Secured Authentication System using QR Code

A project report submitted for the pre-final year of

**Bachelor of Technology**

in

# Computer Science and Engineering

By

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# Department of Computer Science and Engineering Rajiv Gandhi University of Knowledge Technologies – Nuzvid

**Nuzvid, Krishna, 521202**

**CERTIFICATE OF COMPLETION**

This is to certify that the work entitled, “**SECURED AUTHENTICATION SYSTEM USING QR CDOES**” is the bona fide work of ***C L R Sireesha, ID No: N160992, J Nikhila, ID No: N161035, G Jesse, ID No: N160798, Ch Hanisha, ID No: N160868, D Jhansi L S Bharathi, ID No: N160667, P Shanmukha Sravanthi, ID No: N160542*** carried out under my guidance and supervision for the pre-final year project of **Bachelor of Technology** in the Department of **Computer Science and Engineering** in RGUKT Nuzvid. This work is done during the academic session from (##-##-2020 to ##-##-2021) under our guidance.

# Mr. Siva Narayana Mr. Kumar Anurupam

Project Supervisor Head of Department

Mentor, Dept. of CSE Assistant Professor, Dept. of CSE RGUKT IIIT Nuzvid. RGUKT IIIT Nuzvid.

# RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES NUZVID

**(A.P. Government Act 18 of 2008)**

# RGUKT-NUZVID, Krishna Dist., Andhra Pradesh- 521202.

**CERTIFICATE OF EXAMINATION**

This is to certify that the work entitled, “**SECURED AUTHENTICATION SYSTEM USING QR CODES”** is the bona fide work of ***C L R Sireesha, ID No: N160992, J Nikhila, ID No: N161035, G Jesse, ID No: N160798, Ch Hanisha, ID No: N160868, D Jhansi L S Bharathi, ID No: N160667, P Shanmukha Sravanthi, ID No: N16542*** and hereby accord our approval of it as a study carried out and presented in a manner required for its acceptance in pre-final year of **Bachelor of Technology** for which it has been submitted. This approval does not necessarily endorse or accept every statement made, opinion expressed, or conclusion drawn, as recorded in this thesis. It only signifies the acceptance of this thesis for the purpose for which it has been submitted.

# Mr. Siva Narayana Examiner

Project Supervisor Project Examiner

Lecturer Dept. of CSE Lecturer Dept. of CSE

RGUKT IIIT Nuzvid RGUKT IIIT Nuzvid



# RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES

**(A.P. Government Act 18 of 2008) RGUKT-NUZVID, Krishna Dist., Nuzvid 521202**

**DECLARATION**

We, ***C L R Sireesha, ID No: N160992, J Nikhila, ID No: N161035, G Jesse, ID No: N160798, Ch Hanisha, ID No: N160868, D Jhansi Sri Bharathi, ID No: N160667, P Shanmukha Sravanthi, ID No: N160542*** hereby declare that the project report entitled “**Secured Authentication System Using QR Codes”** done under the guidance of **Mr. Siva Narayana** is submitted for the pre-final year of **Bachelor of Technology** in **Computer Science and Engineering** at RGUKT – Nuzvid.

We also declare that this project is a result of our own effort and has not been copied or imitated from any source. Citations from any websites are mentioned in the references.

The results embodied in this project report have not been submitted to any other university or institute for the award of any degree or diploma.

# Date:

# Place: NUZVID

# 

**C L R Sireesha**

**J Nikhila**

# G Jesse

# CH Hanisha

# D Jhansi L S Bharathi

# P Shanmukha Sravanthi

**ACKNOWLEDGEMENT**

We would like to express our profound gratitude and deep regard to my guide ***Mr. Siva Narayana*** for her exemplary guidance, monitoring, and constant encouragement throughout the course of this thesis.

We are extremely grateful for the confidence bestowed in us and entrusting our project entitled **“Secured Authentication System Using QR Codes”.**

At this juncture, we feel deeply honored in expressing our sincere thanks to her for making the resources available at the right time and providing valuable insights leading to the successful completion of our project.

Last but not least, I thank the almighty, and I place a deep sense of gratitude to my family members and my friends who have been a constant source of information during the preparation of this project work.

C L R Sireesha

J Nikhila

G Jesse

CH Hanisha

D Jhansi L S Bharathi

P Shanmukha Sravanthi

# ABSTRACT

QR code, the trademark for two-dimensional matrix barcode is often used to provide access to information with the advent of smart and web capable mobile phones, witnessed a steady growth in commercial and business-oriented usage.

These days, besides just the ease of completing a task, security comes as the major concern which is going to be satisfied by this project. As QR codes are in widespread use, we wanted to add an extension to it so that user can have a QR system which makes their login faster and secured.

This project creates a secured authentication system through which the user can login using a QR code. During the Sign Up, user will be given a QR code generated with encrypted cipher text of the password. When the user wants to login with their QR, the retrieved text from QR and the password in the data base are checked. If it matches with password in the database, it completes the login successfully, if not, takes back to home page.

Key words: QR code, Authentication, Encryption

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**CHAPTER-1**

1. **INTRODUCTION**

# Authentication

One of the words we toss around a lot when talking about information security is Authentication. In security, authentication is the process of verifying the user to allow only legitimate user to get access to information that is present in the system. So, the users expect a system that can be both faster and secured.

* 1. **Reasons:**

Authentication has become a useful practice in protecting information for both companies and people alike:

* Authentication is one of the most crucial tasks that need to be done. If authentication is given to the wrong person, then it can lead to various problems.
* Present days users don’t like to waste time and wants to get their tasks done as fast as possible.
* The password that the users set for the application or any other matter that it concerns must be strong enough.
* We have high encryption schemes protecting our private information. But still the data can be compromised in many ways.
* Insecurely stored passwords can be stolen easily! Bad, or weak, passwords are passwords hackers find hilariously simple to crack.
* Personal information, such as name and date of birth can be used to guess common passwords. Attackers use social engineering techniques to trick people into revealing passwords.
* It is high time we found a new way to secure our passwords and information.

# Why QR Codes?

QR code, the trademark for two-dimensional matrix barcode, capable of storing lots of data is often used to provide access to information instantly after scanning with the advent of smart and web capable mobile phones, witnessed a steady growth in commercial and business-oriented usage.

QR Codes function well for online banking processes in general, including two-factor authentication login, and in many more applications where users expect faster and secured access to their information.

Typing password, remembering them and creating a new one is a whole lot process and not likely to present day users.

When QR is used here in our project for Authentication, the account can be instantly accessed after scanning the code, without much delay. So, users can save their time as well as their information.

# SOLUTION.!

One of the best possible solutions our team figured out is to provide a secured authentication system that can create faster and secured environment using QR codes.

**CHAPTER-2**

# REQUIREMENTS

* 1. Scripting Languages used:

**HTML:** It is a standard markup language for web pages. It can be assisted by technologies such as Cascading Style Sheets and scripting languages such as JavaScript.

**CSS:** CSS stands for Cascading Style Sheets. It is the language we used to style the HTML document. CSS describes how HTML elements should be displayed.

**JAVA SCRIPT:** JavaScript is the world's most popular programming language.JavaScript is a text-based programming language used both on the client-side and server-side that allows you to make web pages interactive.

* 1. **Frameworks used:**

**Bootstrap**:

Bootstrap is an open-source Java script framework developed by the team at twitter. It is a combination of HTML, CSS, and Java script code designed to help build user interface components. Bootstrap is a free collection of tools for creating websites and web applications.

* 1. **Encryption Algorithm:**

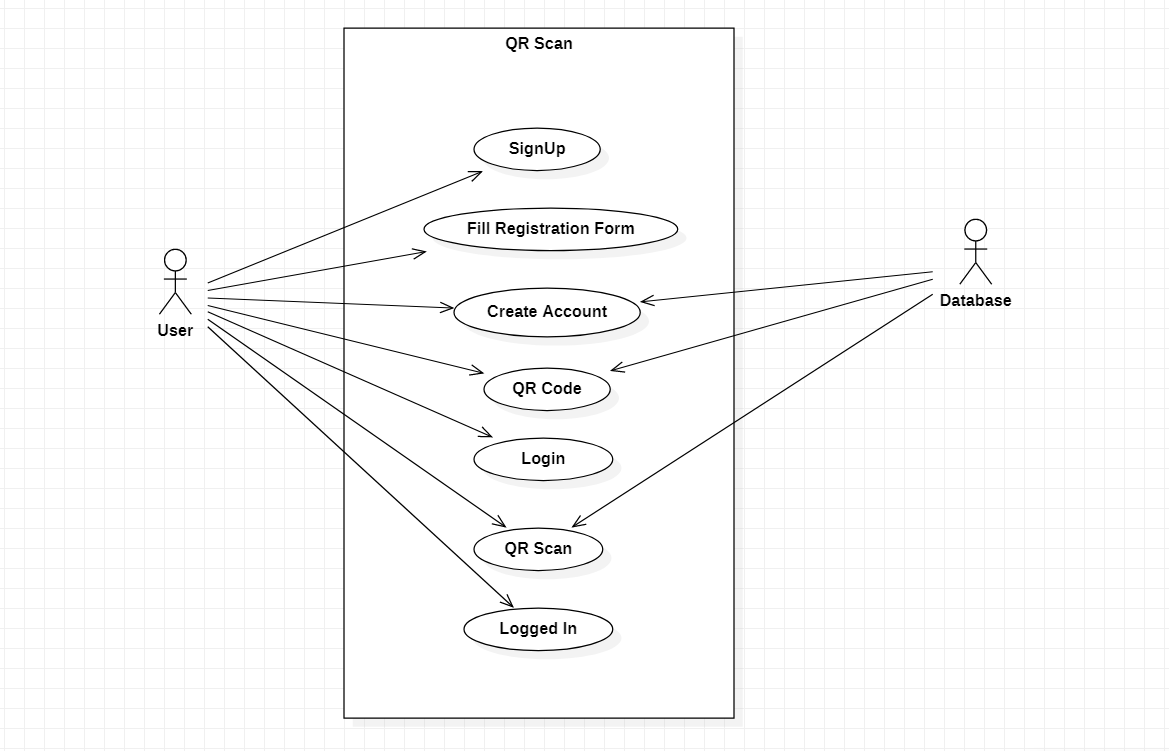
**RSA:**

RSA algorithm is a public key encryption technique and is considered as the most secure way of encryption. It was invented by Rivest, Shamir and Adelman in year 1978 and hence named as RSA algorithm.

