DECLARATION

I MADHU K S [4HG19CS018] student of 8th semester B.E, CSE, Government Engineering College, here by declare that the internship entitled **"WEB DEVELOPMENT"** has been carried out by me, under the supervision of **INTERNSHALA** submitted in partial fulfilment of the requirements for the award of the degree of Computer Science and Engineering by the Visvesvaraya Technological University during the academic year 2022-23. This report has not been submitted to any other organization/university for any award of degree certificate.

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ABSTRACT

This internship is focused on web development with a project that involves creating a QR code creator. The intern will gain hands-on experience in developing web applications using modern web technologies and frameworks such as HTML, CSS, JavaScript, React, and Node.js. The intern will also learn about QR code generation and the related libraries and tools. The project will provide an opportunity for the intern to showcase their development skills and creativity while contributing to a real-world project. The internship will provide valuable experience and skills for a career in web development.

ACKNOWLEDGEMENT

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Chapter 1

Introduction

Web development is the process of creating and maintaining websites and web applications. It involves various aspects of creating a website, such as web design, coding, content creation, and search engine optimization (SEO). The goal of web development is to create a website that is functional, user-friendly, and visually appealing.

Web development has become a critical component of modern business operations, as more and more people are accessing information and services online. It is essential for businesses to have a professional and user-friendly website to attract and retain customers.

There are various programming languages and technologies used in web development, such as HTML, CSS, JavaScript, PHP, and many others. Front-end web development involves the design and creation of the user interface, while back-end web development involves creating the server-side code and database management.

Web development requires a combination of technical skills and creativity, as developers need to balance functionality with aesthetics. Good web developers must be able to understand and implement the latest technologies and trends in web development, as well as work collaboratively with other team members to achieve project goals.

In summary, web development is a crucial aspect of modern business operations. It involves creating and maintaining websites and web applications that are user-friendly, visually appealing, and functional. The skills and technologies involved in web development are constantly evolving, and good web developers must be able to adapt to these changes to create successful websites and web applications.

1.1 Problem Statement

QR Creator is a web-based application that enables users to generate QR codes for various purposes. However, the current version of the application has some issues that affect its usability and functionality. Specifically, the front-end user interface of the application is not user-friendly and does not provide an intuitive experience for users. This problem has led to a decline in user engagement and adoption of the application, as users find it challenging to navigate the different features of the application. As a result, there is a need to improve the front-end design and user interface of QR Creator to enhance its usability, functionality, and user adoption. This problem statement aims to address the challenges faced by users when using the QR Creator application's front-end through web development.

1.2 Objectives

Here are some possible objectives for a QR code creator on a web development project:

- Enable users to easily generate custom QR codes for a variety of use cases, such as product packaging, marketing materials, event invitations, and more.
- Provide users with the ability to customize the design and content of their QR codes, including colors, logos, images, and text.
- Integrate the QR code generator with other web development tools and platforms, such as social media, email marketing, and analytics tools.
- Provide users with detailed analytics and reporting on the performance and usage of their QR codes, including information on scans, engagement, and conversion rates.

1.3 Application

Here are some potential applications for QR code creators in web development:

1. **Marketing Campaigns:** A web developer can use a QR code creator to generate QR codes that can be included in marketing materials, such as flyers, posters, and online ads. Users can scan the code with their smartphones, which will take them to a website, landing page, or social media page.

2. **Event Registration:** QR codes can be used for event registration and check-in. Web developers can create QR codes that contain attendee information, which can be scanned at the event to check them in.
3. **E-commerce:** Web developers can use QR codes to facilitate e-commerce transactions. For example, they can generate QR codes that contain product information and purchasing links. When users scan the code with their smartphones, they can purchase the product directly from the website.
4. **Password Management:** QR codes can be used for password management. Web developers can create QR codes that contain login credentials for websites or applications. Users can scan the code with their smartphones to automatically fill in their login information.
5. **Loyalty Programs:** QR codes can be used to facilitate loyalty programs. Web developers can generate QR codes that can be scanned at checkout to earn points or rewards. Users can also scan QR codes to redeem their rewards.

Overall, QR code creators can be useful tools for web developers to enhance user experiences, improve marketing efforts, and simplify processes.

