

# Q - CERGEN

*E - Certificate Generator User Manual  
for  
Quick - Certificate Generator Software*

*Version 3.1  
Secured with SHA-3 Hashing and Steganography*

*Towards swift, perfect & authentic certifications*

**Q - CERGEN**  
**E - Certificate Generator**  
***Version 3.1***

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Shankar Anabalgan, Sourav P Adi, Vivek B A (Adi), &  
Vivek Urankar***

The creator of the certificates agrees to the license agreement file. The generator of the certificates authorizes the creation of each certificate and is solely responsible for the authenticity of the information. The developers of the software aren't responsible for the certificates generated by the issuing authority who has complied with the above conditions.

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# Preface

Traditional certificates with perforated edges have been the essence of earning an award. They play a role in acknowledging the person of the achievements earned. They serve an authentic message from the issuer about accomplishment to anyone who lay eyes on it.

Traditional certificates come with an incurred burden when the number of people getting certified grows. The generation of handmade or paper-based certificates takes from a week to a month. The details are can be erroneous as they are written by hand, re-issuing of such increase costs and time. Authentication and maintenance of the database for numerous certificates becomes a frantic work. The cost and usage of paper also make traditional certificates not to be preferred in the current 21<sup>st</sup> century.

Digitized E-Certificates can be generated within minutes and sent to the receiver via an e-mail or by uploading it on the cloud. A large number of certificates can be generated with minimal errors, also the errors can be rectified instantaneously. No postal costs and no downtime for hand written content. The e-certificates can be employed with security features involving advanced cryptographic techniques such as steganography and secure hash functions.

The Q-CERGEN software is aimed to facilitate the generation of such authentic and foolproof e-certificates. User-friendly interface with secured accounts and can generate a minimum of 3 certificates per second.

**Keshav V Bharadwaj**

**Shankar Anbalagan**

**Sourav P Adi**

**Vivek B A**

## Acknowledgement

We are indebted to a number of individuals who have contributed and assisted in the development of the software. Their contributions are the reflection of the performance from this software in its **Version 3.1**.

We express our gratitude to **Wg Cdr S N Shridhara (Retd)** for his guidance and advice in the development of the software for engineering institutions.

We wish to extend our appreciation to **Chiranjit Patel, Raghava R P, Sharath Payyadi, Sumanth M Bhat**, and **Vivek Urankar** for their assistance in data creation, analysis, and event managemnet for the generation of certificates.

We express our profound gratitude to **Venkata Reddy** for his invaluable support in gaining copyrights / patents for the Q - CERGEN software.

We extend our earnest gratitude and respect to our parents and all our friends who have directly or indirectly supported us.

**Keshav V Bharadwaj**

**Shankar Anbalagan**

**Sourav P Adi**

**Vivek B A**

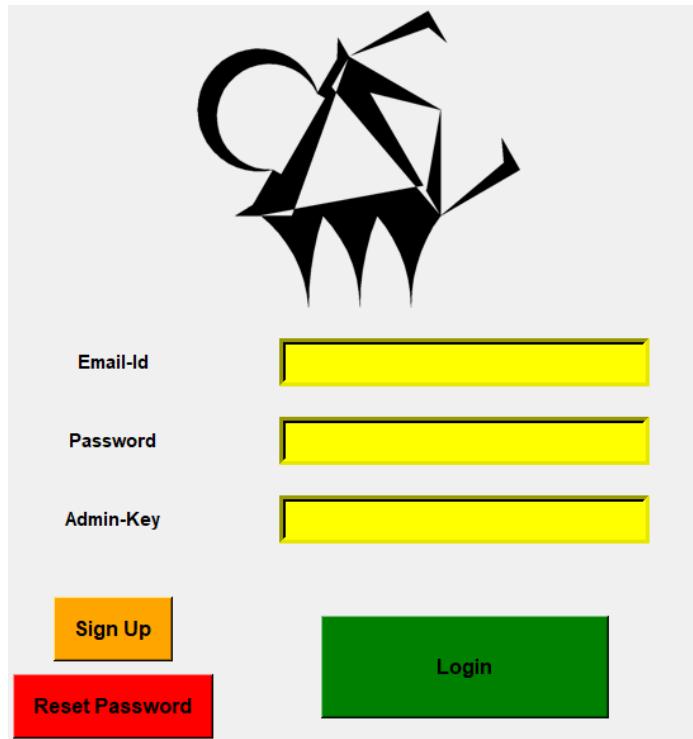
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# Chapter 1

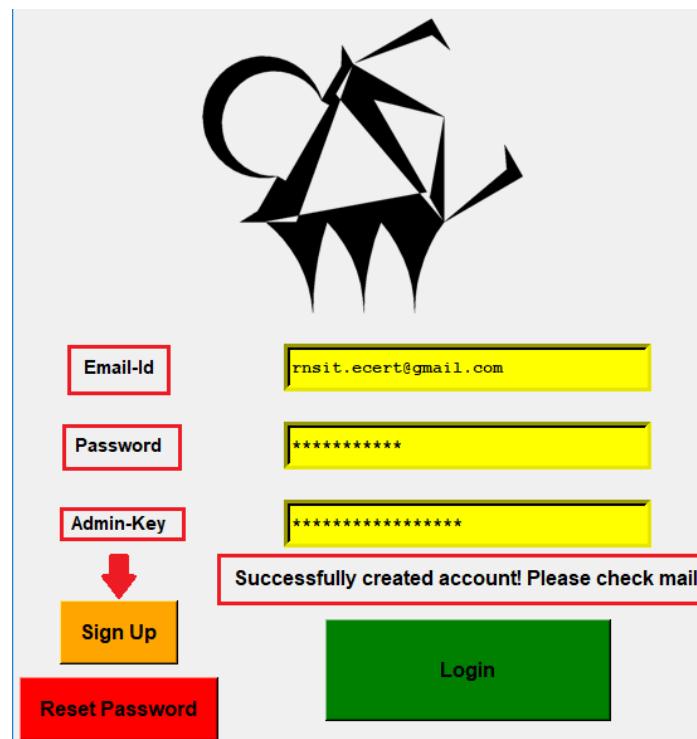
## Login

Navigation in the login screen and creation of new accounts. Resetting the password of existing accounts is done through this page. The outlook is depicted below, fields the user to enter are Email-ID, Password, and Admin Key as per requirements.



### 1.1 Create New Account

- To create a new account, enter a working Email-ID, and a password of your choice.
- Preferably the password must have 8 characters with a special character
- The Admin Key is a must, please contact the Admin / Developer of the software in Contact Us
- All 3 fields must be entered, now clicking Sign-Up will create the account
- Please check verification email to the mail id provided, you can use the new account



Verify your email for project-327741687552 Inbox x



noreply@certifie-80c18.firebaseioapp.com  
to me ↗

Hello,

Follow this link to verify your email address.

[https://certifie-80c18.firebaseioapp.com/\\_/auth/action?mode=verifyEmail&oobCode=iAIIjG02ENi9kZ4AfMx0EiXahQ1CEssNFr98E](https://certifie-80c18.firebaseioapp.com/_/auth/action?mode=verifyEmail&oobCode=iAIIjG02ENi9kZ4AfMx0EiXahQ1CEssNFr98E)

If you didn't ask to verify this address, you can ignore this email.