**CHAPTER-3**

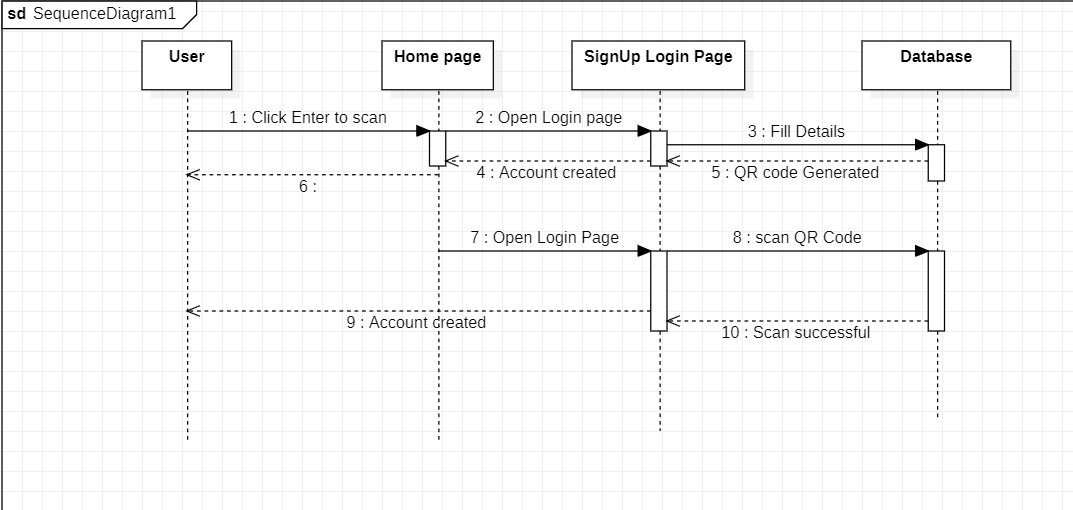
1. **UML DIAGRAMS**
   1. **Use case Diagram:**

A use case diagram is a graphical depiction of a user's possible interactions with a system. A use case diagram is a graphical depiction of a user's possible interactions with a system.

****

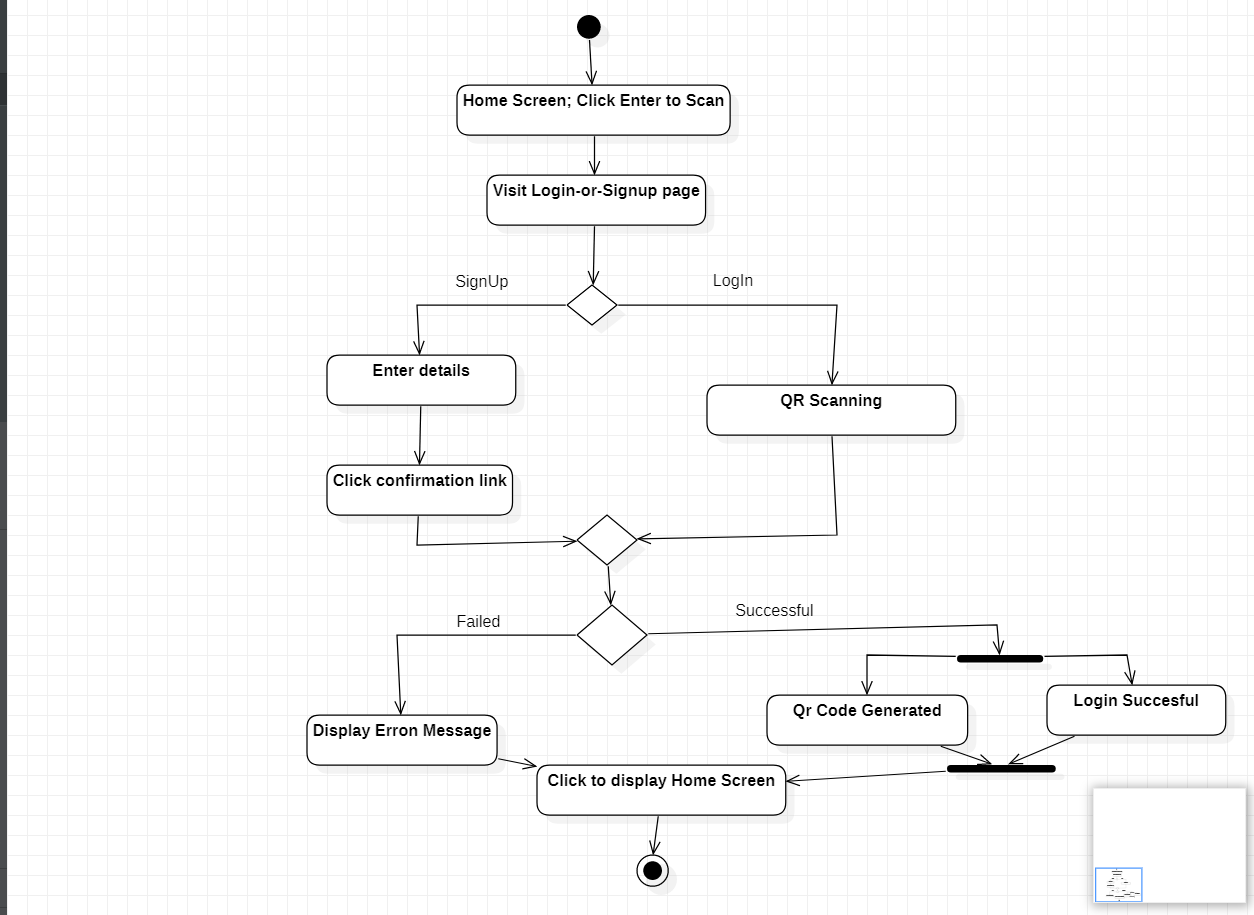
* 1. **Sequence Diagram:**

A sequence diagram is a type of interaction diagram because it describes how—and in what order—a group of objects works together.



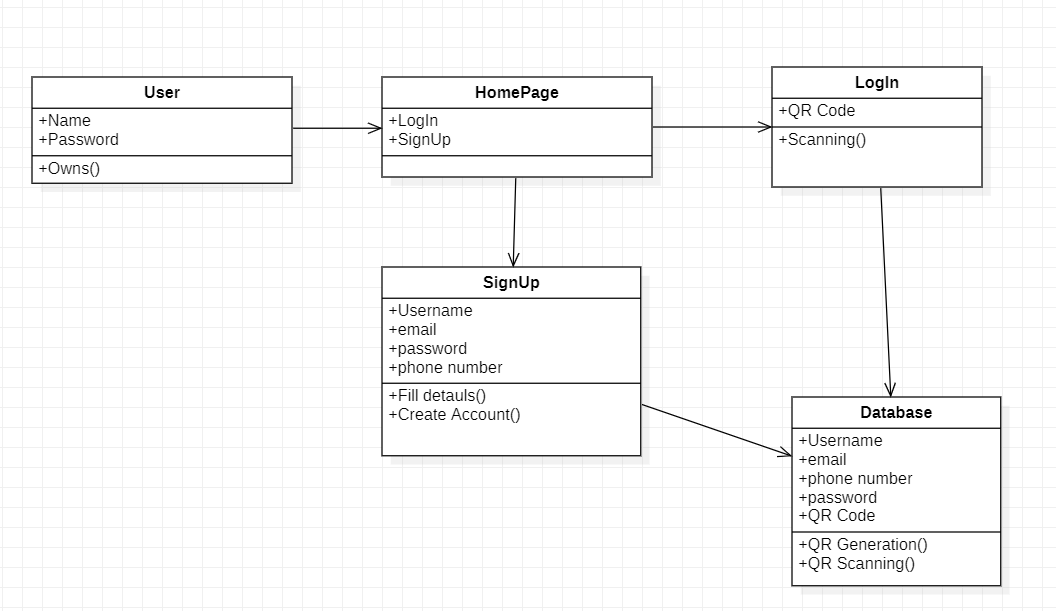
* 1. **Activity Diagram:**

An activity diagram is a behavioral diagram i.e. it depicts the behavior of a system. An activity diagram portrays the control flow from a start point to a finish point showing the various decision paths that exist while the activity is being executed.



