581          padding: 0.1rem 1rem;
582        }
583      }
584    }
585  }
586
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596        button {
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600        }
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602    }
603  }
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605  .ciphers-card {
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607    padding: 10px;
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612        display: inline;
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614        button {
615          border: $border-color 1px solid;
616          border-radius: 10px;
617          padding: 0.1rem 1rem;
618        }
619      }
620    }
621  }
622
623  .ciphers-card {
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625    padding: 10px;
626
627    ul {
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630        display: inline;
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632        button {
633          border: $border-color 1px solid;
634          border-radius: 10px;
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637      }
638    }
639  }
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724          border-radius: 10px;
725          padding: 0.1rem 1rem;
726        }
727      }
728    }
729  }
730
731  .ciphers-card {
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733    padding: 10px;
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737        margin-left: 10px;
738        display: inline;
739
740        button {
741          border: $border-color 1px solid;
742          border-radius: 10px;
743          padding: 0.1rem 1rem;
744        }
745      }
746    }
747  }
748
749  .ciphers-card {
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756        display: inline;
757
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760          border-radius: 10px;
761          padding: 0.1rem 1rem;
762        }
763      }
764    }
765  }
766
767  .ciphers-card {
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769    padding: 10px;
770
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772      li {
773        margin-left: 10px;
774        display: inline;
775
776        button {
777          border: $border-color 1px solid;
778          border-radius: 10px;
779          padding: 0.1rem 1rem;
780        }
781      }
782    }
783  }
784
785  .ciphers-card {
786    margin-top: 1.5rem;
787    padding: 10px;
788
789    ul {
790      li {
791        margin-left: 10px;
792        display: inline;
793
794        button {
795          border: $border-color 1px solid;
796          border-radius: 10px;
797          padding: 0.1rem 1rem;
798        }
799      }
800    }
801  }
802
803  .ciphers-card {
804    margin-top: 1.5rem;
805    padding: 10px;
806
807    ul {
808      li {
809        margin-left: 10px;
810        display: inline;
811
812        button {
813          border: $border-color 1px solid;
814          border-radius: 10px;
815          padding: 0.1rem 1rem;
816        }
817      }
818    }
819  }
820
821  .ciphers-card {
822    margin-top: 1.5rem;
823    padding: 10px;
824
825    ul {
826      li {
827        margin-left: 10px;
828        display: inline;
829
830        button {
831          border: $border-color 1px solid;
832          border-radius: 10px;
833          padding: 0.1rem 1rem;
834        }
835      }
836    }
837  }
838
839  .ciphers-card {
840    margin-top: 1.5rem;
841    padding: 10px;
842
843    ul {
844      li {
845        margin-left: 10px;
846        display: inline;
847
848        button {
849          border: $border-color 1px solid;
850          border-radius: 10px;
851          padding: 0.1rem 1rem;
852        }
853      }
854    }
855  }
856
857  .ciphers-card {
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859    padding: 10px;
860
861    ul {
862      li {
863        margin-left: 10px;
864        display: inline;
865
866        button {
867          border: $border-color 1px solid;
868          border-radius: 10px;
869          padding: 0.1rem 1rem;
870        }
871      }
872    }
873  }
874
875  .ciphers-card {
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877    padding: 10px;
878
879    ul {
880      li {
881        margin-left: 10px;
882        display: inline;
883
884        button {
885          border: $border-color 1px solid;
886          border-radius: 10px;
887          padding: 0.1rem 1rem;
888        }
889      }
890    }
891  }
892
893  .ciphers-card {
894    margin-top: 1.5rem;
895    padding: 10px;
896
897    ul {
898      li {
899        margin-left: 10px;
900        display: inline;
901
902        button {
903          border: $border-color 1px solid;
904          border-radius: 10px;
905          padding: 0.1rem 1rem;
906        }
907      }
908    }
909  }
910
911  .ciphers-card {
912    margin-top: 1.5rem;
913    padding: 10px;
914
915    ul {
916      li {
917        margin-left: 10px;
918        display: inline;
919
920        button {
921          border: $border-color 1px solid;
922          border-radius: 10px;
923          padding: 0.1rem 1rem;
924        }
925      }
926    }
927  }
928
929  .ciphers-card {
930    margin-top: 1.5rem;
931    padding: 10px;
932
933    ul {
934      li {
935        margin-left: 10px;
936        display: inline;
937
938        button {
939          border: $border-color 1px solid;
940          border-radius: 10px;
941          padding: 0.1rem 1rem;
942        }
943      }
944    }
945  }
946
947  .ciphers-card {
948    margin-top: 1.5rem;
949    padding: 10px;
950
951    ul {
952      li {
953        margin-left: 10px;
954        display: inline;
955
956        button {
957          border: $border-color 1px solid;
958          border-radius: 10px;
959          padding: 0.1rem 1rem;
960        }
961      }
962    }
963  }
964
965  .ciphers-card {
966    margin-top: 1.5rem;
967    padding: 10px;
968
969    ul {
970      li {
971        margin-left: 10px;
972        display: inline;
973
974        button {
975          border: $border-color 1px solid;
976          border-radius: 10px;
977          padding: 0.1rem 1rem;
978        }
979      }
980    }
981  }
982
983  .ciphers-card {
984    margin-top: 1.5rem;
985    padding: 10px;
986
987    ul {
988      li {
989        margin-left: 10px;
990        display: inline;
991
992        button {
993          border: $border-color 1px solid;
994          border-radius: 10px;
995          padding: 0.1rem 1rem;
996        }
997      }
998    }
999  }
1000
1001  .ciphers-card {
1002    margin-top: 1.5rem;
1003    padding: 10px;
1004
1005    ul {
1006      li {
1007        margin-left: 10px;
1008        display: inline;
1009
1010        button {
1011          border: $border-color 1px solid;
1012          border-radius: 10px;
1013          padding: 0.1rem 1rem;
1014        }
1015      }
1016    }
1017  }
1018
1019  .ciphers-card {
1020    margin-top: 1.5rem;
1021    padding: 10px;
1022
1023    ul {
1024      li {
1025        margin-left: 10px;
1026        display: inline;
1027
1028        button {
1029          border: $border-color 1px solid;
1030          border-radius: 10px;
1031          padding: 0.1rem 1rem;
1032        }
1033      }
1034    }
1035  }
1036
1037  .ciphers-card {
1038    margin-top: 1.5rem;
1039    padding: 10px;
1040
1041    ul {
1042      li {
1043        margin-left: 10px;
1044        display: inline;
1045
1046        button {
1047          border: $border-color 1px solid;
1048          border-radius: 10px;
1049          padding: 0.1rem 1rem;
1050        }
1051      }
1052    }
1053  }
1054
1055  .ciphers-card {
1056    margin-top: 1.5rem;
1057    padding: 10px;
1058
1059    ul {
1060      li {
1061        margin-left: 10px;
1062        display: inline;
1063
1064        button {
1065          border: $border-color 1px solid;
1066          border-radius: 10px;
1067          padding: 0.1rem 1rem;
1068        }
1069      }
1070    }
1071  }
1072
1073  .ciphers-card {
1074    margin-top: 1.5rem;
1075    padding: 10px;
1076
1077    ul {
1078      li {
1079        margin-left: 10px;
1080        display: inline;
1081
1082        button {
1083          border: $border-color 1px solid;
1084          border-radius: 10px;
1085          padding: 0.1rem 1rem;
1086        }
1087      }
1088    }
1089  }
1090
1091  .ciphers-card {
1092    margin-top: 1.5rem;
1093    padding: 10px;
1094
1095    ul {
1096      li {
1097        margin-left: 10px;
1098        display: inline;
1099
1100        button {
1101          border: $border-color 1px solid;
1102          border-radius: 10px;
1103          padding: 0.1rem 1rem;
1104        }
1105      }
1106    }
1107  }
1108
1109  .ciphers-card {
1110    margin-top: 1.5rem;
1111    padding: 10px;
1112
1113    ul {
1114      li {
1115        margin-left: 10px;
1116        display: inline;
1117
1118        button {
1119          border: $border-color 1px solid;
1120          border-radius: 10px;
1121          padding: 0.1rem 1rem;
1122        }
1123      }
1124    }
1125  }
1126
1127  .ciphers-card {
1128    margin-top: 1.5rem;
1129    padding: 10px;
1130
1131    ul {
1132      li {
1133        margin-left: 10px;
1134        display: inline;
1135
1136        button {
1137          border: $border-color 1px solid;
1138          border-radius: 10px;
1139          padding: 0.1rem 1rem;
1140        }
1141      }
1142    }
1143  }
1144
1145  .ciphers-card {
1146    margin-top: 1.5rem;
1147    padding: 10px;
1148
1149    ul {
1150      li {
1151        margin-left: 10px;
1152        display: inline;
1153
1154        button {
1155          border: $border-color 1px solid;
1156          border-radius: 10px;
1157          padding: 0.1rem 1rem;
1158        }
1159      }
1160    }
1161  }
1162
1163  .ciphers-card {
1164    margin-top: 1.5rem;
1165    padding: 10px;
1166
1167    ul {
1168      li {
1169        margin-left: 10px;
1170        display: inline;
1171
1172        button {
1173          border: $border-color 1px solid;
1174          border-radius: 10px;
1175          padding: 0.1rem 1rem;
1176        }
1177      }
1178    }
1179  }
1180
1181  .ciphers-card {
1182    margin-top: 1.5rem;
1183    padding: 10px;
1184
1185    ul {
1186      li {
1187        margin-left: 10px;
1188        display: inline;
1189
1190        button {
1191          border: $border-color 1px solid;
1192          border-radius: 10px;
1193          padding: 0.1rem 1rem;
1194        }
1195      }
1196    }
1197  }
1198
1199  .ciphers-card {
1200    margin-top: 1.5rem;
1201    padding: 10px;
1202
1203    ul {
1204      li {
1205        margin-left: 10px;
1206        display: inline;
1207
1208        button {
1209          border: $border-color 1px solid;
1210          border-radius: 10px;
1211          padding: 0.1rem 1rem;
1212        }
1213      }
1214    }
1215  }
1216
1217  .ciphers-card {
1218    margin-top: 1.5rem;
1219    padding: 10px;
1220
1221    ul {
1222      li {
1223        margin-left: 10px;
1224        display: inline;
1225
1226        button {
1227          border: $border-color 1px solid;
1228          border-radius: 10px;
1229          padding: 0.1rem 1rem;
1230        }
1231      }
1232    }
1233  }
1234
1235  .ciphers-card {
1236    margin-top: 1.5rem;
1237    padding: 10px;
1238
1239    ul {
1240      li {
1241        margin-left: 10px;
1242        display: inline;
1243
1244        button {
1245          border: $border-color 1px solid;
1246          border-radius: 10px;
1247          padding: 0.1rem 1rem;
1248        }
1249      }
1250    }
1251  }
1252
1253  .ciphers-card {
1254    margin-top: 1.5rem;
1255    padding: 10px;
1256
1257    ul {
1258      li {
1259        margin-left: 10px;
1260        display: inline;
1261
1262        button {
1263          border: $border-color 1px solid;
1264          border-radius: 10px;
1265          padding: 0.1rem 1rem;
1266        }
1267      }
1268    }
1269  }
1270
1271  .ciphers-card {
1272    margin-top: 1.5rem;
1273    padding: 10px;
1274
1275    ul {
1276      li {
1277        margin-left: 10px;
1278        display: inline;
1279
1280        button {
1281          border: $border-color 1px solid;
1282          border-radius: 10px;
1283          padding: 0.1rem 1rem;
1284        }
1285      }
1286    }
1287  }
1288
1289  .ciphers-card {
1290    margin-top: 1.5rem;
1291    padding: 10px;
1292
1293    ul {
1294      li {
1295        margin-left: 10px;
1296        display: inline;
1297
1298        button {
1299          border: $border-color 1px solid;
1300          border-radius: 10px;
1301          padding: 0.1rem 1rem;
1302        }
1303      }
1304    }
1305  }
1306
1307  .ciphers-card {
1308    margin-top: 1.5rem;
1309    padding: 10px;
1310
1311    ul {
1312      li {
1313        margin-left: 10px;
1314        display: inline;
1315
1316        button {
1317          border: $border-color 1px solid;
1318          border-radius: 10px;
1319          padding: 0.1rem 1rem;
1320        }
1321      }
1322    }
1323  }
1324
1325  .ciphers-card {
1326    margin-top: 1.5rem;
1327    padding: 10px;
1328
1329    ul {
1330      li {
1331        margin-left: 10px;
1332        display: inline;
1333
1334        button {
1335          border: $border-color 1px solid;
1336          border-radius: 10px;
1337          padding: 0.1rem 1rem;
1338        }
1339      }
1340    }
1341  }
1342
1343  .ciphers-card {
1344    margin-top: 1.5rem;
1345    padding: 10px;
1346
1347    ul {
1348      li {
1349        margin-left: 10px;
1350        display: inline;
1351
1352        button {
1353          border: $border-color 1px solid;
1354          border-radius: 10px;
1355          padding: 0.1rem 1rem;
1356        }
1357      }
1358    }
1359  }
1360
1361  .ciphers-card {
1362    margin-top: 1.5rem;
1363    padding: 10px;
1364
1365    ul {
1366      li {
1367        margin-left: 10px;
1368        display: inline;
1369
1370        button {
1371          border: $border-color 1px solid;
1372          border-radius: 10px;
1373          padding: 0.1rem 1rem;
1374        }
1375      }
1376    }
1377  }
1378
1379  .ciphers-card {
1380    margin-top: 1.5rem;
1381    padding: 10px;
1382
1383    ul {
1384      li {
1385        margin-left: 10px;
1386        display: inline;
1387
1388        button {
1389          border: $border-color 1px solid;
1390          border-radius: 10px;
1391          padding: 0.1rem 1rem;
1392        }
1393      }
1394    }
1395  }
1396
1397  .ciphers-card {
1398    margin-top: 1.5rem;
1399    padding: 10px;
1400
1401    ul {
1402      li {
1403        margin-left: 10px;
1404        display: inline;
1405
1406        button {
1407          border: $border-color 1px solid;
1408          border-radius: 10px;
1409          padding: 0.1rem 1rem;
1410        }
1411      }
1412    }
1413  }
1414
1415  .ciphers-card {
1416    margin-top: 1.5rem;
1417    padding: 10px;
1418
1419    ul {
1420      li {
1421        margin-left: 10px;
1422        display: inline;
1423
1424        button {
1425          border: $border-color 1px solid;
1426          border-radius: 10px;
1427          padding: 0.1rem 1rem;
1428        }
1429      }
1430    }
1431  }
1432
1433  .ciphers-card {
1434    margin-top: 1.5rem;
1435    padding: 10px;
1436
1437    ul {
1438      li {
1439        margin-left: 10px;
1440        display: inline;
1441
1442        button {
1443          border: $border-color 1px solid;
1444          border-radius: 10px;
1445          padding: 0.1rem 1rem;
1446        }
1447      }
1448    }
1449  }
1450
1451  .ciphers-card {
1452    margin-top: 1.5rem;
1453    padding: 10px;
1454
1455    ul {
1456      li {
1457        margin-left: 10px;
1458        display: inline;
1459
1460        button {
1461          border: $border-color 1px solid;
1462          border-radius: 10px;
1463          padding: 0.1rem 1rem;
1464        }
1465      }
1466    }
1467  }
1468
1469  .ciphers-card {
1470    margin-top: 1.5rem;
1471    padding: 
```

IMPLEMENTING

Controlling colors and fonts using the CSS language to entire web page, in addition to using JavaScript and Angular