Thanks,

Your project-327741687552 team

Reply

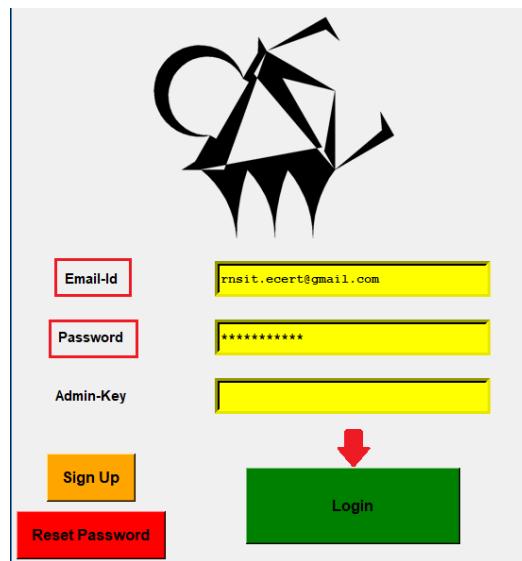
Forward

Your email has been verified

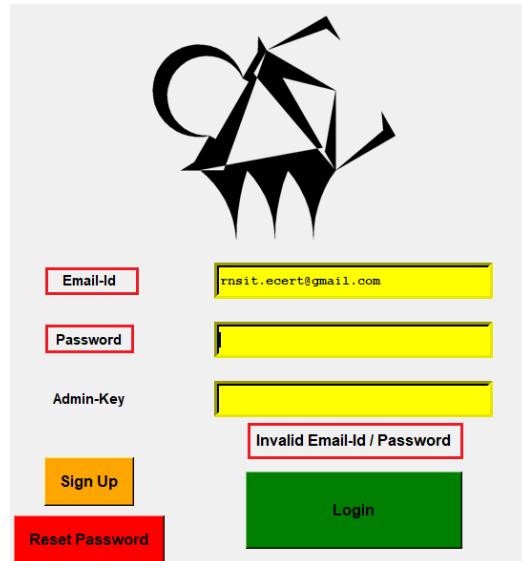
You can now sign in with your new account

## 1.2 Login with existing Account

Logging in with existing are newly created account requires a registered Email-ID and Password.



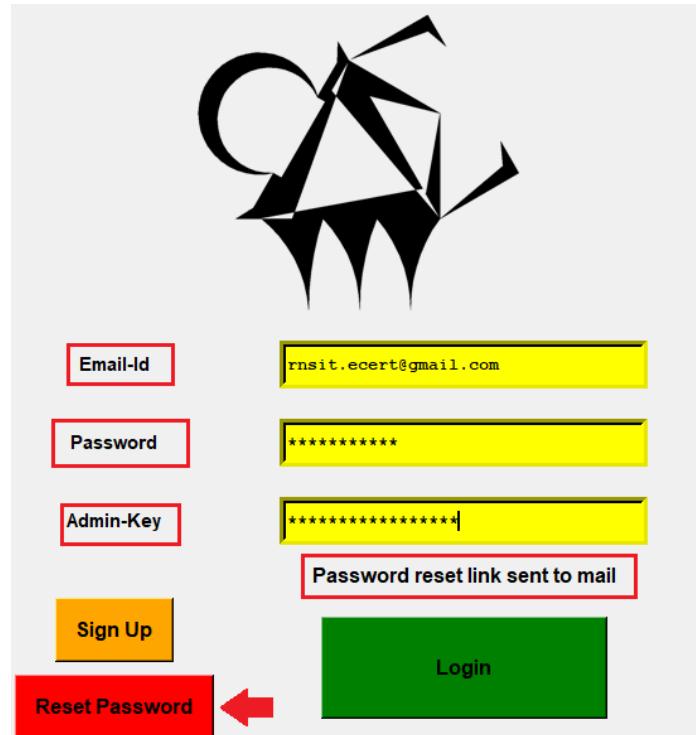
If the Email-ID / Password is erroneous a warning message is displayed to check for the correctness of the Email-ID / Password



### 1.3 Reset Password

Users can reset the Password in case forgotten. You have to contact the Admin / Developer for the Admin Key.

Incase Email-ID is forgotten, Sorry we can't help you :(



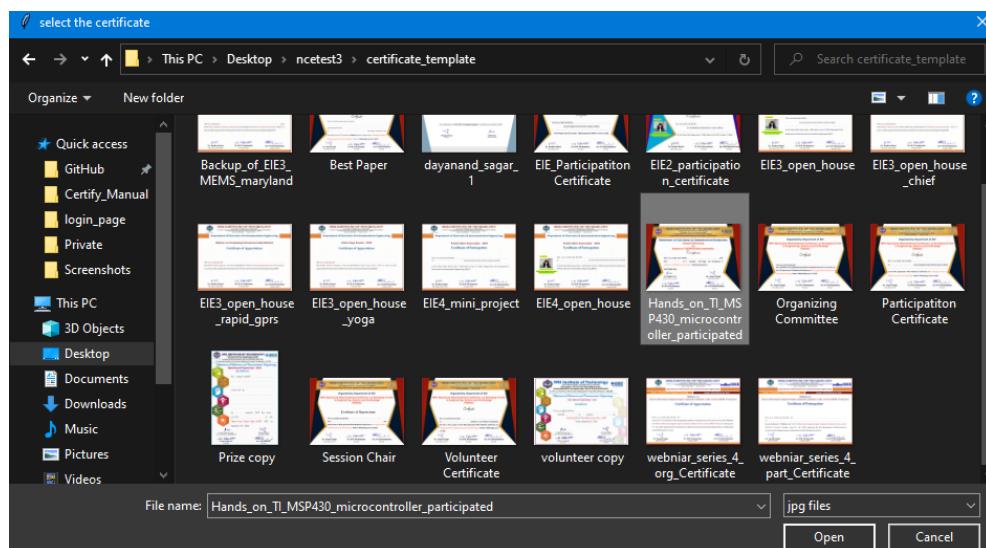
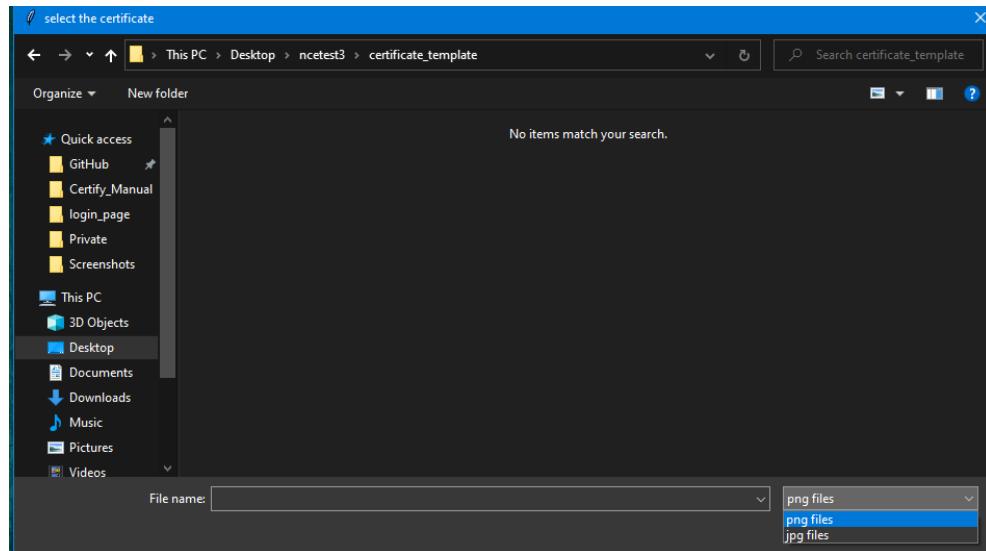
# Chapter 2

## Generation with QR / without QR Code

The mainframe of the generator is as shown below. It is provided with three functionalities, generation, database, decoding the later two will be discussed in the outcoming chapter. Here the procedure to generate e-certificates with QR Code and without QR Code are discussed.