1.4 Advantages

Here are some advantages of using a QR code creator in web development:

- **Easy to Generate:** With a QR code creator on a website, it becomes easy for web developers to generate custom QR codes quickly and easily.
- **Enhance User Experience:** By using QR codes, web developers can create a more interactive user experience. They can provide users with direct access to information, URLs, or specific landing pages by simply scanning the code with a smartphone or tablet.
- **Trackable and Analyzable:** QR codes can be tracked and analyzed using analytics tools, which can help web developers gather valuable data about user behavior, demographics, and preferences.
- **Cost-Effective:** QR codes are a cost-effective way to promote products and services on a website. They can be printed on promotional materials, such as flyers and brochures,

without the need for additional printing costs.

- **Increase Brand Awareness:** By using QR codes, web developers can increase brand awareness by providing users with direct access to their website or social media profiles.
- **Cross-Platform Compatibility:** QR codes can be scanned by any smartphone or tablet with a built-in camera and a QR code reader app, making them a cross-platform solution for web developers.
- **Versatile:** QR codes can be used in various applications, including inventory management, event ticketing, and product authentication, making them a versatile solution for web developers.

1.5 Disadvantages

Here are some potential disadvantages of using a QR code generator for web development:

- **Limited Information:** QR codes have a limited capacity to store information. While they can store a significant amount of data, they are still restricted to a finite amount of space. This can be a disadvantage if you need to convey a lot of information in a single code.
- **Compatibility:** Not all devices are equipped with QR code scanners, and some may require additional software to scan them. This can be a disadvantage if your audience doesn't have easy access to a scanner, or if they are not tech-savvy enough to install the necessary software.
- **Security Risks:** QR codes can be used to link to malicious websites or download viruses onto a user's device. This can be a disadvantage if your QR code is not properly secured, and can cause damage to your brand's reputation or result in legal liability.
- **Design Constraints:** QR codes are black and white, and have limited design options. This can be a disadvantage if you need to create a visually appealing code that matches your brand's aesthetic.
- **Accessibility Issues:** QR codes can be difficult for people with visual impairments or disabilities to scan, as they may require the use of specialized equipment. This can be a disadvantage if your audience includes people with disabilities, and can limit your reach

and impact.

1.6 Organization of Report

This internship in web development with a project is divided up into chapters, each dealing with different aspects of the project. Each chapter has a short introduction explaining the subject of each chapter, and then the details Each module is explained separately. The following is a short overview of each of the chapters

Chapter 1 : In this chapter, we will discuss the introduction of a web development internship with a simple project. and also discuss the problem statement, objectives, advantages, and disadvantages.

Chapter 2: In this chapter, we will discuss the literature survey of web development.

Chapter 3: In this chapter, we discuss the requirements specifications of the project and functional and nonfunctional requirements.

Chapter 4: This section specifies the overflow / Methodology of the project.

Chapter 5: Gives the architecture diagram and the flow diagram of the modules and also gives an outline of the design of the system.

Chapter 6: In this chapter, we specify the snapshots of the implementation of the project.

Chapter 7: The conclusion of the internship with project is discussed here.

Chapter 2

Literature Survey

In this literature survey, we will explore the topic of web development internships with a focus on a project that involves creating a QR code generator. The aim of this survey is to provide an overview of the existing literature on the topic, including its importance in the current job market, the skills required for success in this field, and the potential benefits of undertaking an internship in web development.

Web development internships are a popular choice for students and recent graduates looking to gain practical experience in the field. These internships provide an opportunity to work on real-world projects, gain exposure to the latest technologies and tools, and learn from experienced professionals. In addition, internships can often lead to job offers or help to build a strong professional network.

One particularly interesting project that students may undertake during a web development internship is the creation of a QR code generator. QR codes are becoming increasingly popular in marketing, advertising, and other industries, and the ability to create them is a valuable skill for web developers. A QR code generator project can provide an opportunity to learn about various programming languages, such as JavaScript, and frameworks such as React, as well as APIs such as Google's QR Code API.

To succeed in a web development internship with a QR code generator project, students must possess a range of skills, including knowledge of HTML, CSS, and JavaScript, as well as an understanding of web development principles and best practices. They should also have experience with front-end frameworks such as React, and back-end technologies such as Node.js.