* 1. **Class Diagram:**

The class diagram is the main building block of object-oriented modelling. It is used for general conceptual modelling of the structure of the application, and for detailed modelling, translating the models into programming code.



# CHAPTER-4

# 4.PROCEDURE

**4.1. Signup:**

If it is a new user, the user has to sign up to create an account. If already user has an account, they can skip this step and can directly login.

* 1. **Encryption:**

Once if the Signup process gets completed, the password that the user set gets encrypted using RSA algorithm.

* 1. **Database:**

Once when this Encryption process is done, the complete data of the user gets saved in the Database.

* 1. **QR Generating:**

Using the Ciphertext we get after encryption, a QR code is generated to every user for later login purpose.

* 1. **QR Scanning:**

When user wants to login, they can simply scan the QR generated earlier.

* 1. **Data check:**

When QR is scanned, the text retrieved from QR after scanning and the encrypted password saved in the database are checked.

* 1. **Sign In:**

If both password match, it directs the user to their account. If not matched, it takes the user back to login page.

**CHAPTER-5**

1. **CODE:**

<!doctype html>

<html lang="en">

  <head>

  <title>Qr-scanner</title>

    <meta charset="utf-8"> <!doctype html>

<html lang="en">

  <head>

  <title>Qr-scanner</title>

    <meta charset="utf-8">

    <meta name="viewport" content="width=device-width, initial-scale=1">

    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-wEmeIV1mKuiNpC+IOBjI7aAzPcEZeedi5yW5f2yOq55WWLwNGmvvx4Um1vskeMj0" crossorigin="anonymous">

    <link rel="stylesheet" type="text/css" href="css/bootstrap.min.css">

    <link rel="stylesheet" type="text/css" href="css/style.css">

    <link rel="stylesheet" href="https://fonts.googleapis.com/css?family=Audiowide">

    <link rel="apple-touch-icon" sizes="180x180" href="/apple-touch-icon.png">

    <link rel="icon" type="image/png" sizes="32x32" href="/favicon-32x32.png">

    <link rel="icon" type="image/png" sizes="16x16" href="/favicon-16x16.png">

    <link rel="manifest" href="/site.webmanifest">

  </head>

  <body>

    <nav class="navbar navbar-expand-lg navbar-light fixed-top " style="background-color:indigo;">

      <div class="container-fluid">

        <a class="navbar-brand" href="#">

          <img src="img/navbrand1.png"width="30" width="30">

          QR-Scanner

        </a>

        <div class="collapse navbar-collapse">

          <ul class="navbar-nav me-auto my-2 my-lg-0 ">

            <li class="nav-item">

              <a class="nav-link active" aria-current="page" href="index.html">Home</a>

            </li>

            <li class="nav-item">

              <a class="nav-link" href="about.html">About</a>

            </li>

            <li class="nav-item">

              <a class="nav-link " href="contact.html" >Contact</a>

            </li>

          </ul>

        </div>

      </div>

    </nav>

   <div id="myCarousel" class="carousel slide carousel-fade" data-ride="carousel" data-bs-touch="false" data-bs-interval="false" >

     <ol class="carousel-indicators">

       <li data-target="#myCarousel" data-slide-to="0"class="active" > </li>

       <li data-target="#myCarousel" data-slide-to="1" ></li>

     </ol>

     <div class="carousel-inner">

       <div class="carousel-item active">

        <div class="overlay-image">

          <img  src="https://res.cloudinary.com/dikyvlzxd/image/upload/v1621408645/slide-6\_pvmra1.jpg" class="d-block w-100 h-100 " alt="..." style="opacity: 0.5;">

        </div>

         <div class="carousel-caption  text-center d-md-block">

          <h4>Welcome! </h4>

          <p>We guarantee your security</p>

          <a href="loginpage.html" class="btn btn-lg " style="background-color: indigo; color:white;">Enter for scanning</a>

          </div>

        </div>

        <div class="carousel-item ">

          <div class="overlay-image">

            <img src="img/slide-5.jpg" class="d-block w-100 h-100" alt="..." style="opacity: 0.3;">

          </div>

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           </div>

         </div>

     </div>

     <a href="#myCarousel" class="carousel-control-prev" role="button" data-slide="prev">

       <span class="carousel-control-prev-icon" aria-hidden="true" ></span>

       <span class="visually-hidden">Previous</span>

      </a>

      <a href="#myCarousel" class="carousel-control-next" role="button" data-slide="next">

        <span class="carousel-control-next-icon" aria-hidden="true"></span>

        <span class="visually-hidden">Next</span>

       </a>

  </div>

    <script src="js/bootstrap.bundle.min.js"></script>

    <footer class="bg-light text-center text-lg-start">

      <!-- Copyright -->

      <div class="text-center p-3" style="background-color:indigo;color: white;">

        © 2021 Copyright:

        <a class="text-light" href="index.html">QR-Scanner</a>

      </div>

      <!-- Copyright -->

    </footer>

  </body>

</html>

    <meta name="viewport" content="width=device-width, initial-scale=1">

    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-wEmeIV1mKuiNpC+IOBjI7aAzPcEZeedi5yW5f2yOq55WWLwNGmvvx4Um1vskeMj0" crossorigin="anonymous">

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        <div class="collapse navbar-collapse">

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            <li class="nav-item">

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            </li>

            <li class="nav-item">

              <a class="nav-link " href="contact.html" >Contact</a>

            </li>

          </ul>

        </div>

      </div>

    </nav>

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     <ol class="carousel-indicators">

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     </ol>

     <div class="carousel-inner">

       <div class="carousel-item active">

        <div class="overlay-image">

          <img  src="https://res.cloudinary.com/dikyvlzxd/image/upload/v1621408645/slide-6\_pvmra1.jpg" class="d-block w-100 h-100 " alt="..." style="opacity: 0.5;">

        </div>

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          </div>

        </div>

        <div class="carousel-item ">

          <div class="overlay-image">

            <img src="img/slide-5.jpg" class="d-block w-100 h-100" alt="..." style="opacity: 0.3;">

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     </div>

     <a href="#myCarousel" class="carousel-control-prev" role="button" data-slide="prev">

       <span class="carousel-control-prev-icon" aria-hidden="true" ></span>

       <span class="visually-hidden">Previous</span>

      </a>

      <a href="#myCarousel" class="carousel-control-next" role="button" data-slide="next">

        <span class="carousel-control-next-icon" aria-hidden="true"></span>

        <span class="visually-hidden">Next</span>

       </a>

  </div>

    <script src="js/bootstrap.bundle.min.js"></script>

    <footer class="bg-light text-center text-lg-start">

      <!-- Copyright -->

      <div class="text-center p-3" style="background-color:indigo;color: white;">

        © 2021 Copyright:

        <a class="text-light" href="index.html">QR-Scanner</a>

      </div>

      <!-- Copyright -->

    </footer>

  </body>

</html>

Homepage

<!DOCTYPE html>

<html>

<head>

  <title>Qr-scanner</title>

    <meta charset="utf-8">

    <meta name="viewport" content="width=device-width, initial-scale=1">

    <link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css" integrity="sha384-JcKb8q3iqJ61gNV9KGb8thSsNjpSL0n8PARn9HuZOnIxN0hoP+VmmDGMN5t9UJ0Z" crossorigin="anonymous">

    <script src="https://code.jquery.com/jquery-3.5.1.slim.min.js" integrity="sha384-DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew+OrCXaRkfj" crossorigin="anonymous"></script>

    <script src="https://cdn.jsdelivr.net/npm/popper.js@1.16.1/dist/umd/popper.min.js" integrity="sha384-9/reFTGAW83EW2RDu2S0VKaIzap3H66lZH81PoYlFhbGU+6BZp6G7niu735Sk7lN" crossorigin="anonymous"></script>

    <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js" integrity="sha384-B4gt1jrGC7Jh4AgTPSdUtOBvfO8shuf57BaghqFfPlYxofvL8/KUEfYiJOMMV+rV" crossorigin="anonymous"></script>

    <script src="js/bootstrap.bundle.min.js"></script>

    <script src="https://d1tgh8fmlzexmh.cloudfront.net/ccbp-static-website/js/ccbp-ui-kit.js"></script>

    <script src="https://www.gstatic.com/firebasejs/8.6.1/firebase-app.js"></script>

    <script src="https://www.gstatic.com/firebasejs/8.6.1/firebase-auth.js"></script>

    <script src="https://www.gstatic.com/firebasejs/8.6.1/firebase-database.js"></script>

    <script src="https://cdnjs.cloudflare.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script>

    <link rel="stylesheet" type="text/css" href="css/style1.css">

    <link rel="stylesheet" type="text/css" href="css/bootstrap.min.css">

    <link rel="stylesheet" href="https://fonts.googleapis.com/css?family=Audiowide">

    <script src="https://cdnjs.cloudflare.com/ajax/libs/cryptico/0.0.1343522940/cryptico.min.js"> </script>