```
216  textarea:focus {
217      outline: none !important;
218  }
219
220  .parent-div{
221      position: relative;
222  }
223
224  .corner-top-left {
225      position: absolute;
226      left: 0;
227      margin-top: 1.5rem;
228      margin-left: 0.5rem;
229
230      i {
231          font-size: 35px !important;
232      }
233  }
234
235  .corner-top-right {
236      position: absolute;
237      right: 0;
238      margin-top: 1.5rem;
239      margin-right: 0.5rem;
240
241      i {
242          font-size: 35px !important;
243
244      .corner-bottom-left {
245          position: absolute;
246          left: 0;
247          bottom: 0;
248          margin-bottom: 0.2rem;
249          margin-left: 0.5rem;
250      }
251
252
253
254      .corner-bottom-right {
255          position: absolute;
256          right: 0;
257          bottom: 0;
258          margin-bottom: 0.2rem;
259          margin-right: 0.5rem;
260      }
261
262
263
264  .height-of-encode-box {
265      min-height: 340px !important;
266
267      .full-width {
268          width: 100%;
269          min-height: 250px !important;
270          border: none;
271          border-radius: 5px;
272          margin-top: 3px;
273          resize: none;
```

Table 7.6 Implementing

IMPLEMENTING

Controlling colors and fonts using the CSS language to entire web page, in addition to using JavaScript and Angular