The benefits of undertaking an internship in web development with a QR code generator project can be significant. Not only can students gain valuable hands-on experience in the field, but they can also build a portfolio of work that can be used to showcase their skills to potential employers. In addition, internships can help students to develop soft skills such as communication, teamwork, and time management, which are highly valued by employers.

In conclusion, web development internships with a QR code generator project are a great way for students and recent graduates to gain practical experience in the field of web development. By acquiring a range of skills and developing a strong portfolio of work, students can position themselves for success in this highly competitive job market.

2.1 Summary

This literature survey focuses on web development and the creation of QR codes. The project, QR Code Creator 3, involves developing a web application that allows users to generate QR codes for various purposes. The survey covers the current state of web development and QR code technology, including their history, applications, and potential future developments.

Chapter 3

Requirement Analysis

3.1 Hardware Requirements

Name	Minimum Requirement
Processor	i3 or i5 2Ghz
RAM	4Gb
Hard Disk	10Gb

Table 3.1: Minimum Hardware Requirement

3.2 Software Requirements

Name	Minimum Requirement
Operating System	Windows 10
Front End	HTML, CSS, Bootstrap
Back	Python

Table 3.2: Minimum Software Requirement

Python

Figure 3.1: PYTHON programming logo

Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Its high-level built-in data structures, combined with dynamic typing and namic binding, making it ideal for Rapid Application Development as well as use as a scripting or glue language to connect existing components together. Python's simple, easy to learn Syntax emphasises readability and therefore reduces the cost of gramme maintenance. Python supports modules and packages, which encourages programme modularity and code reuse. The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms and can be freely distributed. Python works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc.). Python has a simple syntax similar to the English language. Python has a syntax that allows developers to write programmes with fewer lines than some other programming languages. Python runs on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick. Python can be treated in a procedural way, an object-oriented way, or a functional way. Python was designed for readability and has some similarities to the English language. with

influence from mathematics. Python creates new lines to complete a command, as opposed to other programming languages. guages, which frequently employ semicolons or parentheses. Python relies on indentation, using white space, to define scope, such as the scope of loops, functions, and classes. Other programming languages often use curly brackets for this purpose.

HTML

Figure 3.2: HTML programming logo

The HyperText Markup Language or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript.

Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTML can embed programs written in a scripting language such as JavaScript, which affects the behavior and content of web pages. The inclusion of CSS defines the look and layout of content. The World Wide Web Consortium (W3C), former maintainer of the HTML and current maintainer of the CSS standards, has encouraged the use of CSS over explicit presentational HTML since 1997.[2] A form of HTML, known as HTML5, is used to display video and audio, primarily using the ¡canvas¿ element, in collaboration with JavaScript.

Visual Studio

Figure 3.3: Visual Studio logo

Visual Studio is an integrated development environment (IDE) from Microsoft. It is used to develop computer programs, including websites, web apps, web services, and mobile apps. Visual Studio uses Microsoft software development platforms such as Windows API, Windows Forms, Windows Presentation Foundation, Windows Store, and Microsoft Silverlight. It can produce both native code and managed code.

Visual Studio includes a code editor supporting IntelliSense (the code completion component) as well as code refactoring. The integrated debugger works both as a source-level debugger and a machine-level debugger. Other built-in tools include a code profiler, a designer for building GUI applications, a web designer, a class designer, and a database schema designer. It accepts plug-ins that expand the functionality at almost every level—including adding support for source control systems (like Subversion and Git) and adding new toolsets like editors and visual designers for domain-specific languages or toolsets for other aspects of the software development lifecycle (like the Azure DevOps client, Team Explorer). Visual Studio supports 36 different programming languages and allows the code editor and debugger to support (to varying degrees) nearly any programming language, provided a language-specific service exists. Built-in languages include C, C++, C++/CLI, Visual Basic.NET, C, JavaScript, Type Script, XML, XSLT, HTML, and CSS. Support for other languages, such as Python, Ruby, Node.js, and M, among others, is available via plug-ins. Java (and J) were supported in the past.

3.3 Functional Requirements

Functional requirements for an internship in web development with a project of QR code creator may include:

1. **User Interface:** The web application should have an easy-to-use and intuitive user interface that allows users to create QR codes easily.
2. **QR Code Creation:** The web application should be able to generate QR codes from the text entered by the user.
3. **QR Code Generation:** The application should generate high-quality QR codes that are compatible with popular devices and scanners.