    <link rel="apple-touch-icon" sizes="180x180" href="/apple-touch-icon.png">

    <link rel="icon" type="image/png" sizes="32x32" href="/favicon-32x32.png">

    <link rel="icon" type="image/png" sizes="16x16" href="/favicon-16x16.png">

    <link rel="manifest" href="/site.webmanifest">

  </head>

  <body style="background-color: rgb(241, 237, 237);" >

  <div class="mr">

    <nav class="navbar navbar-expand-lg navbar-light fixed-top  " style="background-color:indigo;">

      <div class="container-fluid">

        <a class="navbar-brand" href="#">

          <img src="img/navbrand1.png"width="30" width="30">

          QR-Scanner

        </a>

        <div class="collapse navbar-collapse">

          <ul class="navbar-nav me-auto my-2 my-lg-0 ">

            <li class="nav-item">

              <a class="nav-link active" aria-current="page" href="index.html">Home</a>

            </li>

            <li class="nav-item">

              <a class="nav-link" href="about.html">About</a>

            </li>

            <li class="nav-item">

              <a class="nav-link " href="contact.html" >Contact</a>

            </li>

          </ul>

        </div>

      </div>

    </nav>

          </div>

            <div class="col-12 shadow d-flex justify-content-center" style="background-image:url('https://res.cloudinary.com/dikyvlzxd/image/upload/v1621441533/computer-security-authentication-authorization-security-pc-computer-desktop\_jjgt57.jpg'); background-size:cover;" >

              <div class="card mr  shadow text-center   p-3 d-flex justify-content-center  " style="background-image:url('https://res.cloudinary.com/dikyvlzxd/image/upload/v1621444499/f6b2afe8f956c9f417f5d4556ca2a984\_sscbzd.jpg'); background-size:cover;"  >

                  <h1 class="h1">Sign Up </h1>

                    <div class="matter " >

                        <form name="regform">

                            <label for="Name ">Name :</label>

                            <input class="pla" id="Name" type="text" name="Name" placeholder="Enter your Name" required><br>

                            <span id="Namepart" class="err"></span>

                            <br>

                           <label for="E-mail">E-Mail:</label>

                            <input class="pla" id="email" type="text" name="email" placeholder="Enter your E-mail" required><br>

                            <span id="emailpart" class="err"></span>

                            <br>

                            <label for="Mobile">Mobile:</label>

                            <input class="pla" id="Mobile" type="text" name="Mobile" placeholder="Enter your Number" required><br>

                            <span id="mbpart" class="err"></span>

                            <br>

              <label for="password">Password:</label>

                            <input class="pla" id="password" type="password" name="password" placeholder="Enter your password" required><br>

                            <span id="passwordpart" class="err"></span></br>

                            <button class="button" id="button">Sign Up </button>

                        </form>

                    </div>

                    </div>

    </div>

    <script>

      var btn = document.getElementById("button");

      var PassPhrase = "rgukt"

      var Bits = 512;

      //decryption

      var MattsRSAkey = cryptico.generateRSAKey(PassPhrase, Bits);

      var MattsPublicKeyString = cryptico.publicKeyString(MattsRSAkey);

      function validation(){

        var Name = document.getElementById("Name").value;

        var email = document.getElementById("email").value;

        var mobile = document.getElementById("Mobile").value;

        var password = document.getElementById("password").value;

        console.log(Name);

        if (Name == "") {

        document.getElementById("Namepart").innerHTML = "\*\*please fill the username";

        return false;

        }

        if ((Name.length <= 2) || (Name.length > 20)) {

          document.getElementById("Namepart").innerHTML = "\*\* user length must be between 2 and 20";

          return false;

        }

        if (!isNaN(Name)) {

          document.getElementById("Namepart").innerHTML = "\*\*only character are allowed ";

          return false;

        }

        if (email == "") {

          document.getElementById("emailpart").innerHTML = "\*\*plese fill the email";

          return false;

        }

        if (email.indexOf('@') <= 0) {

          document.getElementById("emailpart").innerHTML = "\*\*Invalid Position";

          return false;

        }

        if (mobile == "") {

          document.getElementById("mbpart").innerHTML = "\*\*plese fill the Mobile number";

          return false;

        }

        if (isNaN(mobile)) {

          document.getElementById("mbpart").innerHTML = "\*\*user must write digits only not characters";

          return false;

        }

        console.log(mobile.length)

        if (mobile.length!= 10) {

          document.getElementById("mbpart").innerHTML = "\*\*user must enter 10 digits only";

          return false;

        }

        return true;

      }

      var firebaseConfig = {

          apiKey: "AIzaSyAfzxDjfEFWY5hwIlFGAl9CWfM-IDfmkJI",

          authDomain: "qrcode-13d1c.firebaseapp.com",

          projectId: "qrcode-13d1c",

          storageBucket: "qrcode-13d1c.appspot.com",

          messagingSenderId: "22874747566",

          appId: "1:22874747566:web:617516495780fb8d64733f"

        };

        // Initialize Firebase

      firebase.initializeApp(firebaseConfig);

      async function senddata(){

        var Namein = document.getElementById("Name").value;

        var emailin = document.getElementById("email").value;

        var mobilein = document.getElementById("Mobile").value;

        var passwordin = document.getElementById("password").value;

        var password=passwordin

        var encrypted = cryptico.encrypt(password,MattsPublicKeyString)

        var cipherText=encrypted.cipher

        var decrypted = cryptico.decrypt(cipherText,MattsRSAkey)

        var plainText=decrypted.plaintext

        console.log(plainText)

        console.log(cipherText)

        await firebase.database().ref('Login/' + Namein).set({

          name: Namein,

          password: cipherText,

          email: emailin,

          mobilenum: mobilein

        });

      };

      btn.addEventListener("click", function (e) {

        e.preventDefault();

        if(validation()){

          console.log("okay")

          senddata().then(()=>{

            var Name = document.getElementById("Name").value;

            var password = document.getElementById("password").value;

            localStorage.setItem("name", Name);

            localStorage.setItem("password", cryptico.encrypt(password, MattsPublicKeyString).cipher);

            window.location.pathname = "qr.html";

          })

        }

      });

    </script>

    </div>

    <footer class="bg-light text-center text-lg-start">

      <!-- Copyright -->

      <div class="text-center p-3" style="background-color:indigo;color: white;">

        © 2021 Copyright:

        <a class="text-light" href="index.html">QR-Scanner</a>

      </div>

      <!-- Copyright -->

    </footer>

</body>

</html>

Sign-up page

<!doctype html>

<html lang="en">

  <head>

    <title>Qr-scanner</title>

    <meta charset="utf-8">

    <meta name="viewport" content="width=device-width, initial-scale=1">

    <link rel="stylesheet" type="text/css" href="css/bootstrap.min.css">

    <link rel="stylesheet" type="text/css" href="css/style.css">

    <link rel="stylesheet" href="https://fonts.googleapis.com/css?family=Audiowide">

    <script src="https://www.gstatic.com/firebasejs/8.6.1/firebase-app.js"></script>

    <script src="https://www.gstatic.com/firebasejs/8.6.1/firebase-auth.js"></script>

    <script src="https://www.gstatic.com/firebasejs/8.6.1/firebase-database.js"></script>

    <script src="https://cdnjs.cloudflare.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script>

    <script type="text/javascript" src="https://rawgit.com/schmich/instascan-builds/master/instascan.min.js"></script>

    <script src="js/bootstrap.bundle.min.js"></script>

    <script src="verify.js"></script>

    <link rel="stylesheet" href="./css/snackbar.css" />

    <link rel="apple-touch-icon" sizes="180x180" href="/apple-touch-icon.png">

    <link rel="icon" type="image/png" sizes="32x32" href="/favicon-32x32.png">

    <link rel="icon" type="image/png" sizes="16x16" href="/favicon-16x16.png">

    <link rel="manifest" href="/site.webmanifest">

  </head>

  <body >

    <nav class="navbar navbar-expand-lg navbar-light fixed-top  " style="background-color:indigo;">

      <div class="container-fluid">

        <a class="navbar-brand" href="#">

          <img src="img/navbrand1.png"width="30" width="30">

          QR-Scanner

        </a>

        <div class="collapse navbar-collapse">

          <ul class="navbar-nav me-auto my-2 my-lg-0">

            <li class="nav-item">

              <a class="nav-link active" aria-current="page" href="index.html">Home</a>

            </li>

            <li class="nav-item">

              <a class="nav-link" href="about.html">About</a>

            </li>

            <li class="nav-item">

              <a class="nav-link " href="contact.html" >Contact</a>

            </li>

            </ul>

            <ul class="navbar-nav  flex-row ml-md-auto d-none d-md-flex" >

            <li class="nav-item">

              <a class="nav-link " id="signout">Sign-Out</a>

            </li>

          </ul>

        </div>

      </div>

    </nav>

  </br>

    <div class="loginbody" style="background-image:url('./img/mac.png') ;">

      <div class="container">

        <div class="row align-items-center">

        </br></br>

            <h3 class= "h"style="font-weight: 800;font-size:50px; color:whitesmoke;font-family: sans-serif;">

              <u>Your QR-code</u><h3></br>

                <div class=col-md-12>

                  <!-- <div class="qrcode"> -->

                    <a target="\_blank" class="download" href="" download="qr.jpg">

                      <img class="qrcodeimg float-centre" src="qrcode2.jpg" alt="qr code image" height="300px" width="300px">