```
277 .icon {  
278   color: $icon-color;  
279   cursor: pointer;  
280   font-size: 25px;  
281   // height: 48px !important;  
282   // width: 48px !important;  
283   // transform: translate(-50%,-50%);  
284 }  
285  
286 .icon:hover {  
287   color: $accent-color;  
288 }  
289  
290 .icon-x {  
291   font-size: 24px;  
292   color: $icon-color;  
293   padding: 0 6px;  
294   cursor: pointer;  
295 }  
296  
297 .icon-x:hover {  
298   font-size: 24px;  
299   color: $primary-color;  
300   border: none;  
301   border-radius: 50%;  
302   background-color: $background-one;  
303  
304 .slide-ecode-decode {  
305   margin-top: 1.2rem;  
306 }  
307  
308  
309 .right-area {  
310   position: relative;  
311   border-left: $border-color-2 1px solid;  
312 }  
313  
314 .left-area {  
315   position: relative;  
316 }  
317  
318 .text-input {  
319   border: solid 1px $border-color-2;  
320   border-radius: 10px;  
321   font-size: 12px !important;  
322 }  
323  
324 .mat-mdc-input-element {  
325   font-size: 12px;  
326 }  
327  
328 .font-24 {  
329   font-size: 24px !important;  
330 }
```

Table 7.7 Implementing

IMPLEMENTING

Controlling colors and fonts using the CSS language to entire web page, in addition to using JavaScript and Angular

```
332   .w-95{  
333     width: 95% !important;  
334   }  
335  
336   .min-height{  
337     min-height: 500px !important;  
338   }  
339  
340   .mr-1 {  
341     margin-right: 0.5rem !important;  
342   }  
343  
344   .mr-2 {  
345     margin-right: 0.8rem !important;  
346     // margin-bottom: 0.8rem !important;  
347   }  
348  
349  
350  
351   .ml-1 {  
352     margin-left: 1rem !important;  
353   }  
354   .ml-5 {  
355     margin-left: 1.2rem !important;  
356   }  
357  
358   .ml-10 {  
359     margin-left: 5rem !important;  
360   }  
361  
362   .mr-5 {  
363     margin-right: 1.2rem !important;  
364   }  
365  
366   .mr-10 {  
367     margin-right: 5rem !important;  
368   }  
369  
370   .text-f5 {  
371     color: $icon-color;  
372   }  
373  
374   .mt-7 {  
375     margin-top: 4.5rem;  
376   }  
377  
378   .pl-10 {  
379     padding-left: 3rem !important;  
380   }  
381  
382
```

Table 7.8 Implementing

IMPLEMENTING

Controlling colors and fonts using the CSS language to entire web page, in addition to using JavaScript and Angular