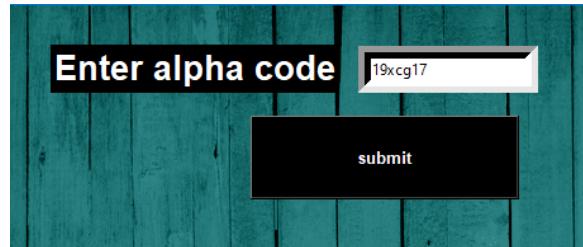
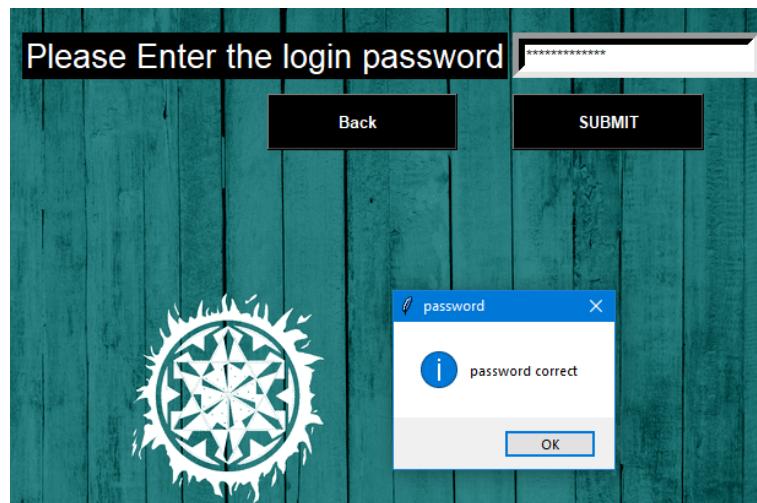
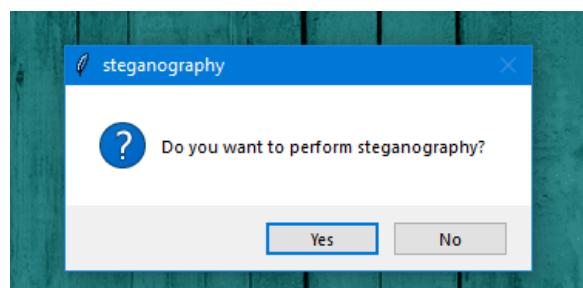


**1. Selection of Certificate template** A certificate template must be created in JPG or PNG format in the host computer. Clicking on the Generation button pops up a window to select the certificate template image. This template can be created in Corel Draw or Adobe Photoshop.



## 2. Steganography

- You can choose to embed a alpha-numeric code as security code. This will be embedded into the certificate by steganography. If you have the password then you can enter your code number.
- If you don't have access to the password we are sorry this feature is not enabled for you!!, go back & select 'No' to continue with generation. With 'No' a Default code will be inserted in steganography.
- Please contact Admin / Developer for the password incase the feature is necessary



### 3. CSV / Data File selection

- Click ‘Yes’ for CSV file
- Create the data in row and columns and save it in ‘.csv’ format
- Make sure there are no columns named as ‘img’ or ‘serial’

A	B	C	D	E	
1	Date	Session Chair	Place of work	Event	Role
2	17-Jun-20	Dr S Sumathi	RNSIT	IETE NCETEST 2020	Session Chair
3	17-Jun-20	Dr Kavya N P	RNSIT	IETE NCETEST 2020	Session Chair
4	17-Jun-20	Dr Mallikarjun H M	RNSIT	IETE NCETEST 2020	Session Chair
5	17-Jun-20	Dr Madhura Gangaiah	RNSIT	IETE NCETEST 2020	Session Chair
6	17-Jun-20	Dr Andhe Pallavi	RNSIT	IETE NCETEST 2020	Session Chair
7	17-Jun-20	Dr S Sathish Kumar	RNSIT	IETE NCETEST 2020	Session Chair
8	17-Jun-20	Ullas Bharadwaj	Germany -> Computer scientist	IETE NCETEST 2020	Session Chair
9	17-Jun-20	Mahesh Kumar Balareddy	USA -> Senior Engineer	IETE NCETEST 2020	Session Chair
10	17-Jun-20	Kotrick Navin Kumar	Finland -> Verification Specialist	IETE NCETEST 2020	Session Chair
11	17-Jun-20	Nidhin K Biju	Bangalore -> Engineer	IETE NCETEST 2020	Session Chair
12	17-Jun-20	Rahul Raj Sharma	AVP -> Genpact	IETE NCETEST 2020	Session Chair
13	17-Jun-20	Harsha Dalali	USA -> Software Engineer	IETE NCETEST 2020	Session Chair
14	17-Jun-20	Satyajit K	USA -> Senior Engineer	IETE NCETEST 2020	Session Chair
15	17-Jun-20	Dr Sridhara S N	RNSIT	IETE NCETEST 2020	Session Chair
16	17-Jun-20	Dr Suresh D	RNSIT	IETE NCETEST 2020	Session Chair
17	17-Jun-20	Dr M Ravindra	RNSIT	IETE NCETEST 2020	Session Chair
18	17-Jun-20	Dr Uma S V	RNSIT	IETE NCETEST 2020	Session Chair
19	17-Jun-20	Dr Rajini V Honnunagar	RNSIT	IETE NCETEST 2020	Session Chair
20	17-Jun-20	Dr Manjula V K	RNSIT	IETE NCETEST 2020	Session Chair
21	17-Jun-20	Dr Usha B S	RNSIT	IETE NCETEST 2020	Session Chair
22	17-Jun-20	Dr Archana R Kulkarni	RNSIT	IETE NCETEST 2020	Session Chair
23	17-Jun-20	Dr Prabhavathi C N	RNSIT	IETE NCETEST 2020	Session Chair
24	17-Jun-20	Dr Nandini K S	RNSIT	IETE NCETEST 2020	Session Chair
25	17-Jun-20	Prakash Tunga P	RNSIT	IETE NCETEST 2020	Session Chair
26	17-Jun-20	Dr Sangeetha B G	RNSIT	IETE NCETEST 2020	Session Chair
27	17-Jun-20	Dr Mamatha A S	RNSIT	IETE NCETEST 2020	Session Chair
28					
29					
--					

Figure 2.1

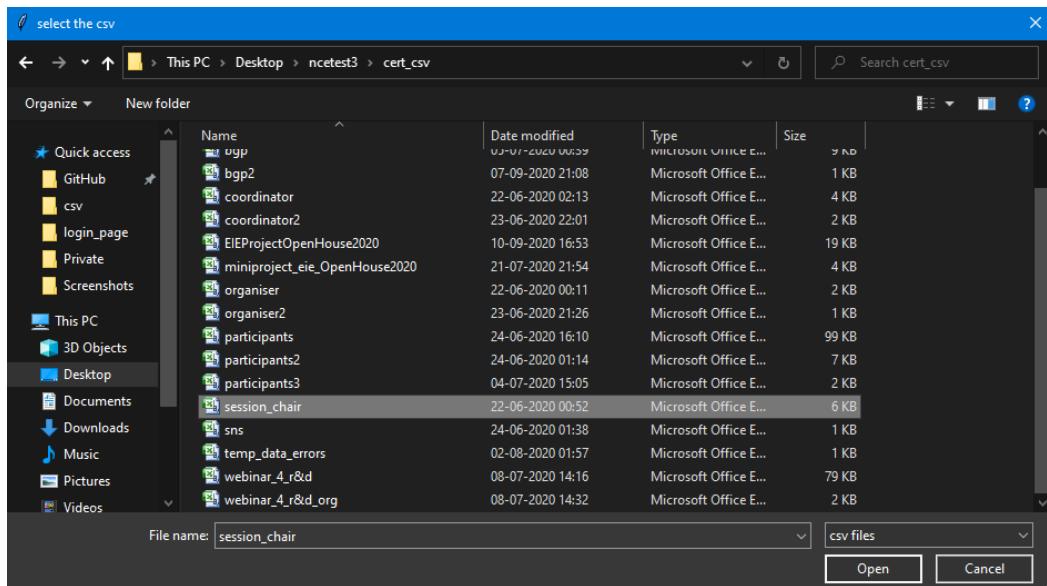
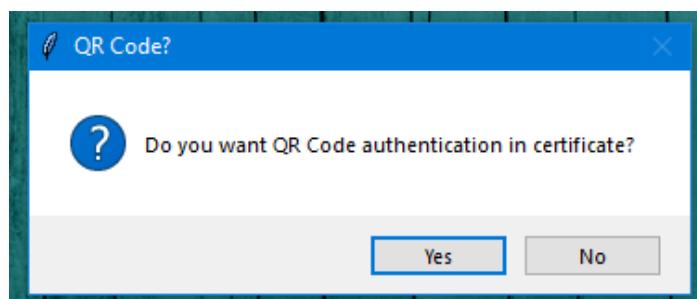