   Export: The web application should allow users to export the generated QR code as an image file or in vector format.
4. **Performance:** The application should be optimized for performance, ensuring that it runs smoothly and efficiently even under heavy usage.

3.4 Non Functional Requirements

Non-functional requirements refer to the characteristics that the internship project should possess in order to meet its objectives. Here are some non-functional requirements for an internship project of web development with a project of QR code creator:

1. **Usability:** The application should have an intuitive and user-friendly interface that is easy to navigate. It should be easy for users to understand how to generate a QR code.
2. **Accessibility:** The application should be accessible to users with disabilities. It should conform to accessibility guidelines such as WCAG 2.1 to ensure that all users can use it.
3. **Maintainability:** The code of the application should be well-organized and easy to maintain. It should also be well-documented to make it easy for future developers to understand and modify the code.
4. **Reliability:** The QR code creator should be reliable and generate accurate codes without any errors. The application should also be available and accessible at all times.

3.5 Summary

This chapter of requirements analysis covers both hardware and software requirements for the project, as well as functional and non-functional requirements. The hardware and software requirements ensure that the project can be implemented on the desired infrastructure, Functional requirements specify what the system should do, while non-functional requirements specify how well the system should do it, including performance, security, and usability.

Chapter 4

Proposed Methodology

There are three steps involved in the working process: Homepage, Generate QR code, Download QR code.

4.1 Methodology

1. **Home Page:** To generate a QR code, the user starts by accessing the web application via a browser and then enters the desired information or data into the input field provided on the homepage of the website. The text entered by the user will then be used to create the QR code.
2. **QR Code Geneerate Page:** On this page, we will show a generated QR code of the given text on the home page, and also on this page, the user will enter a text in the input field and generate a QR code for this page.
3. **Download QR code:** The download option will only be available on the QR code generation page. If you click on the download button, the qr code will be downloaded to your device in png format. That downloaded QR code will scan through any device, and after the code is scanned, the texted information will display on the screen.

4.2 Summary

In this chapter, we discussed methodology. The methodology involves the modules of our system.home page, generate QR codes, download QR codes.

Chapter 5

Design

5.1 Architecture

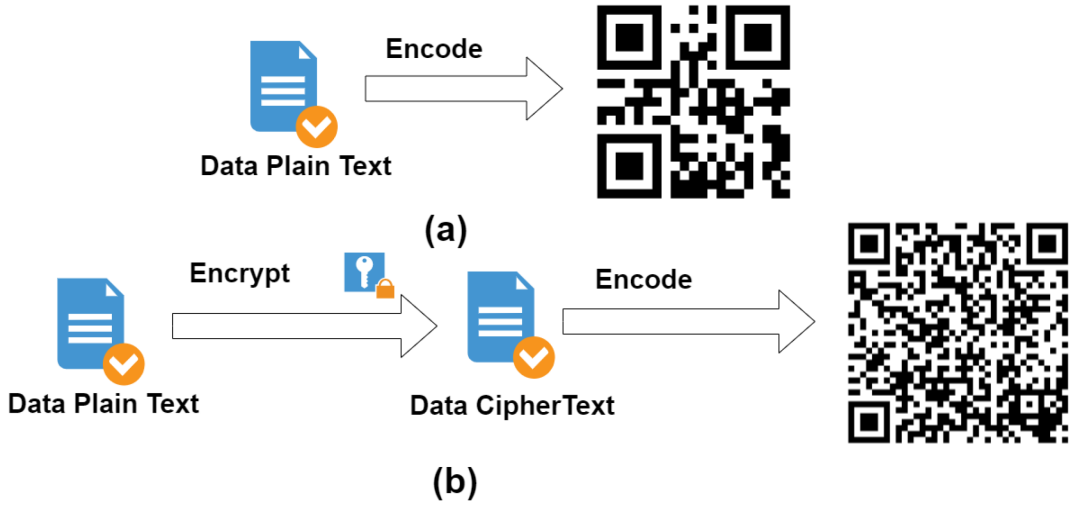

Figure 5.1: System Architecture

In the above Figure 5.1,(a) Encoding data into QR Codes (b) Encrypting and then encoding data in QR codes Moreover, some apps' descriptions indicate security and privacy features, while testing them shows that they do not really provide the claimed features, such as [51, 63, 80, 101, 105, 107, 110, 111]. Other apps claim they are privacy-friendly but ask for potential permissions that can be used in information leakage attacks, such as [29, 31; 35; 42; 46; 47; 48; 50; 54; 55; 56; 57; 59; 60; 61; 62; 65; 67; 68; 70; 74; 76; 84; 88; 89; 90; 93; 94; 95; 96; 97; 98; 100; 113]. More details will be given in the next section.