                    </a>

                  <!-- </div> -->

                </div></br>

                <button class="qrcodebutton">Click here to get your qr code</button>

            </div>

            </div>

</div>

  <div id="snackbar">Click on QR to download it</div>

<script>

  let pass=""

  var qrcode=document.querySelector(".qrcodeimg");

  var qrbtn=document.querySelector(".qrcodebutton");

  var signoutbtn=document.getElementById("signout");

  var firebaseConfig = {

      apiKey: "AIzaSyAfzxDjfEFWY5hwIlFGAl9CWfM-IDfmkJI",

      authDomain: "qrcode-13d1c.firebaseapp.com",

      projectId: "qrcode-13d1c",

      storageBucket: "qrcode-13d1c.appspot.com",

      messagingSenderId: "22874747566",

      appId: "1:22874747566:web:617516495780fb8d64733f"

  };

    // Initialize Firebase

  firebase.initializeApp(firebaseConfig);

  async function fetchSAllData() {

      await firebase.database().ref('Login').once('value', function (snapshot) {

        snapshot.forEach(

          function (ChlidSnapshot) {

            let pass = ChlidSnapshot.val().password;

          }

        )

      })

    }

  function generate() {

      fetchSAllData();

      let size = "1000×1000";

      let data = localStorage.getItem("password");

      console.log(localStorage.getItem("password"));

      let URL = "http://api.qrserver.com/v1/create-qr-code/";

      let url1 = `${URL}?data=${data}&size=${size}`;

      qrcode.src = url1;

      document.querySelector('.download').href = `${url1}.png`;

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

      x.className = "show";

      setTimeout(function () { x.className = x.className.replace("show", ""); }, 3700);

  }

  function signout(){

    if(confirm("do you really want to log out?")){

      localStorage.removeItem("name");

      localStorage.removeItem("password");

      window.location.pathname = "index.html";

    }

  }

  qrbtn.addEventListener("click", generate);

  signoutbtn.addEventListener("click",signout);

</script>

<footer class="bg-light text-center text-lg-start">

  <!-- Copyright -->

  <div class="text-center p-3" style="background-color:indigo;color: white;">

    © 2021 Copyright:

    <a class="text-light" href="index.html">QR-Scanner</a>

  </div>

  <!-- Copyright -->

</footer>

</body>

</html>

QR generator

<!doctype html>

<html lang="en">

  <head>

  <title>QR-scanner</title>

    <meta charset="utf-8">

    <meta name="viewport" content="width=device-width, initial-scale=1">

    <link rel="stylesheet" type="text/css" href="css/bootstrap.min.css">

    <link rel="stylesheet" type="text/css" href="css/style.css">

    <link rel="stylesheet" href="https://fonts.googleapis.com/css?family=Audiowide">

    <link rel="apple-touch-icon" sizes="180x180" href="/apple-touch-icon.png">

    <link rel="icon" type="image/png" sizes="32x32" href="/favicon-32x32.png">

    <link rel="icon" type="image/png" sizes="16x16" href="/favicon-16x16.png">

    <link rel="manifest" href="/site.webmanifest">

  </head>

  <body>

    <nav class="navbar navbar-expand-lg navbar-light fixed-top  " style="background-color:indigo;">

      <div class="container-fluid">

        <a class="navbar-brand" href="#">

          <img src="img/navbrand1.png"width="30" width="30">

          QR-Scanner

        </a>

        <div class="collapse navbar-collapse">

          <ul class="navbar-nav me-auto my-2 my-lg-0">

            <li class="nav-item">

              <a class="nav-link active" aria-current="page" href="index.html">Home</a>

            </li>

            <li class="nav-item">

              <a class="nav-link" href="about.html">About</a>

            </li>

            <li class="nav-item">

              <a class="nav-link " href="contact.html" >Contact</a>

            </li>

          </ul>

        </div>

      </div>

    </nav>

    <div class="loginbody" style="background-image:url('./img/mac.png') ;">

      <div class="container">

        <div class="row align-items-center">

          <div class="col-md-12">

          <h1 class="h" style="font-weight: 700; color:whitesmoke;font-family: sans-serif;">SECURED AUTHENTICATION SYSTEM USING QR CODES</h1>

          </br></br>

    <a href="scanner.html"class="btn btn-lg btn-light" style="background-color: indigo; color:white;">Enter to scan</a><br></br>

    <a href="signuppage.html"class="btn btn-lg btn-light" style="background-color: indigo; color:white;">Sign up</a>

           </div>

         </div>

         </div>

        </div>

      </div>

<script src="js/bootstrap.bundle.min.js"></script>

<footer class="bg-light text-center text-lg-start">

  <!-- Copyright -->

  <div class="text-center p-3" style="background-color:indigo;color: white;">

    © 2021 Copyright:

    <a class="text-light" href="index.html">QR-Scanner</a>

  </div>

  <!-- Copyright -->

</footer>

</body>

</html>

Login Page

<!doctype html>

<html lang="en">

  <head>

  <title>Qr-scanner</title>

    <meta charset="utf-8">

    <meta name="viewport" content="width=device-width, initial-scale=1">

    <link rel="stylesheet" type="text/css" href="css/bootstrap.min.css">

    <link rel="stylesheet" type="text/css" href="css/style.css">

    <link rel="stylesheet" href="https://fonts.googleapis.com/css?family=Audiowide">

    <script src="https://www.gstatic.com/firebasejs/8.6.1/firebase-app.js"></script>

    <script src="https://www.gstatic.com/firebasejs/8.6.1/firebase-auth.js"></script>

    <script src="https://www.gstatic.com/firebasejs/8.6.1/firebase-database.js"></script>

    <script src="https://cdnjs.cloudflare.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script>

    <script type="text/javascript" src="https://rawgit.com/schmich/instascan-builds/master/instascan.min.js"></script>

    <script src="js/bootstrap.bundle.min.js"></script>

    <script src="https://cdnjs.cloudflare.com/ajax/libs/cryptico/0.0.1343522940/cryptico.min.js"> </script>

    <link rel="apple-touch-icon" sizes="180x180" href="/apple-touch-icon.png">

    <link rel="icon" type="image/png" sizes="32x32" href="/favicon-32x32.png">

    <link rel="icon" type="image/png" sizes="16x16" href="/favicon-16x16.png">

    <link rel="manifest" href="/site.webmanifest">

  </head>

  <body >

    <nav class="navbar navbar-expand-lg navbar-light fixed-top  " style="background-color:indigo;">

      <div class="container-fluid">

        <a class="navbar-brand" href="#">

          <img src="img/navbrand1.png"width="30" width="30">

          QR-Scanner

        </a>

        <div class="collapse navbar-collapse">

          <ul class="navbar-nav me-auto my-2 my-lg-0 ">

            <li class="nav-item">

              <a class="nav-link active" aria-current="page" href="index.html">Home</a>

            </li>

            <li class="nav-item">

              <a class="nav-link" href="about.html">About</a>

            </li>

            <li class="nav-item">

              <a class="nav-link " href="contact.html" >Contact</a>

            </li>

          </ul>

        </div>

      </div>

    </nav>

    <div class="loginbody" style="background-image:url('./img/mac.png') ;"></div>

      <div class="container">

        <div class="row align-items-center">

            <h3 class= "h"style="font-weight: 800;font-size:50px; color:whitesmoke;font-family: sans-serif;">

              Scan QR-code<h3>

                <div class="col-md-12 d-flex justify-content-center " >

                  <div class="container1" style=" border:10px solid indigo;" >

                    <div class="vid"  >

                      <video id="preview"></video>

                    </div>

                </div>

                </div>

            </div>

            </div>

          </div>

    <script>

      let dataarray = []

      var PassPhrase ="rgukt"

      var bits=512;

      // private key for decryption

      var MattsRSAkey=cryptico.generateRSAKey(PassPhrase,bits)

      // public key for encryption

      var MattsPublicKeyString=cryptico.publicKeyString(MattsRSAkey)

        function encrypt(pwd) {

          return cryptico.encrypt(pwd, MattsPublicKeyString).cipher

        }

        function decrypt(cipher) {

          return cryptico.decrypt(cipher, MattsRSAkey).plaintext;

        }

        var firebaseConfig = {

          apiKey: "AIzaSyAfzxDjfEFWY5hwIlFGAl9CWfM-IDfmkJI",

          authDomain: "qrcode-13d1c.firebaseapp.com",

          projectId: "qrcode-13d1c",

          storageBucket: "qrcode-13d1c.appspot.com",

          messagingSenderId: "22874747566",

          appId: "1:22874747566:web:617516495780fb8d64733f"

        };

        // Initialize Firebase

        firebase.initializeApp(firebaseConfig)

        // --------------------------------------------------------------------

        let scanner = new Instascan.Scanner({ video: document.getElementById("preview") });

        scanner.addListener('scan', function (e) {

        e = e.replaceAll(" ", "+")

        var qrdecrypted = decrypt(e)

        console.log(qrdecrypted);

          fetchSAllData().then(() => {

            for (let i = 0; i < dataarray.length; i++) {

              if (qrdecrypted==dataarray[i].password) {

                console.log("sucessss", qrdecrypted, dataarray[i]);

                settingtolocal(dataarray[i].username, e);

                window.location.pathname = "qr.html";