```
382     .feedback-ar {  
383         position: absolute;  
384         left: 0;  
385         padding-left: 1.2rem !important;  
386         color: rgb(95, 99, 104);  
387         cursor: pointer;  
388         display: inline-block;  
389         font-size: 11px;  
390         font-style: italic;  
391         font-weight: 400;  
392         margin: 8px 12px 0;  
393         text-decoration: none;  
394     }  
395  
396     .feedback-en {  
397         position: absolute;  
398         right: 0;  
399         padding-right: 1.2rem !important;  
400         color: rgb(95, 99, 104);  
401         cursor: pointer;  
402         display: inline-block;  
403         font-size: 11px;  
404         font-style: italic;  
405         font-weight: 400;  
406         margin: 8px 12px 0;  
407         text-decoration: none;  
408     }  
...  
410     .all-actions {  
411         margin-top: 10rem !important;  
412         margin-bottom: 10rem !important;  
413         align-items: center;  
414         display: flex;  
415         justify-content: center;  
416  
417     .action-icon {  
418         text-decoration: none;  
419         cursor: pointer;  
420         margin: 0 18px;  
421         margin-right: 3rem !important;  
422         text-align: center;  
423  
424         i {  
425             border: 1px solid $border-color;  
426             border-radius: 40px;  
427             padding: 1rem !important;  
428             color: $icon-color;  
429             font-size: 30px;  
430         }  
431  
432     .title{  
433         margin-top: 2rem !important;  
434         color: $icon-color;  
435         font-size: xx-small !important;
```

Table 7.9

IMPLEMENTING

Controlling colors and fonts using the CSS language to entire web page, in addition to using JavaScript and Angular

```
441   .mr-3{
442     margin-right: 1.5rem !important;
443   }
444
445   .ml-2{
446     margin-left: 1rem !important;
447   }
448
449   .ml-3{
450     margin-left: 1.5rem !important;
451   }
452
453   .text-justify{
454     text-align: justify;
455   }
456
457   .additions-cards{
458     min-height: 400px !important;
459   }
460
461   table{
462     margin: 1rem 0;
463     width: 100%;
464
465     th, td{
466       border: 1px solid $border-color;
467       padding: 1px;
468       text-align: center;
469     }
470
471   .header-offcanvas{
472     position: relative;
473
474
475     .close{
476       position: absolute;
477       left: 0;
478       top: 0;
479     }
480   }
481
482   .my-custom-snackbar{
483     direction: rtl !important;
484   }
```

Table 7.10 Implementing

IMPLEMENTING

Controlling the colors and fonts using the SCSS language(Assign specific properties to variables and call them later), in addition to using JavaScript and Angular

```
5      /* You can add global styles to this file, and also import other style files */
6
7      @font-face {
8          font-family: 'Bukra-Regular';
9          /* ../../webfonts/DroidKufi-Regular.ttf */
10         src: url('../fonts/29LTBukraRegular3.otf') format('truetype');
11     }
12
13     @font-face {
14         font-family: 'Bein-Black';
15         /* ../../webfonts/DroidKufi-Regular.ttf */
16         src: url('../fonts/beIN Black.ttf') format('truetype');
17     }
18
19     //icons color
20
21     $icon-color: #5F6368;
22
23     $icon-color-hover:#EBEBEB;
24
25     //Borders
26
27     $border-color: #CCCCCC;
28
29     $border-color-2: #E0E0E0;
30
31     //Backgrounds Colors
32
33     $background-one: #F5F5F5;
34
35     //New Variables
36
37     $primary-color: #00a4ad; //#3d535f - #3695A1
38
39     $accent-color: #00f1ff; //#7f00ff #A16537 #304FFE
40
41     $warn-color: #c9ee14; //#FCF182
42
43
44     //Fonts
45
46     $primary-font: 'Bein-Black';
47
48     $accent-font: 'Bukra-Regular';
```

Table 7.11 Implementing

IMPLEMENTING

Controlling the colors and fonts using the SCSS language(Assign specific properties to variables and call them later), in addition to using JavaScript and Angular

```
41 //Basices Colors
42 $basic-color: #fff;
43 $basic-color-2: #000;
44 $basic-color-light: lighten($basic-color, 5%);
45 $basic-color-dark: darken($basic-color, 15%);
46
47 $font-weight-thin: 100;
48 $font-weight-extra-light: 200;
49 $font-weight-light: 300;
50 $font-weight-normal: 400;
51 $font-weight-medium: 500;
52 $font-weight-semi-bold: 600;
53 $font-weight-bold: 700;
54 $font-weight-extra-bold: 800;
55 $font-weight-ultra-bold: 900;
58 //Shadowes
59 $hover-box-shadow: 0 15px 25px 0 rgba(0, 0, 0, 0.16), 0 10px 15px 0 rgba(0, 0, 0, 0.12);
60 $navigation-box-shadow: 0px 0px 3px 1px $primary-color;
61 $box-shadow: 0px 1px 5px 2px #7d7d7d;
62 $box-shadow-2: 0 0 10px #719ECE;
63 $text-shadow: 2px 2px 2px rgba(0, 0, 0, 0.29);
64 $card-box-shadow: 0 2px 5px 0 rgba(0, 0, 0, 0.16), 0 2px 10px 0 rgba(0, 0, 0, 0.12);
66 //Social Media Color
67 $twitter-color: #4c6ef5;
68 $twitter-background: aliceblue;
69
70 $facebook-color: #3b5998;
71 $facebook-background: #eceff5;
72
73 $whatsapp-color: #25D366;
74 $whatsapp-background: #cef5dc;
75
76 $telegram-color: #4c6ef5;
77 $telegram-background: aliceblue;
```

Table 7.12 Implementing

IMPLEMENTING

Here are the libraries that were used, such as the PDF file call library, the save file library, the JSON file call library, and the translation library.

```
1  {
2      "name": "encryption-key",
3      "version": "0.0.0",
4      "scripts": {
5          "ng": "ng",
6          "start": "ng serve",
7          "build": "ng build",
8          "watch": "ng build --watch --configuration development",
9          "test": "ng test"
10     },
11     "private": true,
12     "dependencies": {
13         "@angular/animations": "^15.0.0",
14         "@angular/cdk": "^15.2.5",
15         "@angular/common": "^15.0.0",
16         "@angular/compiler": "^15.0.0",
17         "@angular/core": "^15.0.0",
18         "@angular/forms": "^15.0.0",
19         "@angular/material": "^15.2.5",
20         "@angular/platform-browser": "^15.0.0",
21         "@angular/platform-browser-dynamic": "^15.0.0",
22         "@angular/router": "^15.0.0",
23         "@ngx-translate/core": "^14.0.0",
24         "@ngx-translate/http-loader": "^7.0.0",
25         "@types/file-saver": "^2.0.5",
26         "bourbon": "^7.3.0",
27         "file-saver": "^2.0.5",
28         "ng2-pdf-viewer": "^9.1.5",
29         "rxjs": "~7.5.0",
30         "tslib": "^2.3.0",
31         "zone.js": "~0.12.0"
32     },
33     "devDependencies": {
34         "@angular-devkit/build-angular": "^15.0.4",
35         "@angular/cli": "~15.0.4",
36         "@angular/compiler-cli": "^15.0.0",
37         "@types/jasmine": "~4.3.0",
```

Table 7.13 Implementing

IMPLEMENTING

The Angular file contains general information about the site, such as calling up CSS files and Bootstrap files