1. The user navigates to a home page.
2. The user enters text information in the input field.3. The user presses the generate qr code button.
3. The user navigates to the qr code page, and the qr code appears on that page.
4. You will now download the QR code you generated.

5.2 Flow chart

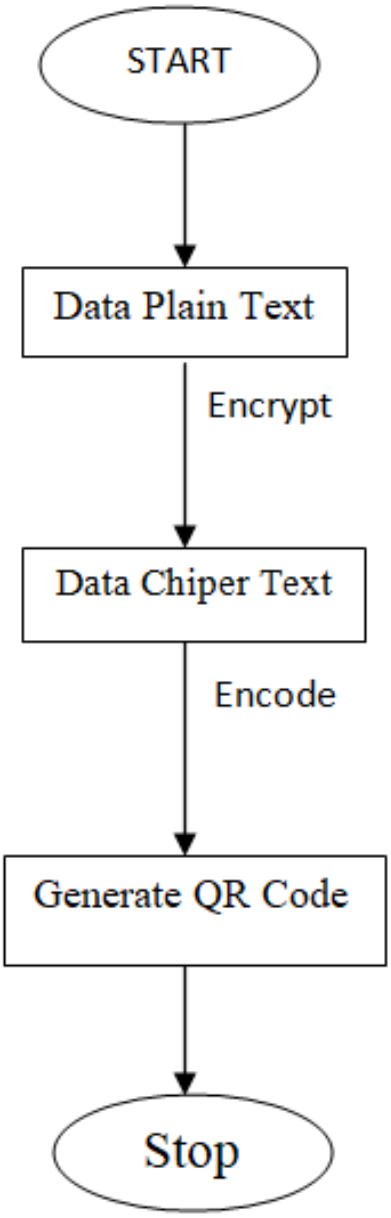

Figure 5.2: Flow chart

In figure 5.2, this process involves encrypting plain text data to generate cypher text using an encryption algorithm and then encoding the cypher text into a QR code format. The resulting QR code can be used to securely share the encrypted data. A flowchart can visually represent the steps involved in this process.

5.3 Summary

In this chapter, we discussed the design part of our project, which involves system architecture.In addition, user working procedures will be discussed here, along with a flow chart.

Chapter 6

Implementation

6.1 Environments used for project

6.1.1 Vscode

Visual Studio Code (VS Code) is a popular integrated development environment (IDE) that is used by developers around the world to create and debug software applications. One of the key features of VS Code is its ability to support the implementation of software projects, allowing developers to easily manage and organize their work.

To begin implementing a project in VS Code, the first step is to create a new workspace. A workspace is a container that holds all of the files and resources associated with a project, and allows developers to easily switch between different projects.

Once a workspace has been created, developers can start adding files and resources to their project. This can be done by creating new files within the workspace or by importing existing files from other locations.

VS Code also includes a number of built-in tools and features that can help with project implementation. For example, the integrated terminal allows developers to run commands and scripts directly from within the IDE, while the debugging tools allow developers to identify and fix errors in their code.

Another useful feature in VS Code is the ability to integrate with version control systems such as Git. This allows developers to track changes to their code and collaborate with other team members on projects.

Overall, VS Code is a powerful IDE that provides a range of tools and features to support the implementation of software projects. By leveraging these features, developers can easily manage and organize their work, identify and fix errors, and collaborate with other team members to bring their projects to fruition