              }

            }

          });

        });

        Instascan.Camera.getCameras().then(function (cameras) {

          if (cameras.length > 0) {

            scanner.start(cameras[0])

          } else {

            alert("No cameras found")

          }

        }).catch(function (e) {

          console.error(e);

        })

        async function fetchSAllData() {

          console.log("hi")

          await firebase.database().ref('Login').once('value', function (snapshot) {

            snapshot.forEach(

              function (ChlidSnapshot){

                let name = ChlidSnapshot.val().name;

                let pass = ChlidSnapshot.val().password;

                // .........................................

                var plainText = decrypt(pass)

                dataarray.push({

                  username: name,

                  password: plainText

                })

              }

            )

          })

        }

        function settingtolocal(username, password){

          localStorage.setItem("name", username)

          localStorage.setItem("password", password)

        }

    </script>

<footer class="bg-light text-center text-lg-start">

  <!-- Copyright -->

  <div class="text-center p-3" style="background-color:indigo;color: white;">

    © 2021 Copyright:

    <a class="text-light" href="index.html">QR-Scanner</a>

  </div>

  <!-- Copyright -->

</footer>

</body>

</html>

QR Scanner

function myfunc(){

    if(localStorage.getItem("name")==null){

        alert("oops! you should first sign in :)")

        window.location.pathname = "index.html";

    }

}

myfunc();

Extra validation

/\* The snackbar - position it at the bottom and in the middle of the screen \*/

#snackbar {

  visibility: hidden; /\* Hidden by default. Visible on click \*/

  min-width: 250px; /\* Set a default minimum width \*/

  margin-left: -125px; /\* Divide value of min-width by 2 \*/

  background-color: #333; /\* Black background color \*/

  color: #fff; /\* White text color \*/

  text-align: center; /\* Centered text \*/

  border-radius: 2px; /\* Rounded borders \*/

  padding: 16px; /\* Padding \*/

  position: fixed; /\* Sit on top of the screen \*/

  z-index: 1; /\* Add a z-index if needed \*/

  left: 50%; /\* Center the snackbar \*/

  top: 80px; /\* 30px from the bottom \*/

}

/\* Show the snackbar when clicking on a button (class added with JavaScript) \*/

#snackbar.show {

  visibility: visible; /\* Show the snackbar \*/

  /\* Add animation: Take 0.5 seconds to fade in and out the snackbar.

  However, delay the fade out process for 2.5 seconds \*/

  -webkit-animation: fadein 1s, fadeout 1s 3s;

  animation: fadein 1s, fadeout 1s 3s;

}

/\* Animations to fade the snackbar in and out \*/

@-webkit-keyframes fadein {

  from {

    top: 0;

    opacity: 0;

  }

  to {

    top: 80px;

    opacity: 1;

  }

}

@keyframes fadein {

  from {

    top: 0;

    opacity: 0;

  }

  to {

    top: 80px;

    opacity: 1;

  }

}

@-webkit-keyframes fadeout {

  from {

    top: 80px;

    opacity: 1;

  }

  to {

    top: 0;

    opacity: 0;

  }

}

@keyframes fadeout {

  from {

    top: 80px;

    opacity: 1;

  }

  to {

    top: 0;

    opacity: 0;

  }

}

.navbar-brand{

    font-family: "Audiowide";

    font-weight: 700px;

    color:yellow!important;

}

.nav-link{

    color:white !important;

    font-weight: 700;

}

.nav-link:hover{

    background-color:yellowgreen;

    border-radius: 20px;

}

.carousel-item{

    height:100vh;

    min-height:  300px;

    -webkit-background-size:no-repeat scroll center scroll;

   background: no-repeat;

   background-size: cover;

  background-color: blanchedalmond;

}

.carousel-caption{

   position:absolute;

   bottom:180px;

   padding-left:100px;

   padding-right:100px;

}

.carousel-caption h4{

    font-size: 100px;

    font-family:'Times New Roman';

    color:whitesmoke!important;

    font-weight:700;

}

.carousel-caption p{

    font-size: 18px;

    color:white;

    top:2rem;

}

.overlay-image

{

    position:absolute;

    bottom: 0;

    left: 0;

    right:0;

    top:0;

    background-position:center;

    background-size: cover;

    background-color: black;

}

.container{

    position: absolute;

    left: 50%;

    top:50%;

    transform: translate(-50%,-50%);

    text-align: center;

}

.container h4{

    font-size: 80px;

    color:black!important;

        margin:0 0 10px;

    opacity: 0;

}

.container p{

    font-size: 30px;

    margin:0;

    color: black!important;;

    opacity:0;

}

.col{

    position: absolute;

}

.loginbody{

    height:100vh;

    min-height:  300px;

   background: no-repeat;

   background-size: cover;

   opacity: 0.7;

   background-color: black;

}

.container1{

    border: 8px solid indigo !important;

    border-top: none !important;

    border-bottom: none !important;

    box-shadow: 10px -7px 10px rgba(0,0,0,0.3) !important;

}

.qrcodebutton{

    border-radius: 17px;

    border:3px solid indigo;

    background: rgb(242, 236, 247);

}

.qrcodebutton:hover{

    background: rgb(208, 181, 228);

}

.qrcodeimg{

    border:3px solid indigo;

}

.navbar-brand{

    font-family: "Audiowide";

    font-weight: 700px;

    color:yellow!important;

}

.nav-link{

    color:white !important;

    font-weight: 700;

}

.nav-link:hover{

    background-color:rgb(190, 190, 35);

    border-radius: 20px;

}

.mr{

    margin: 55px;

}

.mr{

    margin: 55px;

}

.card {

       background-color:#d67cd0 ;

       margin-top:50px;

        background: no-repeat;

        background-size: cover;

        width:410px !important;

        padding-left: 20px !important;

    }

    .h1 {

        font-size: 50px;

        font-family: "Roboto";

        font-weight:bold !important;

        color: black;

    }

    .matter {

        font-size:22px;

        font-family: "Bree Serif";

        color: black;

        text-align: right;

        margin-right: 20px;

    }

    .button {

        height: 45px;

        width:90px;

        padding:5px;

        border-radius: 10px;

        border-width: 0px;

        background-color:#000080;

        color: white;

        font-weight:bold;

        font-size:20px;

        display:block;

        margin:0 auto;

    }

    .pla {

        height: 40px;

        width: 250px;

        border-radius: 7px;

        border-width: 0px;

        font-size: 20px;

    }

    .err {

        font-size:15px;

        font-family: "Bree Serif";

        color: black;

    }

    .navbar-brand{

        font-style: italic;

        font-family: Georgia, 'Times New Roman', Times, serif;

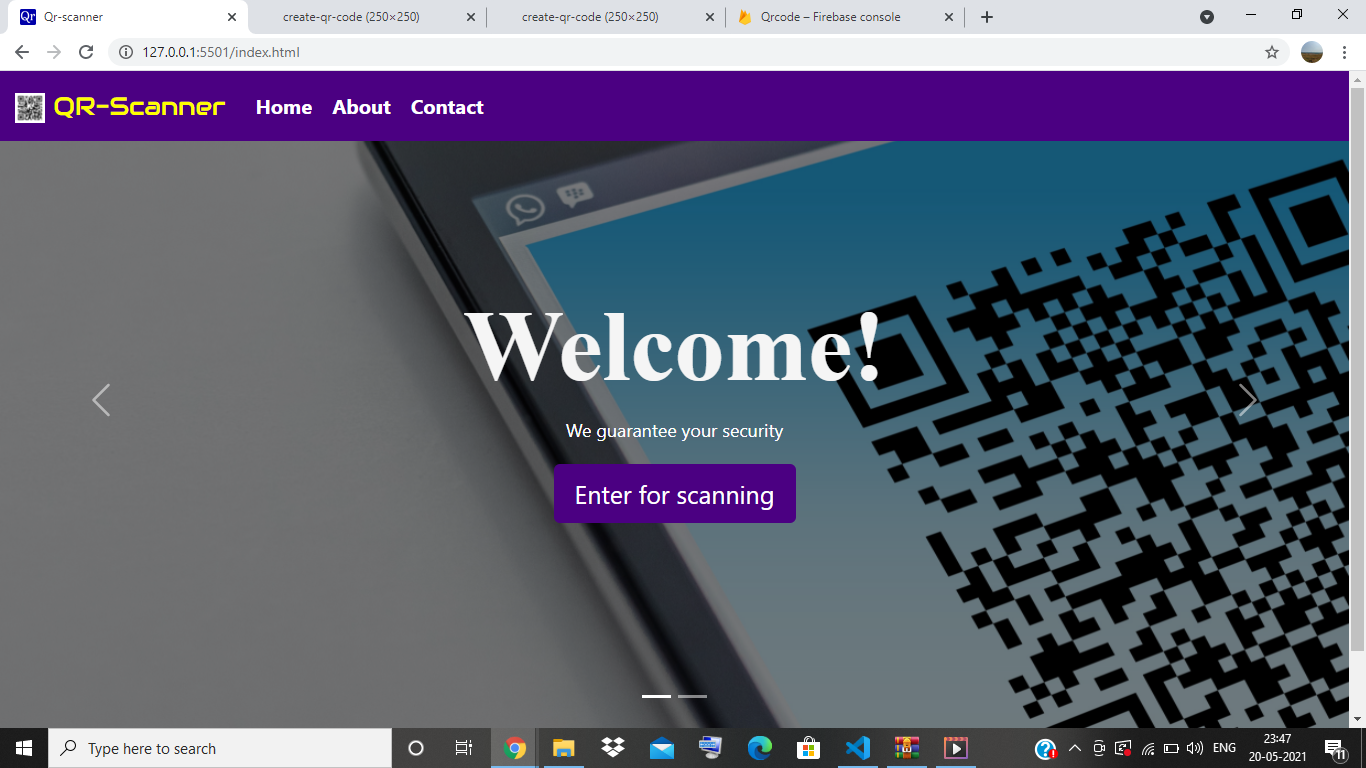
        font-weight: 700px;