```
1  {
2      "$schema": "./node_modules/@angular/cli/lib/config/schema.json",
3      "version": 1,
4      "newProjectRoot": "projects",
5      "projects": {
6          "encryptionKey": {
7              "projectType": "application",
8              "schematics": {
9                  "@schematics/angular:component": {
10                      "style": "scss"
11                  }
12              },
13              "root": "",
14              "sourceRoot": "src",
15              "prefix": "app",
16              "architect": {
17                  "build": {
18                      "builder": "@angular-devkit/build-angular:browser",
19                      "options": {
20                          "outputPath": "dist/",
21                          "index": "src/index.html",
22                          "main": "src/main.ts",
23                          "polyfills": [
24                              "zone.js"
25                          ],
26                          "tsConfig": "tsconfig.app.json",
27                          "inlineStyleLanguage": "scss",
28                          "assets": [
29                              "src/favicon.ico",
30                              "src/assets"
31                          ],
32                          "styles": [
33                              "src/assets/bootstrap/bootstrap.min.css",
34                              "@angular/material/prebuilt-themes/indigo-pink.css",
35                              "src/styles.scss"
36                          ],
37                      }
38                  }
39              }
40          }
41      }
42  }
```

Table 7.14 Implementing

IMPLEMENTING

This folder contains the files for the Arabic and English languages on the site, as is the case in the file that contains the number of fonts

Name
..
ar.json
en.json


```
45 },
46 "ABOUT_US": {
47     "PARAGRAPH_1": "We are a group of trainees who, through this work, dedicate our college to this work, whi
48     "PARAGRAPH_2": "The Encryption Key platform is a free platform that teaches the encryption and decryption
49     "PARAGRAPH_3": "As a group, we believe that our platform will solve the problem of the great challenges f
50     "PARAGRAPH_4": "Our platform will contribute to gaining a lot of visitors with integrated knowledge in en
51 },
52     "LABELS": {
53         "WORK_TEAM": "Work Team",
54         "REFERENCE": "Reference",
55         "THE_ALGORITHM_USED": "The Algorithm Used",
56         "TEXT_AFTER_ENCRYPTION": "Text After Encryption",
57         "PLAIN_TEXT": "Plain Text",
58         "SPACE": "Space",
59         "VISIT_OUR_WEBSITE": "Visit our website through the link below",
60         "SORT_AFTER_OFFSET": "Sort after offset",
61         "HOW_GET_THIS_RESULT": "How did we get this result?",
62         "ENCRYPTION_KEY_LABEL": "When using key <b>#{{KEY}}</b> the order will be like this:",
63         "PRIMARY_ALPHABETS": "The basic order of the letters of the alphabet is as follows",
64         "CURRENT_PROCESS_DETAILS": "Current process details",
65         "SOURCE": "Source",
66         "WHAT_DO_YOU_KNOW_ABOUT": "What do you know about Caesar's algorithm?",
67         "ABOUT_CAESAR_ALGORITHM": "The Caesar cipher, also called the Caesar cipher or shift cipher, is a method o
68         "SEND_FEEDBACK": "Send feedback",
69         "ENCRYPTION_KEY": "Encryption Key",
70         "ENCRYPTION": "Encryption",
71         "DECRIPTION": "Decryption",
72         "CHOOSE_AN_ALGORITHM": "Choose an algorithm",
73         "DELETE_ALL": "Delete all items in the wishlist!",
74         "WEBSITE": "Website",
75         "TEAM": "Team Work",
```

Table 7.15 Implementing

IMPLEMENTING

In this folder, the images of the logo and icons of the site and the workers on the site are saved, in addition to PDF files

Name	Last commit message
...	
logos	البدء في وضع الخوارزميات
reports	إضافة التقارير ومعلوماتها
work_team	إضافة التقارير ومعلوماتها
...	
Colored english.png	
Colored.png	
Logo Arabic.png	
White Arabic.png	
White English.png	
White.png	
colored Arabic.png	

Table 7.16 Implementing

IMPLEMENTING

The ciphers used to create the main menu:

```
1      [
2          {
3              "id": "HOME",
4              "ar_name": "الرئيسية",
5              "en_name": "Home",
6              "router_link": "/home",
7              "icon": "mdi mdi-home"
8          },
9          {
10             "id": "CIPHERS",
11             "ar_name": "الشفرات",
12             "en_name": "Ciphers",
13             "router_link": "/ciphers",
14             "icon": "mdi mdi-key-change"
15         },
16         {
17             "id": "ABOUT_US",
18             "ar_name": "حولنا",
19             "en_name": "About Us",
20             "router_link": "/about-us",
21             "icon": "mdi mdi-information-outline"
22         },
23         {
24             "id": "REPORTS",
25             "ar_name": "التقارير",
26             "en_name": "Reports",
27             "router_link": "/reports",
28             "icon": "mdi mdi-book-open-page-variant"
29         }
30     ]
```

Table 7.17 Implementing

IMPLEMENTING

The codes that generate the information content of each cipher are saved as JSON file