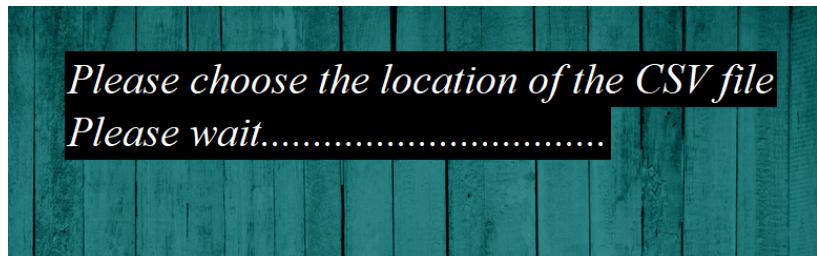
Figure 2.2

#### 4. Choosing QR code / No QR Code

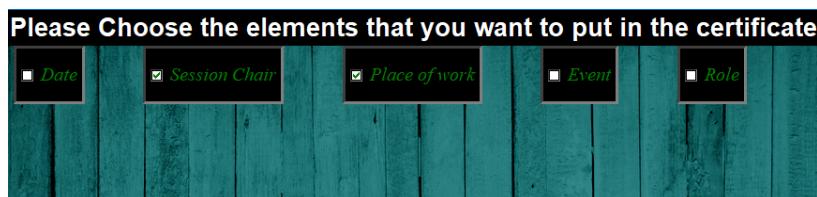
- You can select whether QR Authentication with SHA-3 Hashing must be provided or not for the certificates
- If 'No', then you'll be taken to select the required columns that come up on the certificate
- If 'Yes' you'll have to wait for few moments to create the QR codes and Authentication links for verification. After the links generated you'll have to select the columns required for the certificate
- *Adiced to place QR Codes on white background*



- IF YES

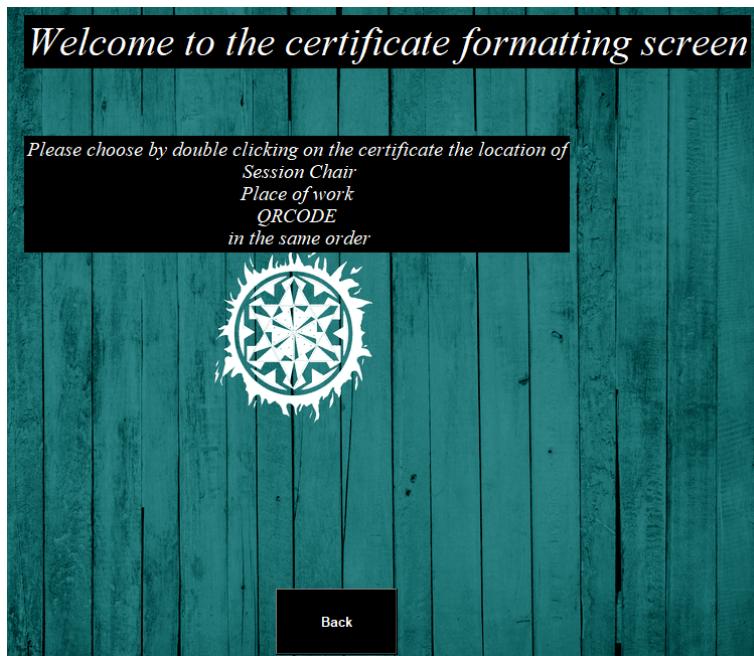


- IF NO, & after Authentication link generation when YES



## 5. Selection of attributes on certificate

- The columns selected must now be pointed to location of the certificate. Double clicking the points is displayed with a blue circle
- The attributes must be selected in the order displayed on screen, it also contains QR code if generated

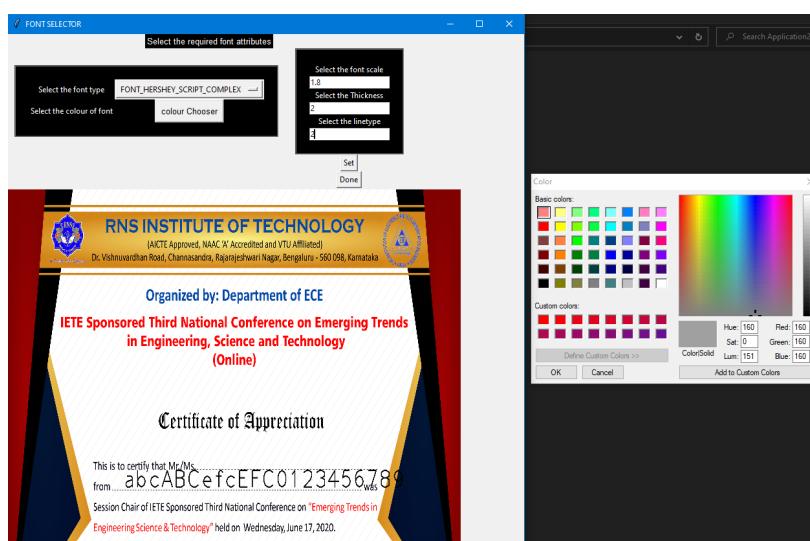


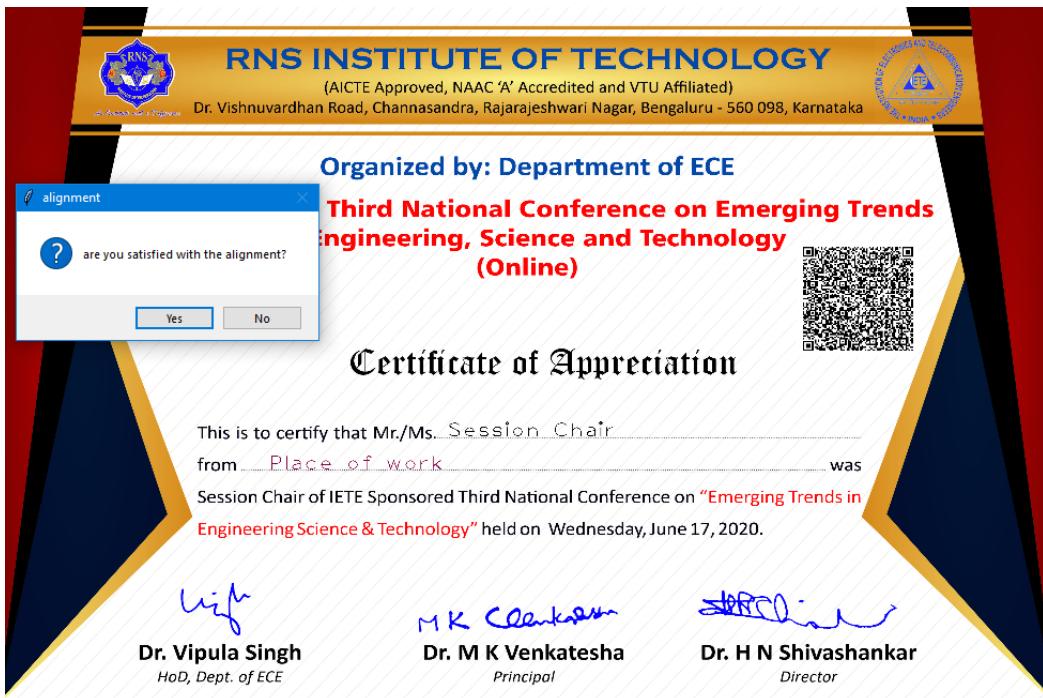
## 6. Font Selection and Scaling

- Each attribute is given an option of font size, line thickness, font style and color change
- If QR code is chosen then the scaling of QR code is provided with a scale from 1-9, advicable to use between 5-7

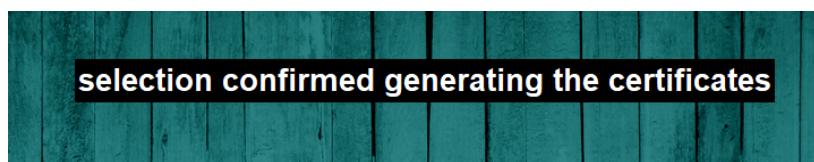


- Font Style and Size can be adjusted. The Font Scale can be updated in decimal values
- The Colors for the font can be selected from color chooser
- Set to check the changes made, and Done to commit the change and close the editing window





- Alignment verification, if 'YES' continues to use this as a template for certificate generation
- If 'No' then you can make changes to the alignment again
- Wait till all certificates have been generated into the Certificates Folder
- Mainframe is displayed after the operation, can continue with the next work!!