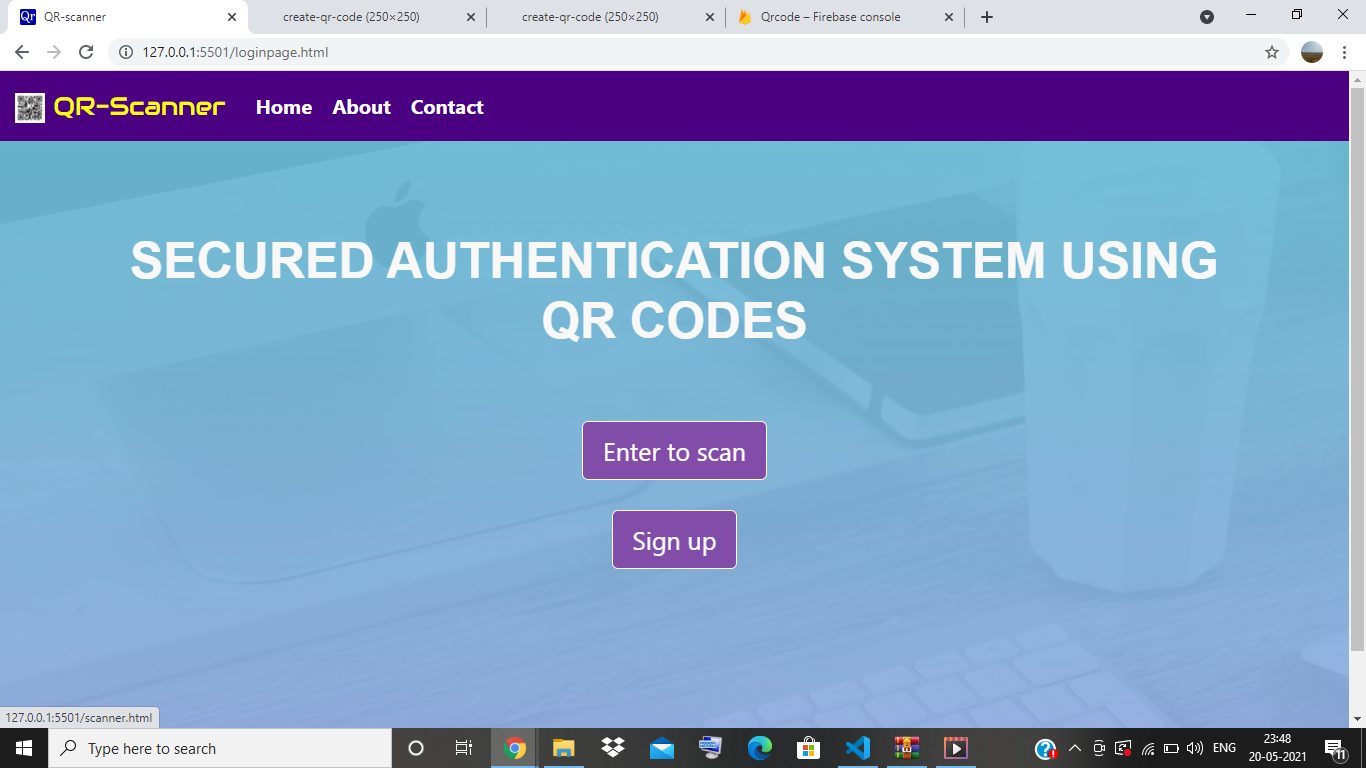
    }

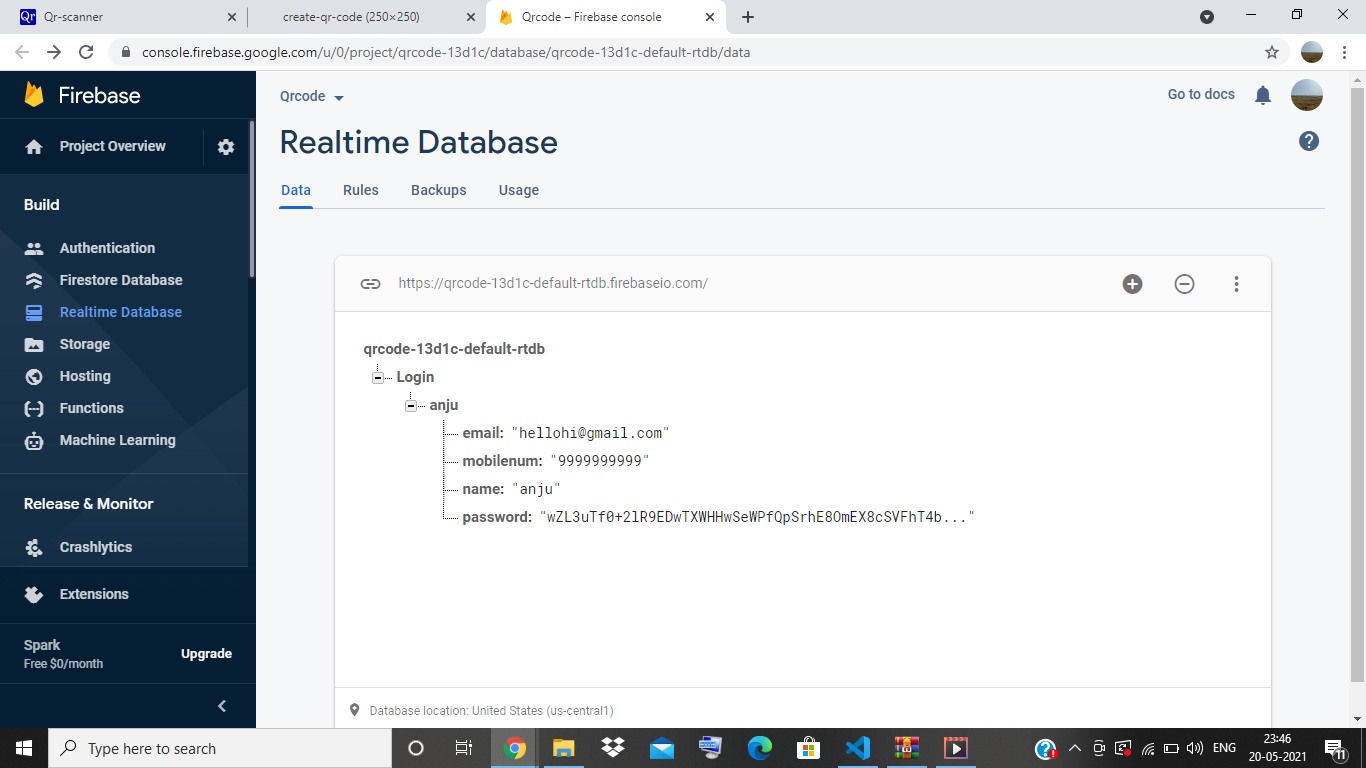
Styling Part

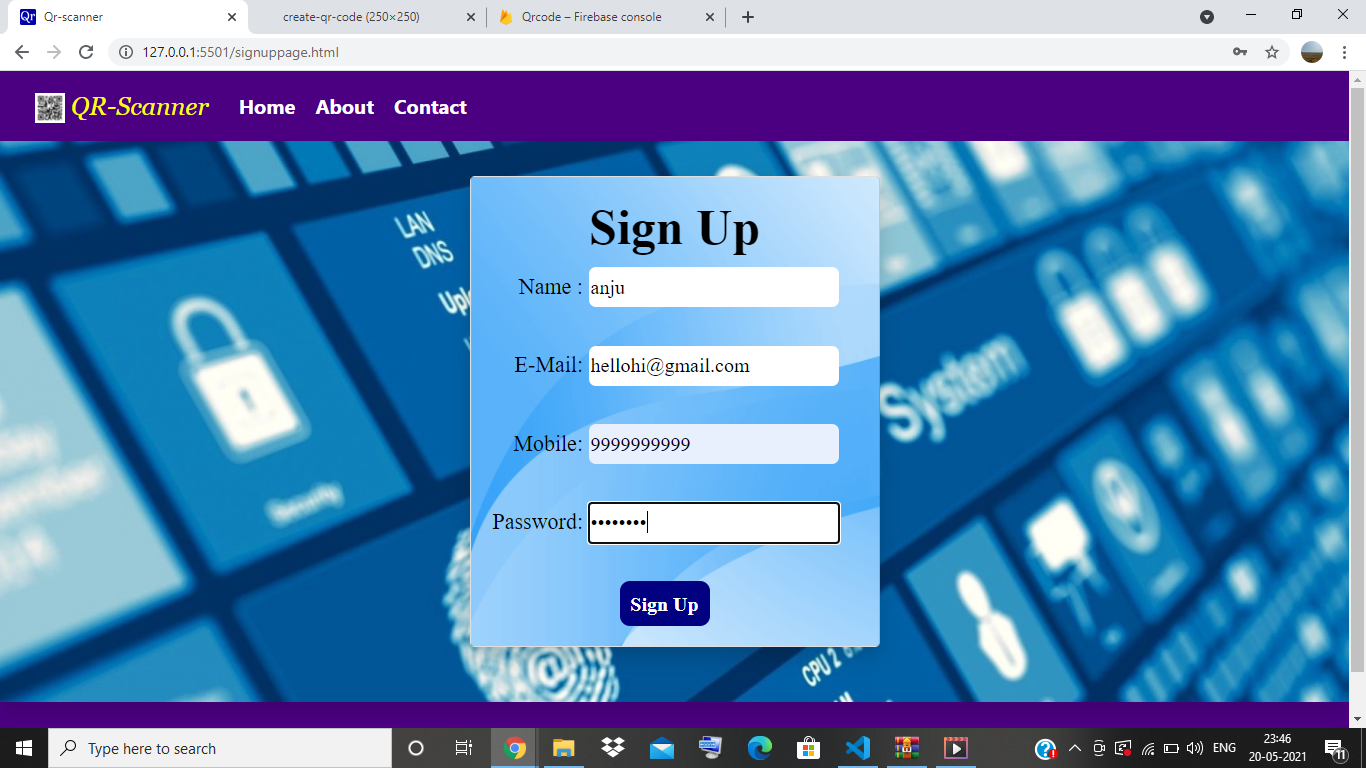
**CHAPTER-6**

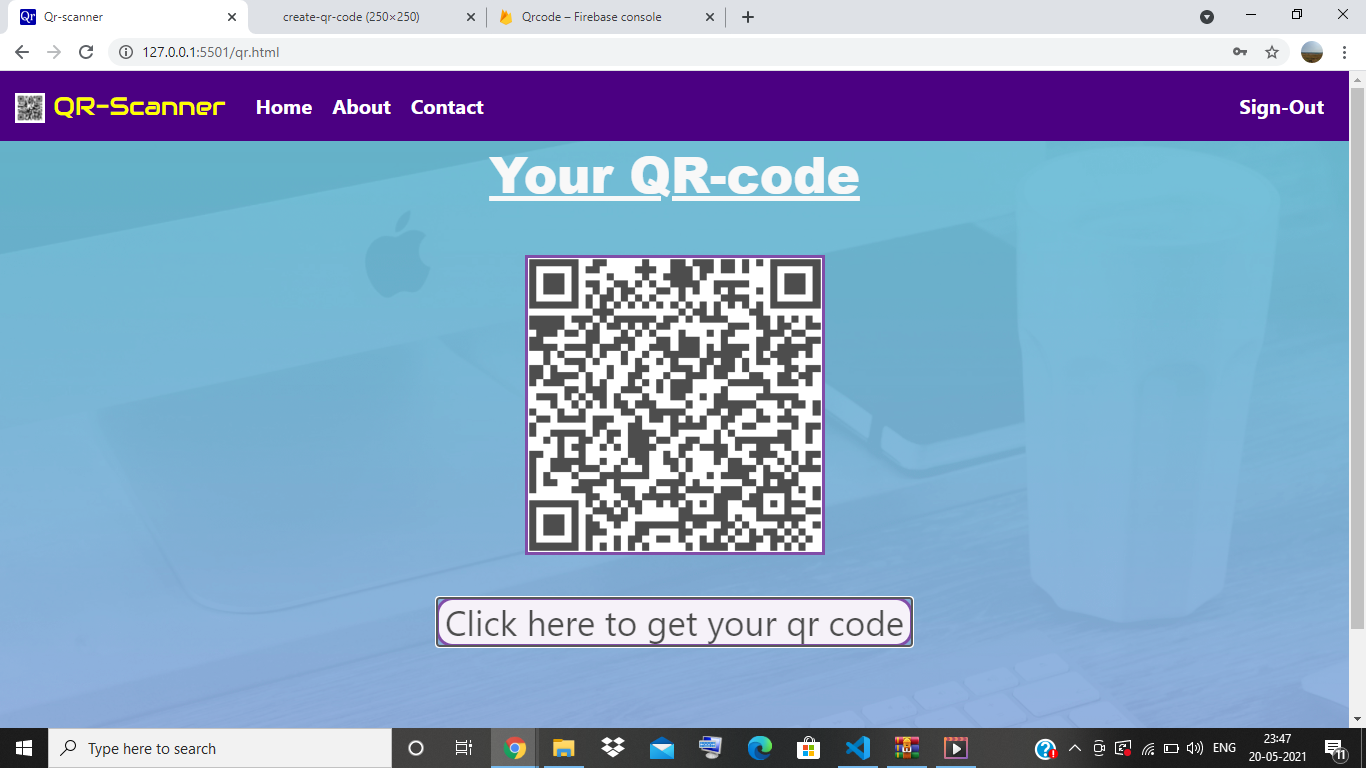
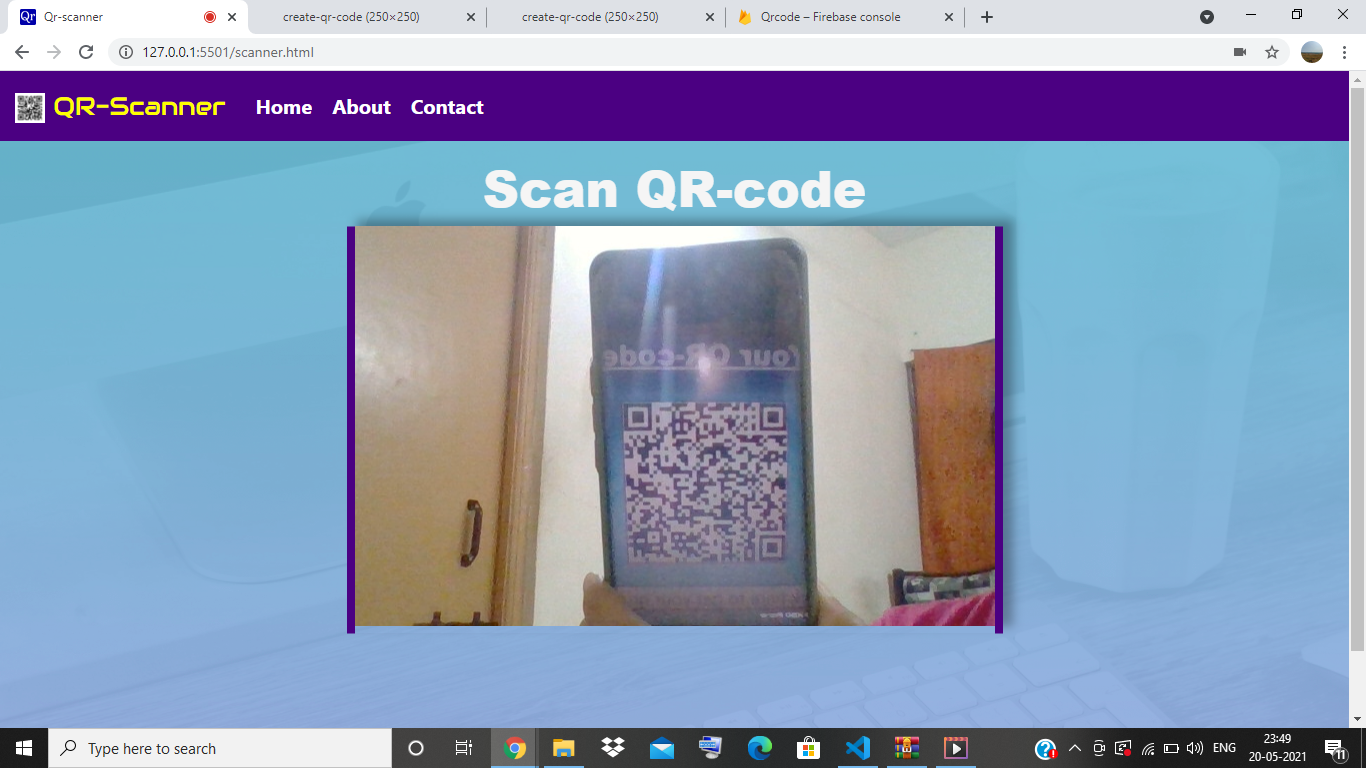
1. **OUTPUT**











# FUTURE SCOPE AND CONCLUSION:

In future, Authentication system revolutionizes website login. It eliminates many problems inherent in traditional login techniques.

It is more secure as it involves encryption technique and it is easy and faster to use, also gives freedom from remembering so many username and password for different websites.

The simple and straight forward Secured Authentication system yields as surprising array of features and benefits and can be used in various applications like e-commerce, e -booking, e-learning and many more.

This project is done with some limitations with only a few known features. If this is developed applying more secured mechanisms and new features that are coming up, we can provide more secured and reliable authentication system for the user.