6.2 Home Page

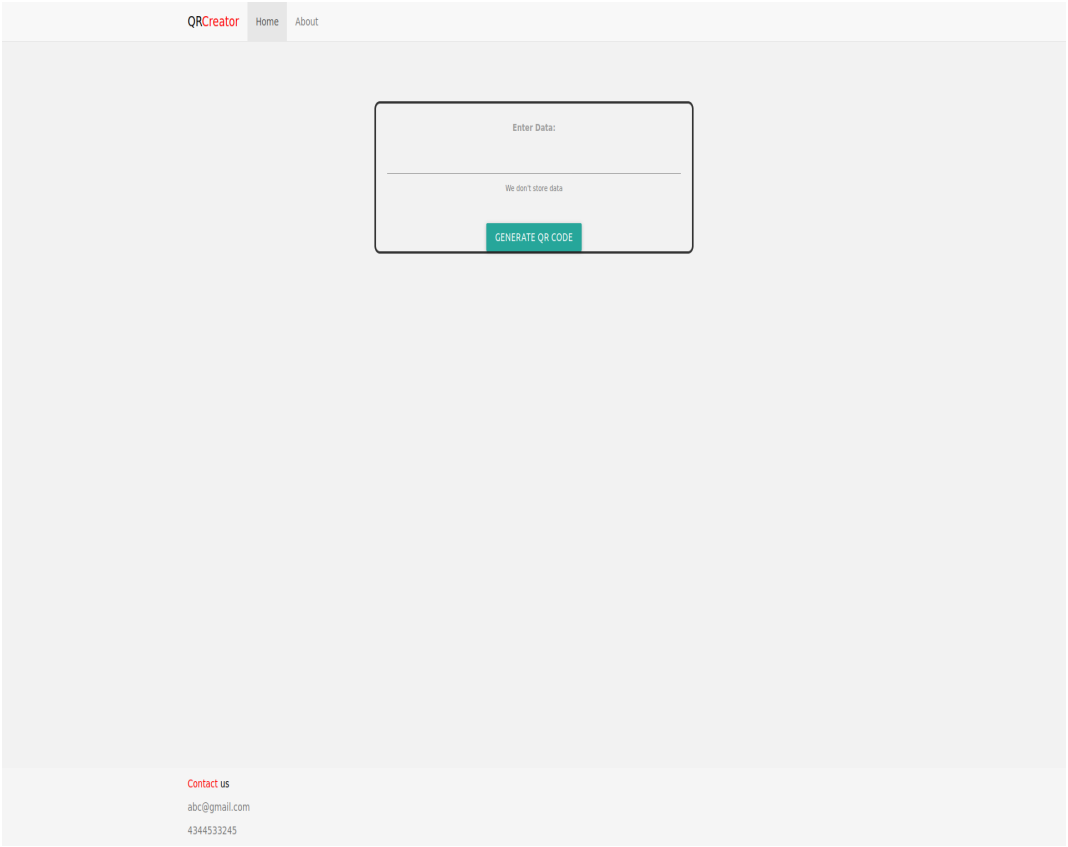

Figure 6.1: Home page

Discuss with the user in figure 6.1 that he first navigates to the home page of the qr creator website, after which the user will generate a new qr code to encrypt into a QR form.

6.3 Typing Message

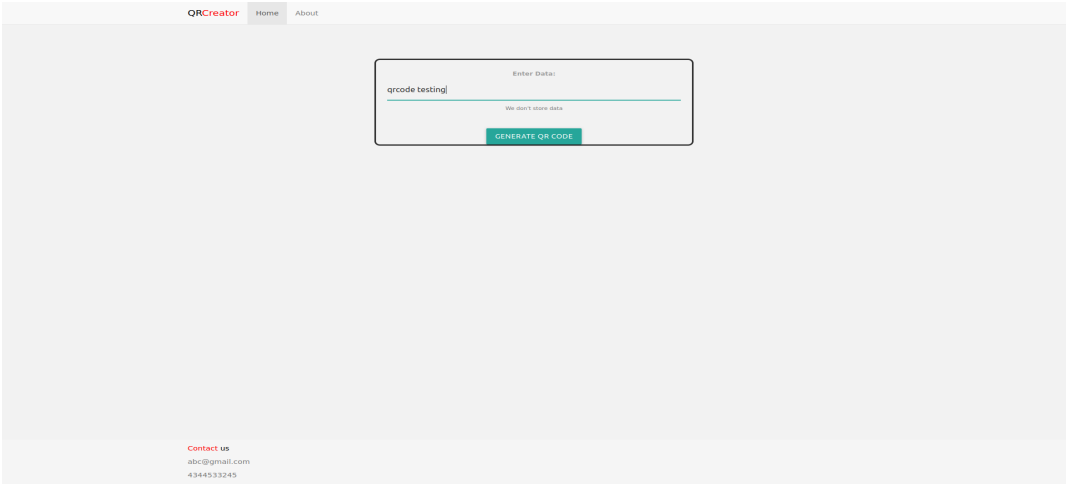

Figure 6.2: Input message

In the figure 6.2 above, describe the message by typing it into the input field and then clicking the generate qr code button.