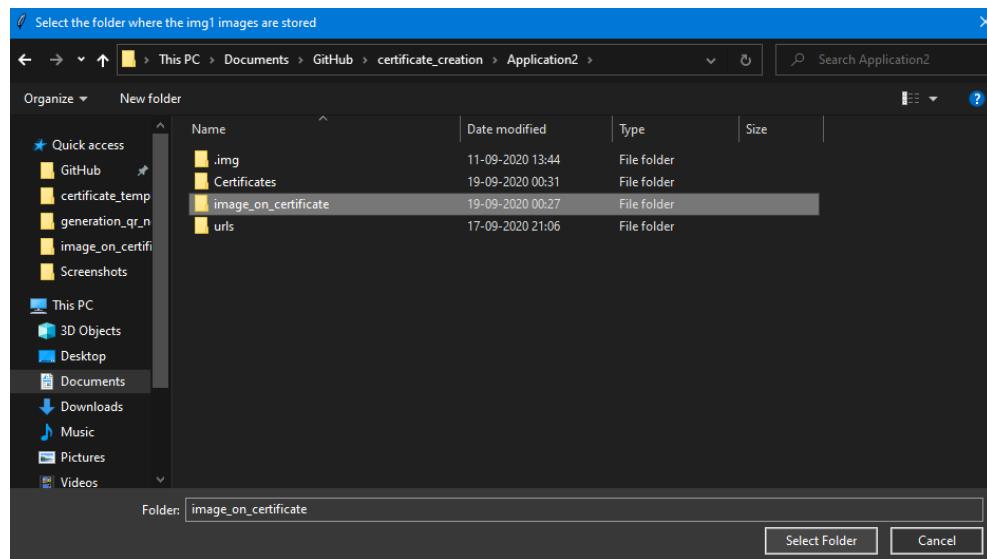


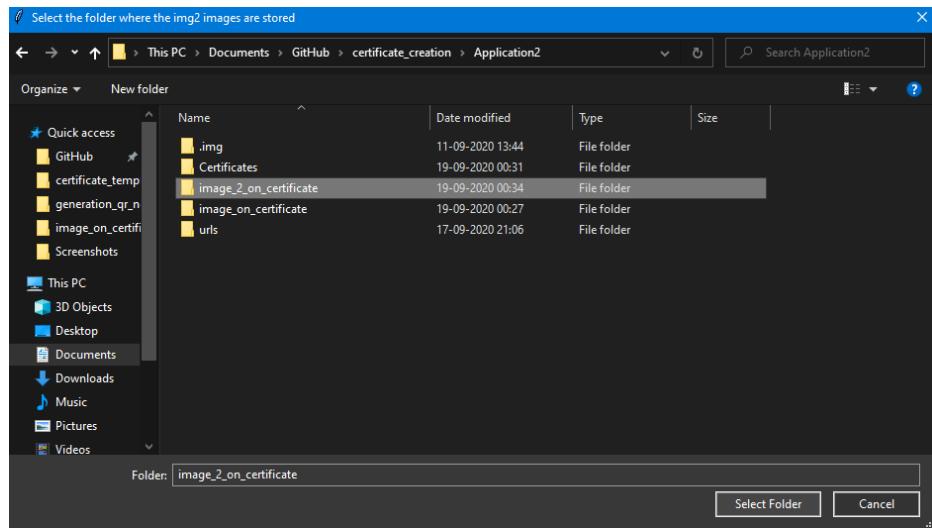
# Chapter 3

## Image on Certificate

- The certificates can be generated with QR / without QR as discussed in the previous sections
- The CSV file must be generated with columns named after ‘img’, is can be img1, img2 and so on
- The attributes are selected in the window and located on the certificate in the displayed order only

	A	B	C	D
1	Name	img1	img2	
2	Newton	newton.jpg	newton_sign.png	
3				
4				
5				





Please Choose the elements that you want to put in the certificate



Welcome to the certificate formatting screen

Please choose by double clicking on the certificate the location of  
 Name  
 img1  
 img2  
 in the same order



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**IEEE**  
BANGALORE SECTION

**Department of Electronics & Communication Engineering**

**Center of Excellence in Signal Processing**      **Center of Excellence in VLSI**

**Webinar on**  
**R & D in Electronics Engineering for Academic Institutes in the current COVID-19 Scenario**

**Certificate of Appreciation**

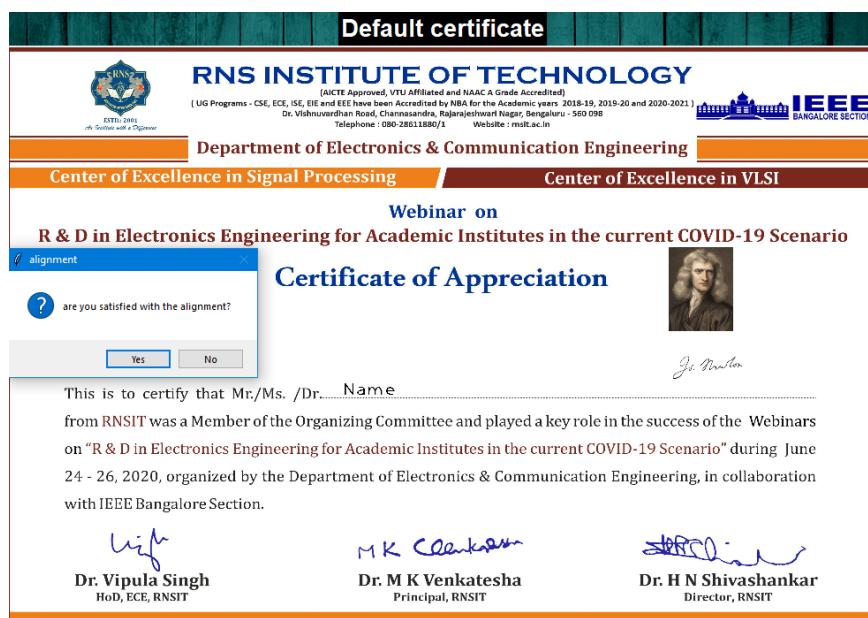
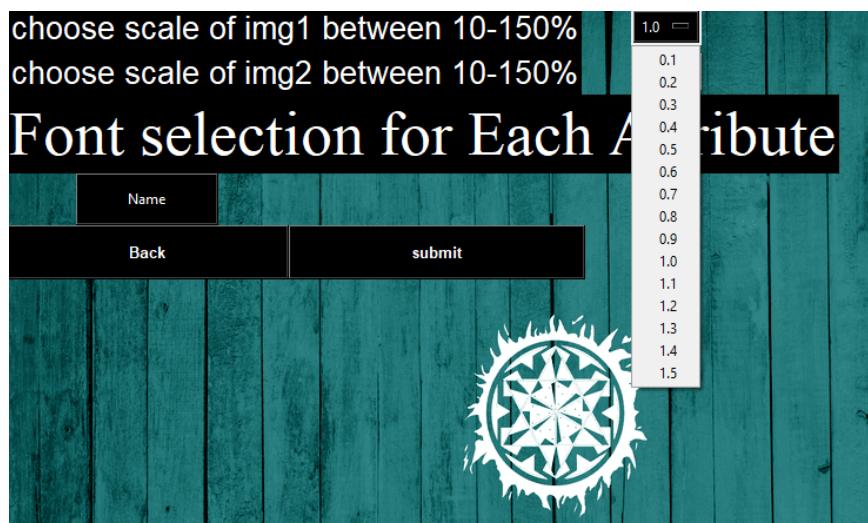
This is to certify that Mr./Ms. /Dr. \_\_\_\_\_  
 from RNSIT was a Member of the Organizing Committee and played a key role in the success of the Webinars on "R & D in Electronics Engineering for Academic Institutes in the current COVID-19 Scenario" during June 24 - 26, 2020, organized by the Department of Electronics & Communication Engineering, in collaboration with IEEE Bangalore Section.

