**Program Instructions  
Download the codes in the link below!**[**https://drive.google.com/drive/folders/1tBSriLPkI5qx1tp1RnWILiuAn6X8OZ7V?usp=sharing**](https://drive.google.com/drive/folders/1tBSriLPkI5qx1tp1RnWILiuAn6X8OZ7V?usp=sharing)

**Set Up the Project Locally:**

* **Create a folder**:  
  Create a folder on your local computer to store the project files. Example: RSA\_QR\_Vault.
* **Create the HTML file**:  
  Inside the folder, create a new file called index.html and paste the HTML code into this file.
* **Create the CSS file**:  
  In the same folder, create a new file called styles.css. This file is used for visual styling. You can leave it empty for now or add custom styles.
* **Create the JavaScript file**:  
  In the same folder, create a file called script.js and paste the JavaScript code into this file. This script handles RSA encryption/decryption, QR generation, and scanning.
* **Download dependencies**:  
  The required external libraries (jsQR, Node Forge, QRious) are hosted via CDN in the HTML, so no extra download or installation is needed.

**Open the App in Your Browser:**

* **Open index.html file**:  
  After setting up all the files, **double-click on the index.html file** to open it in your default web browser (Chrome, Firefox, Safari, etc.).

**Using the App:**

**1. Encrypt & Generate QR Code:**

* **Enter a message**:  
  In the text area labeled **"Write your message here..."**, type the message you want to encrypt.
* **Generate RSA Keys (if not generated already)**:  
  RSA keys will be automatically generated when you first load the page or when you click **"Encrypt & Generate"**.
* **Encrypt and generate the QR code**:  
  Click the **"Encrypt & Generate"** button. The message will be encrypted using the **public key** and a **QR code** will be generated and displayed.
* **Download the QR code**:  
  Once the QR code appears, click the **"Download QR Code"** link to download the QR code image.

**2. Scan or Upload QR Code:**

* **Upload a QR code image**:  
  Click **"Choose QR Image"** to select a QR code image from your computer. The system will process it and decrypt the message if it contains encrypted data.
* **Scan QR code using camera**:  
  Click **"Start Camera Scan"** to start scanning a QR code using your webcam.  
  Once a QR code is detected, the app will **decrypt** the message and display it in the **"Decrypted text appears here..."** area.  
  **Click "Stop Scan"** to stop scanning.

**3. RSA Key Management:**

* **View public and private keys**:  
  The **public key** will be shown in the **"Public Key"** text area (for encryption) and the **private key** will be in the **"Private Key"** text area (for decryption).
* **Download RSA keys**:  
  Click **"Download RSA Keys"** to download the public and private keys as a .txt file. This file contains both keys and can be stored securely.

**4. Toggle Dark/Light Mode:**

* **Switch between dark and light mode**:  
  Click **"Toggle Mode"** to switch between **dark mode** and **light mode** for the user interface.