6.4 QR Code Generate Page

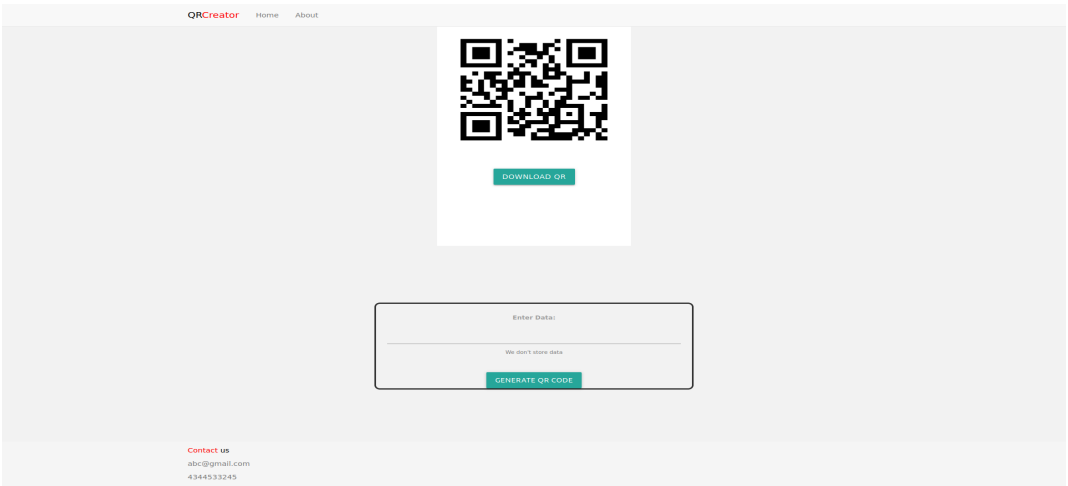

Figure 6.3: QR code generate

In the above figure 6.3, discuss the data given on the home page and the QR code that will be generated on this page. This page will also have a text option.

6.5 Data giving in same page

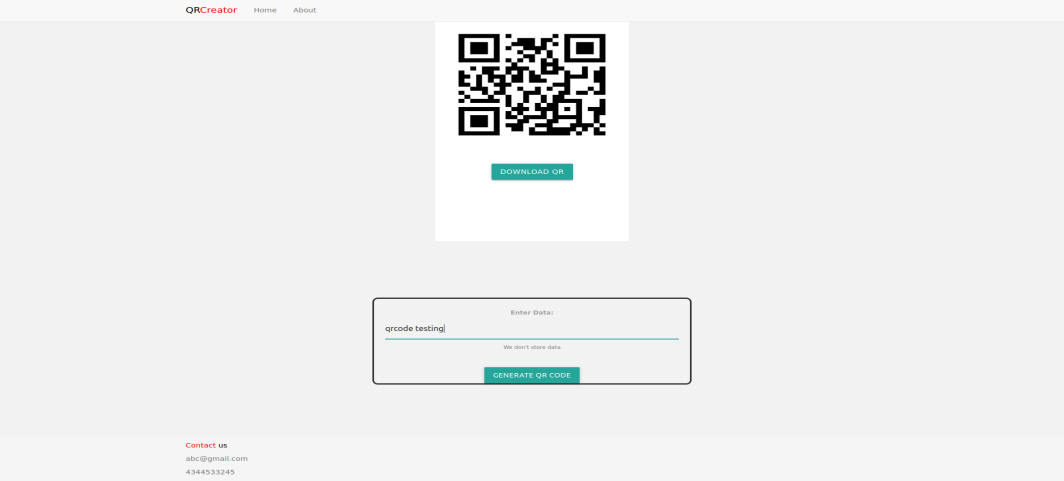

Figure 6.4: Data giving in same page

In the above figure 6.4, discuss how the already-generated QR code also displays and the user texts another message to generate a new QR code.