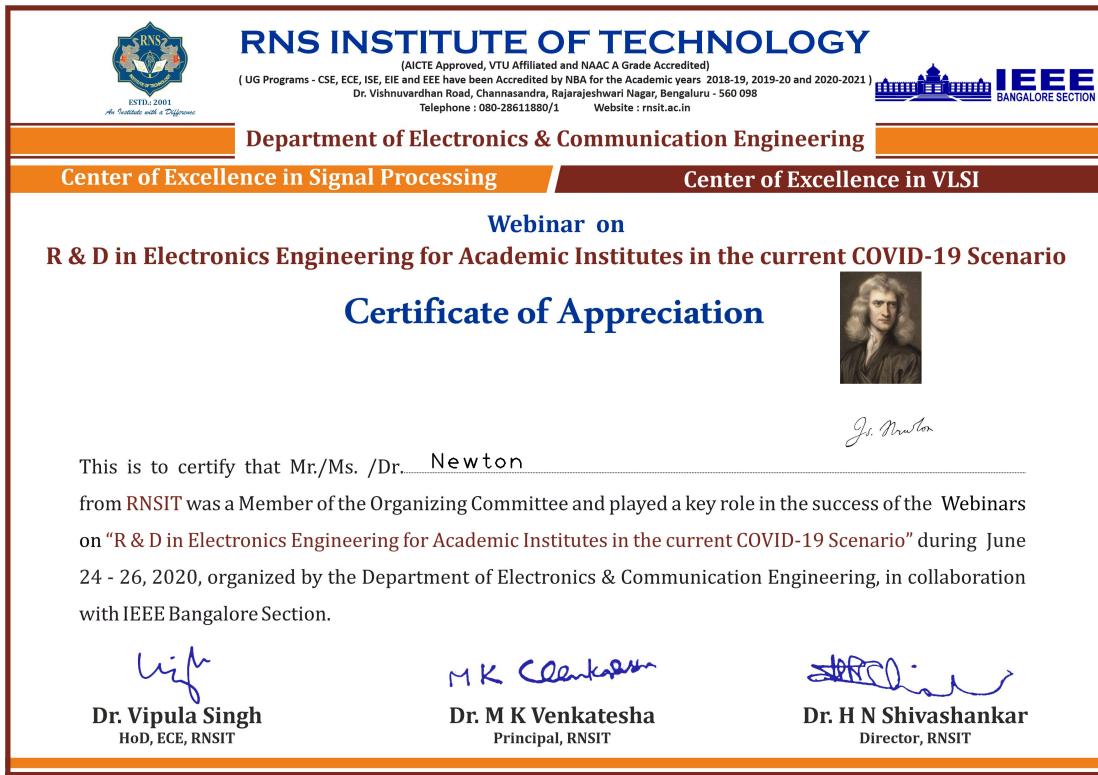
**Dr. Vipula Singh**  
HoD, ECE, RNSIT

**Dr. M K Venkatesha**  
Principal, RNSIT

**Dr. H N Shivashankar**  
Director, RNSIT

- The images can be resized with the factor of 0.1x to 1.5x
- Other features of font style selection and QR scaling remains as in previous section





A example certificate with images of Sir Issac Newton and his signature are embedded and generated.

Certifiate with images are generated with the Q - CERGEN software. This feature can be employed to produce large number of certificates with the details and respective photographs.

# Chapter 4

## Database

Database give you the access to all the generated certificates, to search for them and delete the ones that have errors. the deleted ones can be generated a fresh and added to the database following the usual generation procedure.

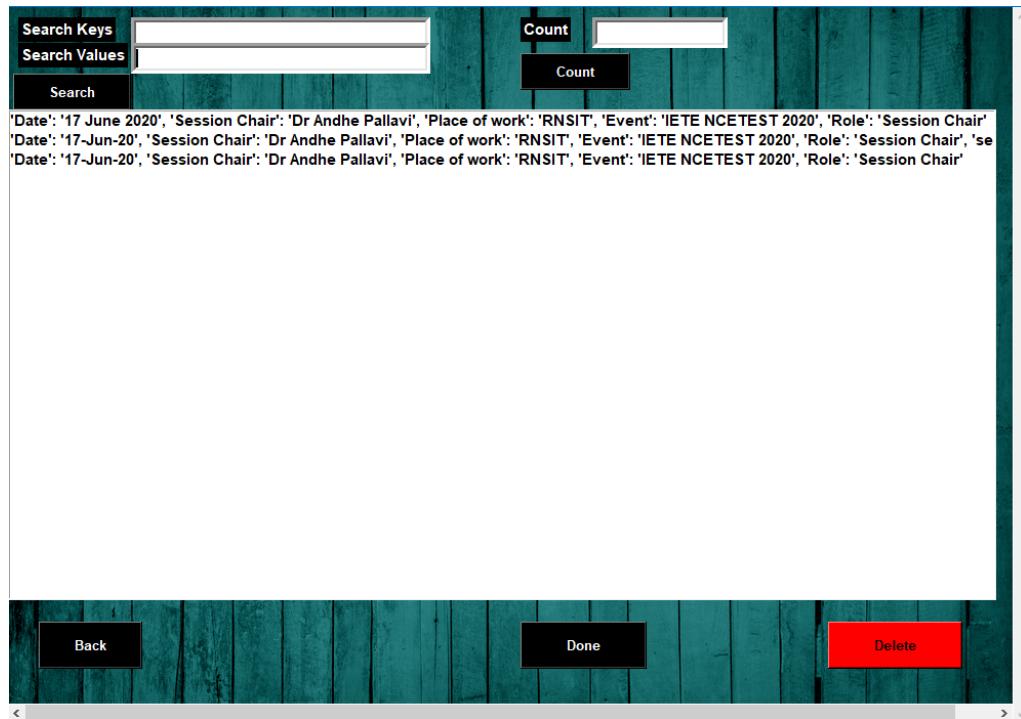
### 4.1 Search ALL

- To display all the data in the database just click on search with empty input to the key and value fields.
- You are allowed to scroll down and even pan left to right incase of long data-grams.
- Once done searching click on ‘Done’ to end the current search and perform a new one.

Search Keys	Search Values	Count	Count
Search			Count
Date: '17 June 2020'	'Name': 'Ibrar Jahan M A', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Organiser'		
Date: '17 June 2020'	'Name': 'Chethana J', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Organiser'		
Date: '17 June 2020'	'Name': 'Praveen G', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Organiser'		
Date: '17 June 2020'	'Name': 'Leena Chandrashekhar', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Organiser'		
Date: '17 June 2020'	'Name': 'Apoorva N H', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Organiser'		
Date: '17 June 2020'	'Name': 'Nirmala M S', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Organiser'		
Date: '17 June 2020'	'Name': 'Dhanusha A', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Organiser'		
Date: '17 June 2020'	'Session Chair': 'Dr S Sumathi', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Session Chair'		
Date: '17 June 2020'	'Session Chair': 'Dr Kavya N P', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Session Chair'		
Date: '17 June 2020'	'Session Chair': 'Dr Mallikarjun H M', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Session Chair'		
Date: '17 June 2020'	'Session Chair': 'Dr Madhura Gangaiah', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Session Chair'		
Date: '17 June 2020'	'Session Chair': 'Dr Andhe Pallavi', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Session Chair'		
Date: '17 June 2020'	'Session Chair': 'Dr S Sathish Kumar', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Session Chair'		
Date: '17 June 2020'	'Session Chair': 'Ullas Bharadwaj', 'Place of work': 'Germany -> Computer scientist', 'Event': 'IETE NCETEST 2020'		
Date: '17 June 2020'	'Session Chair': 'Mahesh Kumar Balareddy', 'Place of work': 'USA -> Senior Engineer', 'Event': 'IETE NCETEST 2020'		
Date: '17 June 2020'	'Session Chair': 'Kotrick Navin Kumar', 'Place of work': 'Finland -> Verification Specialist', 'Event': 'IETE NCETEST 2020'		
Date: '17 June 2020'	'Session Chair': 'Nidhin K Biju', 'Place of work': 'Bangalore -> Engineer', 'Event': 'IETE NCETEST 2020', 'Role': 'Session Chair'		
Date: '17 June 2020'	'Session Chair': 'Rahul Raj Sharma', 'Place of work': 'AVP -> Genpact', 'Event': 'IETE NCETEST 2020', 'Role': 'Session Chair'		
Date: '17 June 2020'	'Session Chair': 'Harsha Dalal', 'Place of work': 'USA -> Software Engineer', 'Event': 'IETE NCETEST 2020', 'Role': 'Session Chair'		
Date: '17 June 2020'	'Session Chair': 'Satyajit K', 'Place of work': 'USA -> Senior Engineer', 'Event': 'IETE NCETEST 2020', 'Role': 'Session Chair'		
Date: '17 June 2020'	'Session Chair': 'Wg Cdr Sridhara S N', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Session Chair'		
Date: '17 June 2020'	'Session Chair': 'Dr M Ravindra', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Session Chair'		
Date: '17 June 2020'	'Session Chair': 'Dr Suresh D', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Session Chair'		
Date: '17 June 2020'	'Session Chair': 'Dr Uma S V', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Session Chair'		
Date: '17 June 2020'	'Session Chair': 'Dr Rajini V Honnunagar', 'Place of work': 'RNSIT', 'Event': 'IETE NCETEST 2020', 'Role': 'Session Chair'		