```
1   [
2     {
3       "id": 1,
4       "text_id": "CAESAR_CIPHER",
5       "ar_name": "خوارزمية قيصر",
6       "en_name": "Caesar Cipher",
7       "ar_short": "قيصر",
8       "en_short": "Caesar",
9       "ar_description": "<ol><li> هي شفرة بديلة تنقل الحروف في رسالة لجعلها غير قابلة للقراءة إذا تم اعتراضها</li></ol>",
10      "en_description": "<ol><li>The Caesar Cipher, used by Julius Caesar around 58 BC, is a substitution cipher",
11      "link": "https://www.iasj.net/iasj/download/0d9efd1329186e7d",
12      "ref": "[1]- Msallam, M. M., & Aldoghan, F. (2023). Multistage Encryption for Text Using Steganography and",
13      "created_at": "04/14/2023 - 09:50 pm"
14
15
16      "id": 2,
17      "text_id": "ZIGZAG_CIPHER",
18      "ar_name": "خوارزمية أameda السياج",
19      "en_name": "ZigZag Cipher",
20      "ar_short": "أameda السياج",
21      "en_short": "ZigZag",
22      "ar_description": "<p> تقوم خوارزمية تشفر سياج السكك الحديدية بترتيب النص العادي بطريقة</p>",
23      "en_description": "<p>Is a transposition cipher algorithm that randomizes the order of message letters. Th",
24      "ref": "",
25
26      "id": 3,
27      "text_id": "MONO_ALPHAPETIC",
28      "ar_name": "خوارزمية Mono Alphabetic",
29      "en_name": "Mono Alphabetic",
30      "ar_short": "Mono",
31      "en_short": "Mono",
32      "ar_description": "<ul><li> العادة، هنا ، المفتاح هو إعادة ترتيب (تبديل) الأبجدية. يتم استبدال حرف النص العادي بالأحرف المقابلة لها في المفتاح</li></ul>",
33      "en_description": "<ul><li>We saw the Caesar shift cipher and the multiplication cipher, but their keyspace",
34      "ref": "",
35
36      "id": 4,
37      "text_id": "PLAY_FAIR",
38      "ar_name": "خوارزمية Play Fair",
39      "en_name": "Play Fair",
40      "ar_short": "بلاي فير",
41      "en_short": "Play Fair",
42      "ar_description": "<ul><li> غير المخصصة بترتيب أبيجي. تمت صياغة المفتاح في مصفوفة 2 playfair استخدم مكتب الحرب البريطاني تشفر</li></ul>",
43      "en_description": "<ul><li>The British war office utilized &nbsp;polygram substitution cipher</li></ul>",
44      "ref": "[4]- Al-Hassani, M. D., & Gaata, M. T. (2023). Development of playfair cryptosystem based on genera",
45
46      "id": 5,
47      "text_id": "AES",
48      "ar_name": "خوارزمية AES",
49      "en_name": "Advanced Encryption Standard (AES)",
50      "ar_short": "AES",
51      "en_short": "AES",
52      "ar_description": "<p> تعد خوارزمية معيار التشغیر المتقدم (AES) تعد خوارزمية معيار التشغیر المتقدم</p>",
53      "en_description": "<p>The Advanced Encryption Standard (AES) algorithm is one of the most used ones for s",
54      "ref": "[5]- Hashim, A. N. (2023). Blockchain technology, methodology behind it, and its most extensively",
55
56      "id": 6,
57      "text_id": "RSA",
58      "ar_name": "(ريمست شامير أدلمان) RSA خوارزمية",
59      "en_name": "RSA (Rivest-Shamir-Adleman)",
60      "ar_short": "RSA",
61      "en_short": "RSA",
62      "ar_description": "<ul><li> سعية المنتهية في تحويل ناتج عددين رباعيين ضخمين. يقوم تشغیر (RSA) نظام التشغیر RSA (Rivest-Shamir-Adleman)</li></ul>",
63      "en_description": "<ul><li>The RSA (Rivest-Shamir-Adleman) cryptography system is a popular public-key cry",
64      "ref": "[6]- Gopakumar, G., Nair, V. A., & Jayashree, J. (2023). COMPARING THE RESILIENCE AND EFFICIENCY O",
65      "created_at": "04/14/2023 - 09:50 pm"
66
67    }
68  ]
```

Table 7.18 Implementing

IMPLEMENTING

This is the code for links and its components (the page to which you are directed when clicking on it)

```
1 import { NgModule } from '@angular/core';
2 import { RouterModule, Routes } from '@angular/router';
3 import { HomeComponent } from './pages/home/home.component';
4 import { CiphersComponent } from './pages/ciphers/ciphers.component';
5 import { AboutUsComponent } from './pages/about-us/about-us.component';
6 import { ReportsComponent } from './pages/reports/reports.component';
7
8 const routes: Routes = [
9   { path: '', redirectTo: '/home', pathMatch: 'full' },
10  { path: 'home', component: HomeComponent },
11  { path: 'ciphers', component: CiphersComponent },
12  { path: 'about-us', component: AboutUsComponent },
13  { path: 'reports', component: ReportsComponent }
14];
15
16 @NgModule({
17   imports: [RouterModule.forRoot(routes)],
18   exports: [RouterModule]
19 })
20 export class AppRoutingModule { }
```

In order to direct the site and navigate it

Code Blame 1 lines (1 loc) · 19 Bytes

```
1 <app-nav></app-nav>
```

NAV component programming

```
1 import { Component } from '@angular/core';
2 import { BreakpointObserver, Breakpoints } from '@angular/cdk/layout';
3 import { Observable } from 'rxjs';
4 import { map, shareReplay } from 'rxjs/operators';
5 import { TranslateService } from '@ngx-translate/core';
6 import { MainMenuService } from 'src/app/services/main-menu.service';
7
8 @Component({
9   selector: 'app-nav',
10  templateUrl: './nav.component.html',
11  styleUrls: ['./nav.component.scss']
12 })
13 export class NavComponent {
14   menuItems: any = [];
15   isHandset$: Observable<boolean> = this.breakpointObserver.observe(Breakpoints.Handset)
16     .pipe(
17       map(result => result.matches),
18       shareReplay()
19     );
```

Table 7.19 Implementing

IMPLEMENTING

This is a Module file that defines all the modules used on the site. Anything we will use must be put in the Module file, such as language files

```
1 import { CUSTOM_ELEMENTS_SCHEMA, NgModule } from '@angular/core';
2 import { BrowserModule } from '@angular/platform-browser';
3 import { AppRoutingModule } from './app-routing.module';
4 import { AppComponent } from './app.component';
5 import { BrowserAnimationsModule } from '@angular/platform-browser/animations';
6 import { MaterialModule } from './material.module';
7 import { NavComponent } from './components/nav/nav.component';
8 import { LayoutModule } from '@angular/cdk/layout';
9 import { MatToolbarModule } from '@angular/material/toolbar';
10 import { MatButtonModule } from '@angular/material/button';
11 import { MatSidenavModule } from '@angular/material/sidenav';
12 import { MatIconModule } from '@angular/material/icon';
13 import { MatListModule } from '@angular/material/list';
14 import { HttpClient, HttpClientModule } from '@angular/common/http';
15 import { TranslateHttpLoader } from '@ngx-translate/http-loader';
16 import { TranslateLoader, TranslateModule } from '@ngx-translate/core';
17 import { DatePipe } from '@angular/common';
18 import { LangComponent } from './tools/lang/lang.component';
19 import { SocialMediaComponent } from './tools/social-media/social-media.component';
20 import { HomeComponent } from './pages/home/home.component';
21 import { CiphersComponent } from './pages/ciphers/ciphers.component';
22 import { AboutUsComponent } from './pages/about-us/about-us.component';
23 import { ReportsComponent } from './pages/reports/reports.component';
24 import { FormsModule, ReactiveFormsModule } from '@angular/forms';
25 import { EncryptionCaesarComponent } from './components/actions/encryption-caesar/encryption-caesar.component';
26 import { DecryptionCaesarComponent } from './components/actions/decryption-caesar/decryption-caesar.component';
27 import { PdfViewerModule } from 'ng2-pdf-viewer';
28 import { platformBrowserDynamic } from '@angular/platform-browser-dynamic';
29 import { ReportDialogComponent } from './tools/report-dialog/report-dialog.component';
30 import { FileSaverOptions } from 'file-saver';
31 import { EncryptionMonoComponent } from './components/actions/encryption-mono/encryption-mono.component';
32 import { DecryptionMonoComponent } from './components/actions/decryption-mono/decryption-mono.component';
33 export function HttpLoaderFactory(http: HttpClient) {
34   return new TranslateHttpLoader(http, './assets/i18n/', '.json');
35 }
36 @NgModule({
37   declarations: [
38     AppComponent,
39     NavComponent,
40     LangComponent,
41     SocialMediaComponent,
42     HomeComponent,
43     CiphersComponent,
44     AboutUsComponent,
45     ReportsComponent,
46     EncryptionCaesarComponent,
47     DecryptionCaesarComponent,
48     ReportDialogComponent,
49     EncryptionMonoComponent,
50     DecryptionMonoComponent
51   ],
52   imports: [
53     PdfViewerModule,
54     FormsModule,
55     ReactiveFormsModule,
56     MaterialModule,
57     BrowserModule,
58     AppRoutingModule,
59     BrowserAnimationsModule,
60     LayoutModule,
61     MatToolbarModule,
62     MatButtonModule,
63     MatSidenavModule,
64     MatIconModule,
65     MatListModule,
66     HttpClientModule,
67     TranslateModule.forRoot({
68       defaultLanguage: (localStorage.getItem('currentLanguage')! != null) ? localStorage.getItem('currentLanguage')! : 'ar',
69       loader: {
70         provide: TranslateLoader,
71         useFactory: HttpLoaderFactory,
72         deps: [HttpClient]
73       }
74     })
75 }
```

Table 7.20 Implementing

IMPLEMENTING

Here is the operations code, the case-sensitive conversion key, and the save operation