6.6 Download QR Code Page

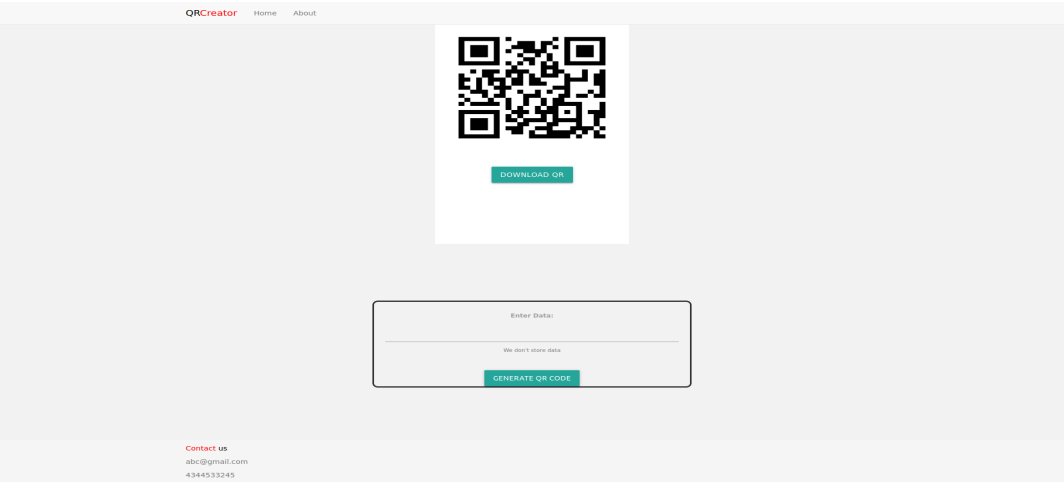

Figure 6.5: Download QR Code

In the above figure 6.5, describe the QR code download option on this page after downloading it and storing it on your device. Scanning with any device now scans and displays the information on the QR code.

6.7 About Page

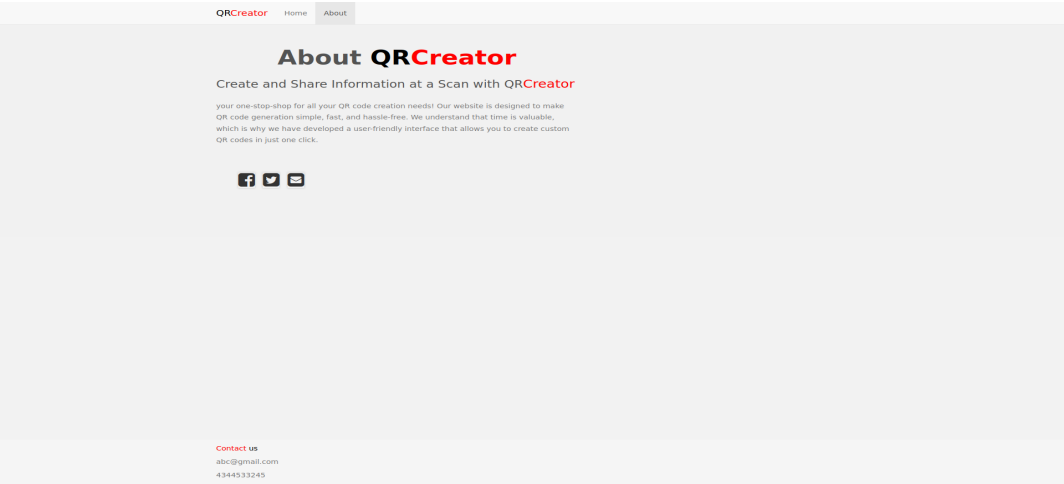

Figure 6.6: Website information page

In the above figure 6.6, describe the QR code creator project information for this project with contact details from our website.

6.8 Summary

In this chapter, we discussed the progress of our project's implementation of a QR code creator for any text message, as depicted in the figures above.

Chapter 7

Conclusion

My internship in web development has been a valuable learning experience, allowing me to gain practical skills in front-end and back-end web development. The project of creating a QR code generator was a challenging but rewarding experience, requiring me to apply my knowledge of web development and programming languages to create a functional and efficient solution. Through this project, I was able to enhance my skills in web design, programming, and project management. Overall, this internship has prepared me well for a career in web development, and I look forward to applying these skills to future projects.

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