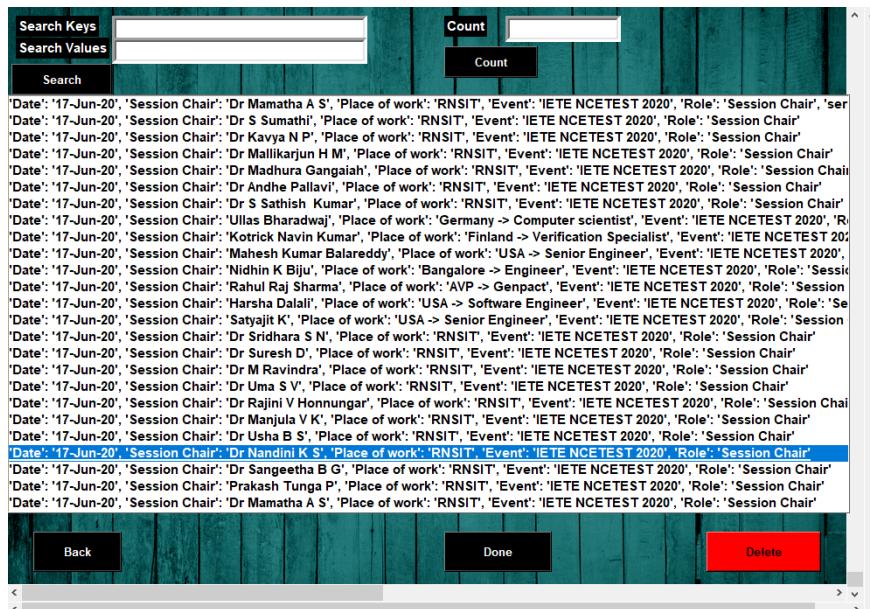
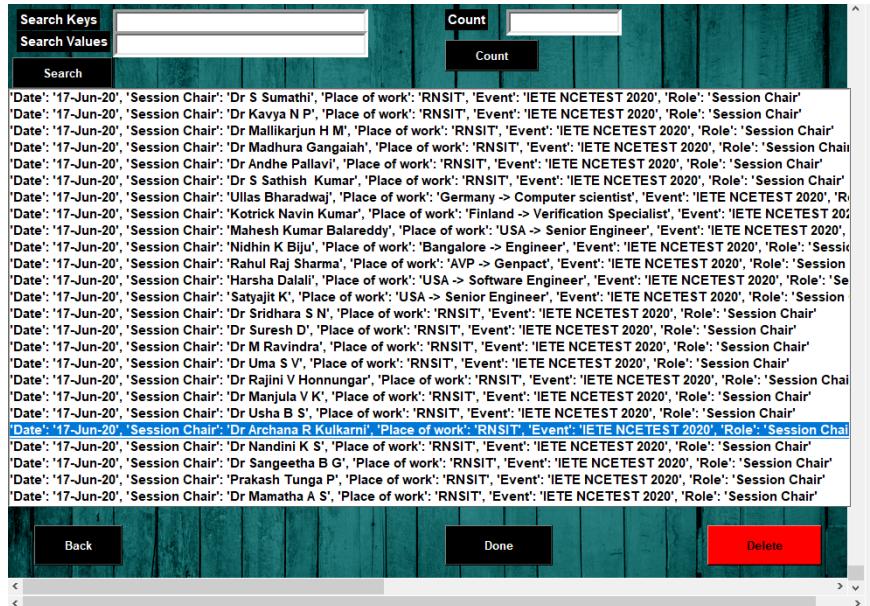
## 4.2 Search by Key : Value

- Search Keys will contain values of the column name such as Name, Date, Project Title, they are case sensitive
- The values pertaining to the keys are entered to find a match, values are also case sensitive
- To search by more than one key-value pair, more pairs can be entered by comma separation of keys and values respectively
- Search returns the matched data, if no data match returns null.



### 4.3 Delete data

- Selecting the displayed data via mouse or keyboard arrow keys
- Selected data will be highlighted, and if erroneous can be deleted
- the deleted data will no longer be authenticated certificated, either that certificate has to be withdrawn or provide a new by generating a fresh
- Be highly cautious while using the delete button, cannot make a mistake deleting the wrong data. Person using this feature is solely responsible for the actions.



## 4.4 Count of certificates generated

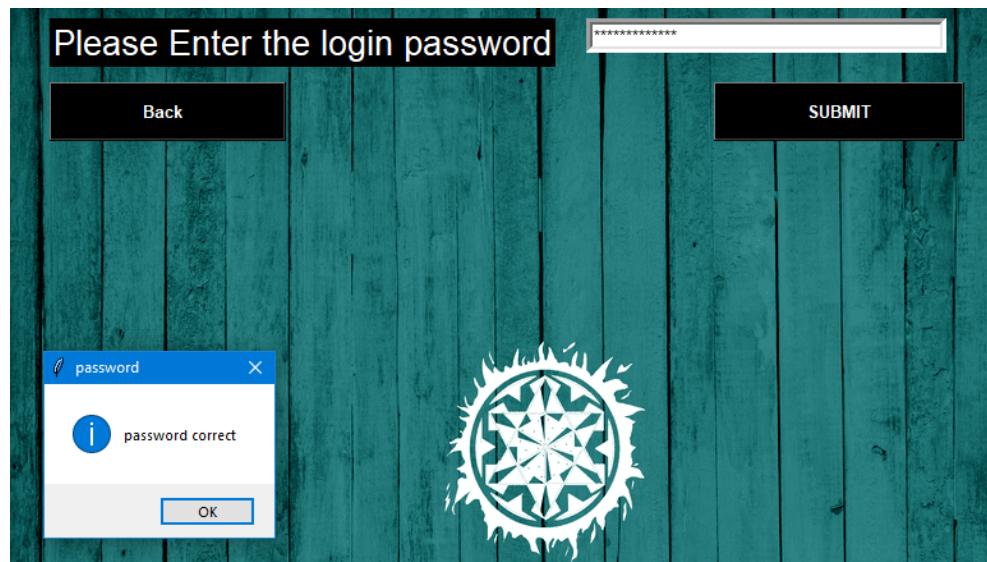
Displays the number of certificates generated as of that day.

The screenshot shows a user interface with a dark teal background. On the left, there are two input fields: 'Search Keys' and 'Search Values', both currently empty. Below these is a 'Search' button. On the right, there is a 'Count' button and a text field containing the value '1242'. The entire interface is set against a dark teal wooden-grain background.