```
1  export class Process {  
2      id: number = 1;  
3      plain_text: string = '';  
4      cipher_text: string = 'جزء من التحدي ...';  
5      saved: boolean = false;  
6      switch_case: boolean = true; //True: Uppercase; False: Lowercase  
7      encryption_key: number = 1;  
8      alphabet_key:string = 'EYFQMDTCRJBGANXOILZMPHSKVU';//E Y F Q W D T C R J B G A N X O I L Z M P S H K V U  
9      status: boolean = true; //True: Encryption; False: Decryption;  
10     algorithm: string = "CAESAR_CIPHER";  
11     created_at: Date = new Date();  
12     modified_at: Date = new Date();  
13 }
```

This directory for services such as the algorithms.service.ts that handles operations on the ciphers and also the copy.service.ts is used for copying

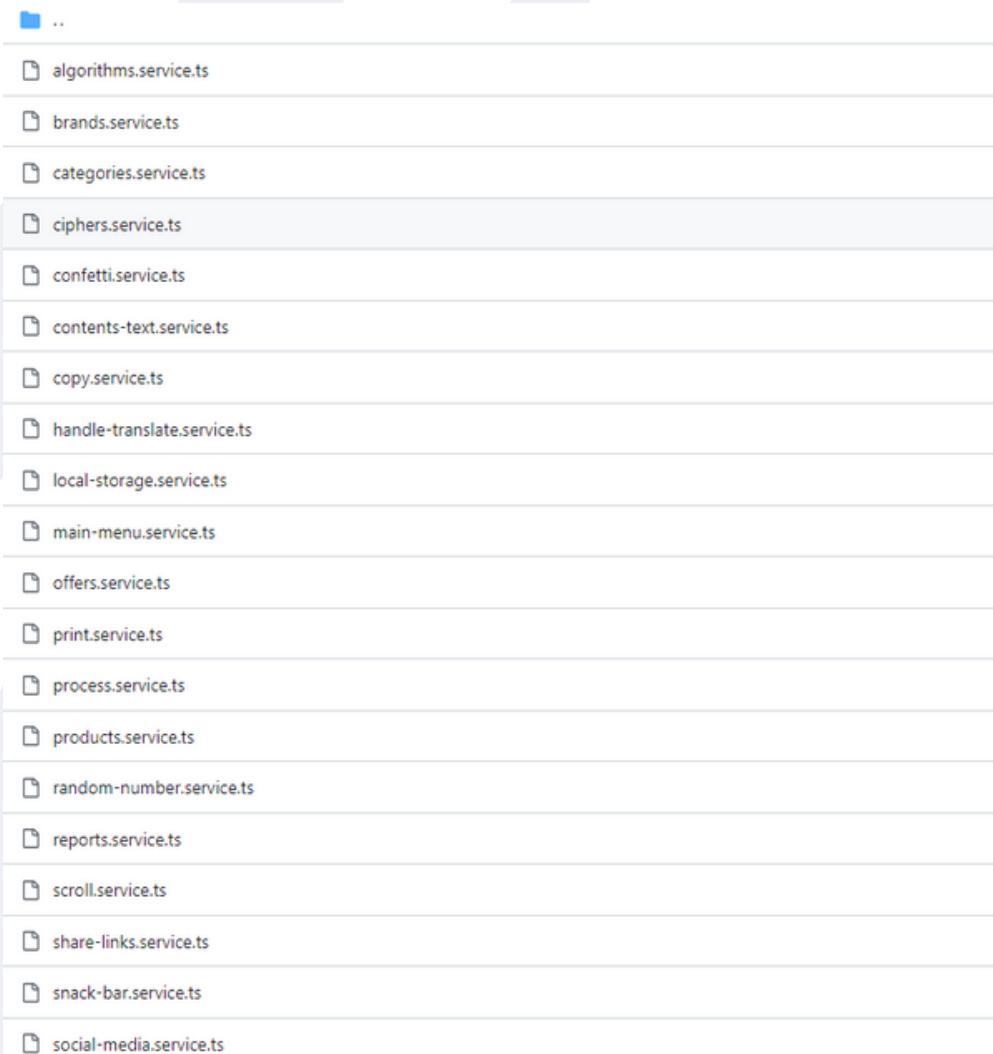


Table 7.21 Implementing

IMPLEMENTING

The code for the encryption and decryption operations of the Caesar cipher

Table 7.22 Implementing

TESTING

To conduct an examination of the site in order to ensure that it works well, we must do the following:

- Once the encryption training website has been implemented, it is important to thoroughly test its functionality.
- This includes testing for user experience, performance, security, and compatibility across different devices and browsers.
- User experience testing involves ensuring that the website is easy to navigate and understand, with clear instructions and intuitive design.
- Performance testing involves measuring the speed and responsiveness of the website, as well as its ability to handle a large number of users simultaneously.
- Compatibility testing involves verifying that the website works correctly on different devices and browsers, providing a consistent experience for all users.
- To conduct these tests, a variety of tools and techniques can be used, including automated testing software, manual testing by human testers, and user feedback surveys.
- It is important to conduct regular testing and make necessary updates and improvements to ensure that the website remains secure, reliable, and effective.

TESTING

The following is some documentation of the errors that appeared during the testing:

While working on the encryption feature in mono-alphabetic cipher, we encountered some errors during the examination

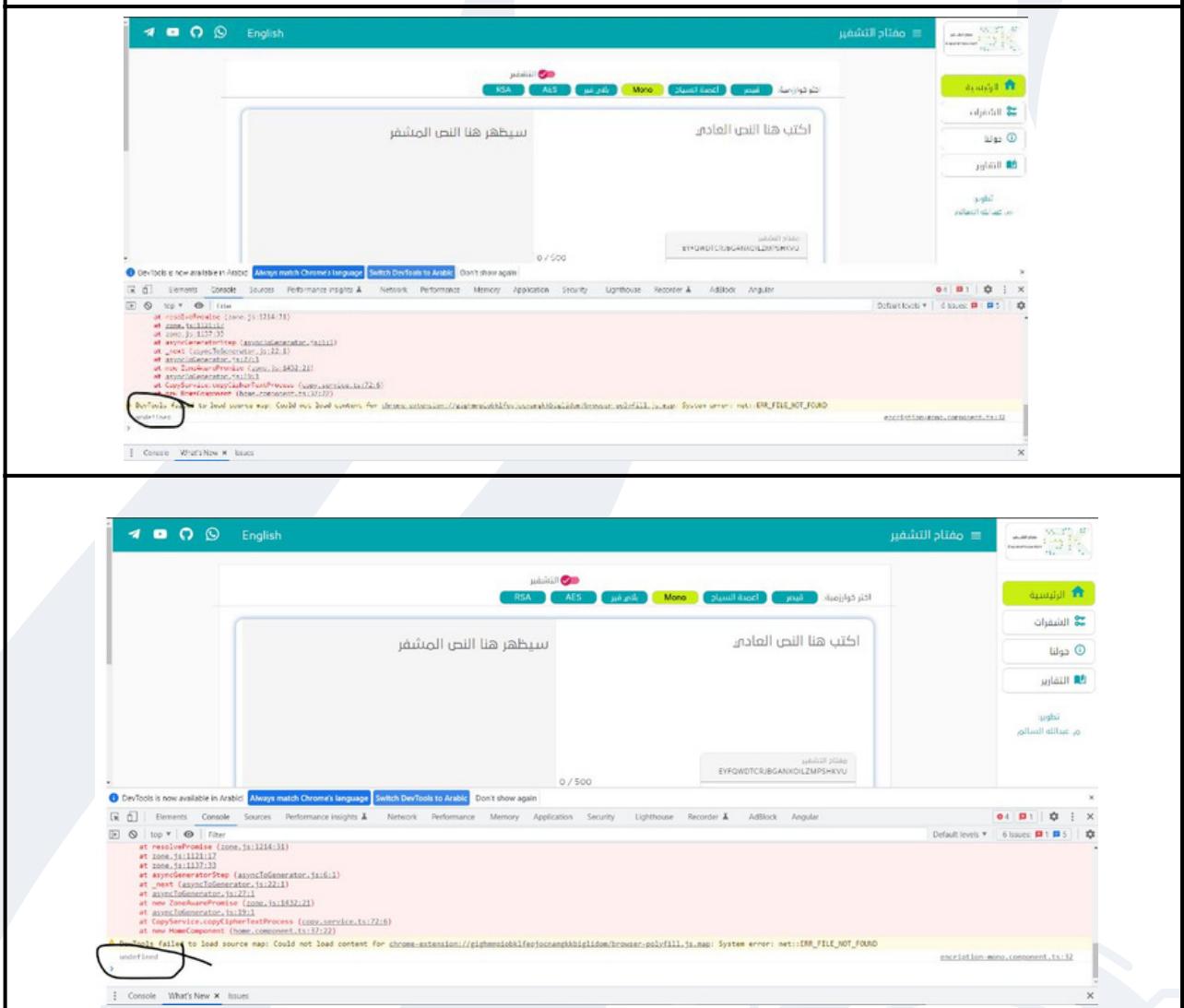


Table 8.1 Testing

TESTING

While working on the encryption feature in mono-alphabetic cipher, we encountered some errors during the examination

The screenshot shows a mobile application interface. On the left, there is a text input field with a star icon containing "AXCEAAWQ". On the right, there is another text input field with a cross icon containing "mohammed" and "C". Below these fields is a large rectangular box containing Arabic text and a table. The Arabic text discusses monoalphabetic ciphers and provides a key mapping table:

Z	Y	X	W	V	U	T	S	R	Q	P	O	N	M	L	K	J	I	H	G	F	E	D	C	B	A
25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
U	V	K	H	S	P	M	Z	L	I	O	X	N	A	G	B	J	R	C	T	D	W	Q	F	E	

Below the table, a list of key mappings is provided:

- M => E
- O => Y
- H => F
- A => Q
- M => E
- M => E
- E => T
- D => C

On the right side of the screen, there is a section titled "ماذا تعرف عن شفرة MONOALPHABETIC" (What do you know about the MONOALPHABETIC cipher?) with some explanatory text and examples.

The error has been resolved after checking and the encryption process for mono-alphabetic cipher works fine

This screenshot shows the same mobile application interface as the previous one, but the error has been resolved. The text input fields now contain "BHAFBBNI" and "mohammed" respectively. The large central box contains the same Arabic text and key mapping table as before, but the list of key mappings is now correct:

- M => E
- O => Y
- H => F
- A => Q
- M => E
- M => E
- E => T
- D => C

The right side of the screen still displays the "ماذا تعرف عن شفرة MONOALPHABETIC" section with its explanatory text and examples.

Table 8.2 Testing

TESTING

The file cannot read the index

This screenshot shows the VS Code interface with two open files: `encryption-mono.component.html` and `home.component.ts`.

encryption-mono.component.html:

```

<div>
  <ngFor let item of process.alphabet_key.toUpperCase().split(',')>
    <div>
      <div>
        <div>
          <div>
            <div>
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```

home.component.ts:

```

export class HomeComponent {
  @ViewChild('plainText') plainText: ElementRef;
  @ViewChild('copyProcess') copyProcess: ElementRef;
  @ViewChild('copyResult') copyResult: ElementRef;
  process: Process = new Process();
}

```

A red squiggle underlines the word `process` in the `home.component.ts` file, indicating a syntax error.

file after addressing the problem

This screenshot shows the VS Code interface with the same two files as the previous one, but the error has been resolved.

encryption-mono.component.html:

```

<div>
  <ngFor let item of process.alphabet_key.toUpperCase().split(',')>
    <div>
      <div>
        <div>
          <div>
            <div>
              <div>
                <div>
                  <div>
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                              <div>
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                                  <div>
                                    <div>
                                      <div>
................................................................

```

home.component.ts:

```

export class HomeComponent {
  @ViewChild('plainText') plainText: ElementRef;
  @ViewChild('copyProcess') copyProcess: ElementRef;
  @ViewChild('copyResult') copyResult: ElementRef;
  process: Process = new Process();
}

```

The red squiggle underlines the word `process` is no longer present in the `home.component.ts` file.

Table 8.3 Testing

MAINTENANCE

Here, things that have not been completed will be listed and worked on in the future:

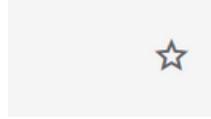
Explain Element	Screenshot
The three ciphers haven't started working on it	
The save button for encoding and decoding does not work	

Table 9. Maintenance

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