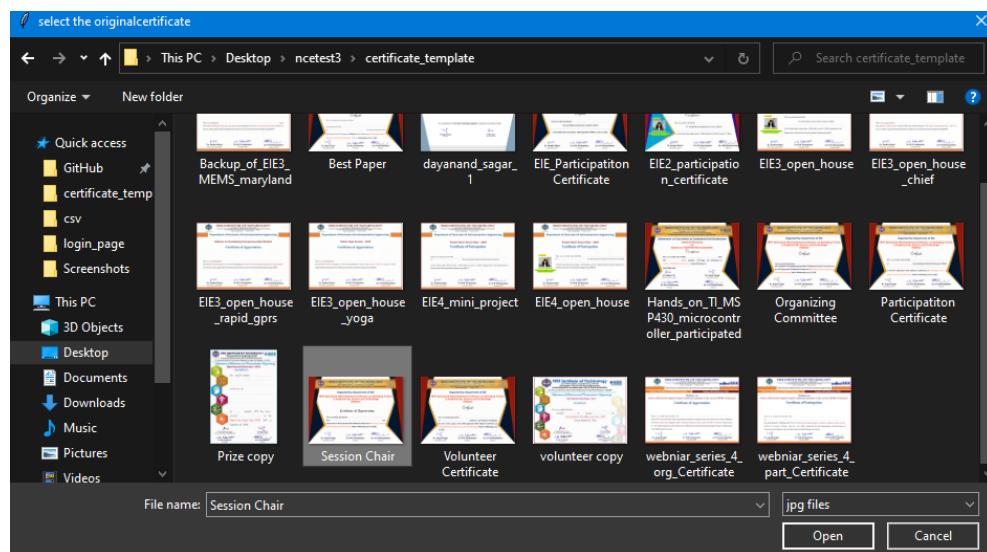
# Chapter 5

## Decoding

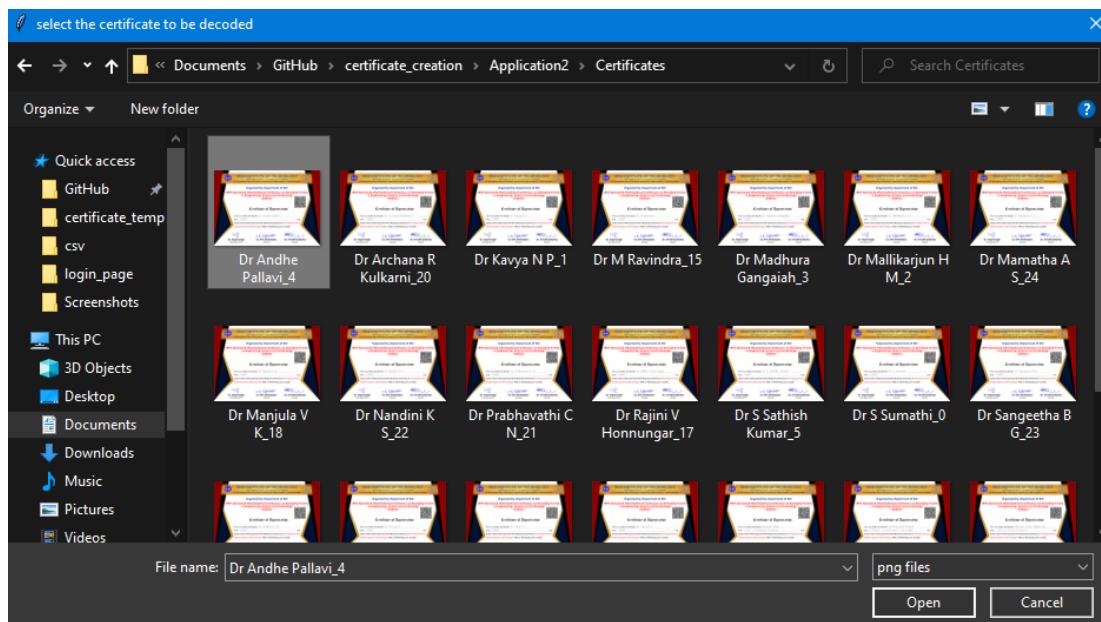
- A password form the Admin / Developer is required to initiate the decoding.  
This is to verify the steganography code.



- Selection of the original template to verify.



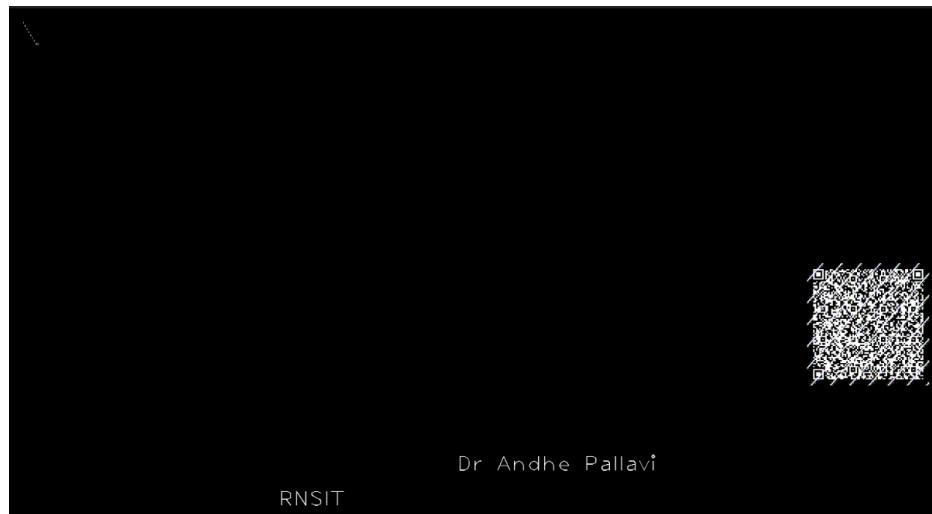
- Choosing the certificate to be decoded.



- message after decoding displayed in mainframe



- Decoded certificate



- The code embedded by steganography is displayed for verification. Level-2 of security embodied with the certificate along with SHA-3 hashed links provided for the QR code verification.



# Chapter 6

## Example certificates

### 6.1 Example-1 & QR Verification

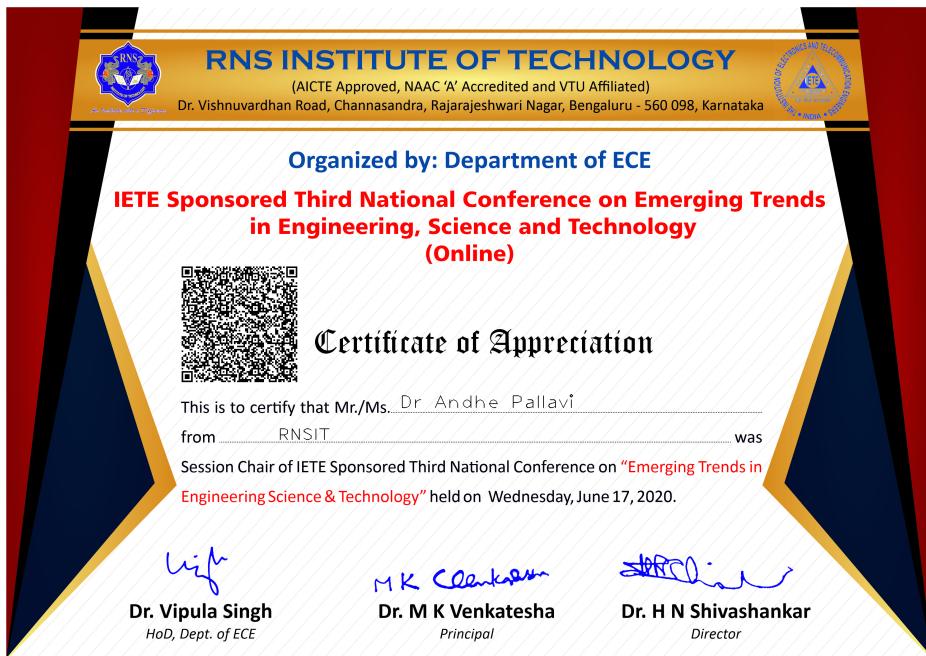


Verified!

This certificate is authentic

• Date : 17-Jun-20
• Session Chair : Nidhin K Biju
• Place of work : Bangalore -> Engineer
• Event : IETE NCETEST 2020
• Role : Session Chair

## 6.2 Example-2 & QR Verification



**Verified!**

This certificate is authentic

<ul style="list-style-type: none"> <li>• Date : 17-Jun-20</li> <li>• Session Chair : Dr Andhe Pallavi</li> <li>• Place of work : RNSIT</li> <li>• Event : IETE NCETEST 2020</li> <li>• Role : Session Chair</li> </ul>
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# **Appendix A**

## **Warnings**

# **Appendix B**

## **FAQ**