TRUSTIFY - Article for National Conference

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ABSTRACT

The use of certificates as a POE of any skill has been of widespread use in recent times at various locations. This may beat interviews for a new position; irrespective of the type of position one is trying to achieve or for a new job or a promotion. These certificates have various details (each of which shall be elaborated in the further scope of this article) which help the person on the other side of the table; trying to verify this document. Other than these, experienced people take the help of appreciation letters and letters of recommendations to move aheadthrough the hierarchy.

Keywords

POE - Proof Of Excellence;

1. INTRODUCTION

Certificates and other documents hold immense importance due to their power of being able to manipulate decisions. These certificates and documents are handed over to people through various organizations and bodies ranging from government organization to student councils.

2. THREAT

When something holds the power to makr decisions and also that it holds some responsibility, there is always a threat of duplication that surfaces through, and the reson for this fear is that with the fast moving technology, creating, editing and printing carbon copies of certificates and documents is no rocket science. Itsmerely a matter of using the right softwares and getting the detailsmentioned on the certificate right. This ease of duplication becomes a hurdle in the process of verification for an actualcertificate holder.

3. NEED

The need of this project is to be able to overcome the fear of duplicity and also be able to provide a solution that will contribute in proving the authenticity of the original certificate/document. Also another need is to provide the user (issuer) a suitable and dependent way of storing the information or details (further elaborated) of that particular document or certificate.

4. DOCUMENT SPECIFICATIONS

4.1 Issuer

The one who is declaring this document holds the term of the issuer. This issuer may be a person, group of persons, a body or a organization. This issuer may or may not hold any governmental authority. When a user visits our portal for the first time they are expected to register themselves and enter various details poving their identity. Hence, further they can avail the services.

4.2 Receiver

The one who the document has been addressed to holds the title of the reiever and his/her basic details llike the name, etc are stored in the database before the generation of the unique identity for that document.

4.3 Purpose

The purpose and other specific details of the cause of th edocument must be mentioned. Details like the event name, date, etc must be clearly mentioned. Also the level must be mentioned as its main purpose is to benefit the user.

5. TECHNOLOGY USED

The project is made using the MERN stack which stands for MongoDB, Express js, ReactJS, and Nodejs. ReactJS is an open-source front-end framework, ExpressJS is used for routing and handling middleware, NodeJS is used for creating backend servers with the help of Express js, and MongoDB is used as a database to store user information.

In this platform, the user creates an account, creates the user profile by adding required details. After creating a profile, the usercan access all the functionalities of the system and use them for thebest .

6. CONCEPTS AND METHODS

6.1 Product Perspective

The thought behind this system is inspired by the fact that when an individual tends to present any of the documents (Certificates, LOR, Appreciation Letters, etc), they must be able to prove its originality and gain its benefits. Someone one may very easily duplicate such documents and present them to gain the benefits

must be stopped from doing so and this can be done only when such a system is in existence.

➢ Users will be able to validate/authenticate its document whenever they want from this platform.

➢ To achieve these requirements the platform will be utilising the use of technologies like Node.js (Server Implementation), React.js (Frontend Implementation), MongoDB (for non-relational dynamic content).

6.1 Product Features

➢ QR Code Generation
The user can generate their own specific QR to authenticate their document using this platform so that anyone can verify it later.

➢ Verification of Certificate Details
One can scan the QR code from their device to verify the document from any given location

7. MARKET COMPETITION

Table 1. Similar systems available in market and limitations

Name of the project	Features/ functionalities	Limitations
Canva	- Ready-made Certificate Template - Editable Templates	Any user in this world will be able to generate a duplicate copy of the same template
Wisenet	- Generates QR Code as per details entered - Each QR generated is unique	Portal does not store data of the QR Code generated which leaves a loophole where a different QR Code can be generated for the same details.

8. REQUIREMENT SPECIFICATION

8.1 Functional Requirements

➢ Generate a Unique ID/QR code
➢ To be able to validate the document in the future.
➢ To be able to store and back up all the data in an organised manner.
➢ Registration
   ○ New users can make a new account and access the website

   ○ Registration requires - email, password and name of the user
➢ Login

   ○ Existing users can login into the website by using their email id and password

   ○ Login has 2 field - email and password

   ○ Login also has a dedicated button for "login through Gmail" and "login through GitHub" if in case a user wants to login through their Gmail or GitHub account.

➢ User Profile Creation
   ○ After Signing up, users need to fill up their

8.2 Non-Functional Requirements

➢ Availability
○ The web application will be available for a wide set of users.

○ The site is specifically targeted at users who are in search of some type of developer user. This doesn't restrict age limits, education/knowledge limits, or race and ethnicity barriers.

○ The web application is targeted to work on a global scale.

➢ Maintainability
○ The main technology used to maintain the structure and codebase of the site is Git which is the version control system being used here.

○ Postman Documentation tool is used for documenting APIs used for Backend Frontend communication.

○ In the hosted machine technologies like Nginx (for hosting, domain management and redirections), Let's Encrypt (for issuing SSL certificates) and Certbot (for managing and regular updation of SSL certificates) will be used.

➢ Security
○ There are various security measures used and users are also requested to follow some guidelines.

○ SSL layer to the normal HTTP is implemented toensure a secured connection between client and server.

○ Users are recommended to access this website from the following web browsers Google Chrome, Mozilla Firefox, Microsoft Edge, Apple Safari, Vivaldi, or any Open Source browsers based upon Chromium and Firefox both on mobile and desktop platforms.

➢ Responsiveness

○ The responsiveness of the website will be dependent on several factors like internet speed/type, computer hardware, web browser used, also servers themselves, etc.

○ Accessing this website on old web browsers and hardware could cause some problems.

○ Responsiveness of the website can be improved by using updated versions of web browsers and decent system hardware.
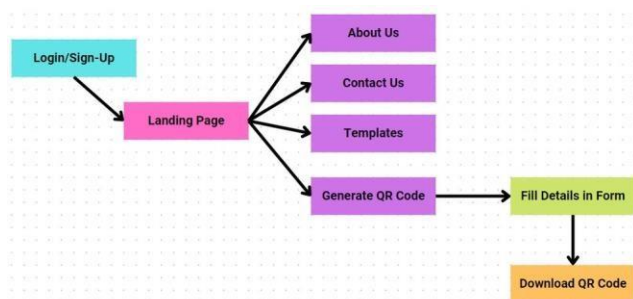
➢ 8.   DIAGRAM

Diagram 1. System Flow

9. SOFTWARE TESTING

9.1   Types of testing used

Unit Testing
A test that confirms the functionality of a particular area of code, often at the function level, is referred to as a unit test, sometimes known as a component test. Developers typically write these kinds of tests as they work on the code (white-box technique), checking that a particular function is performing as it should. Multiple tests may be run on a single function to catch edge cases or other code branches.
In this project, unit testing has been done at the backend for authentication, the frontend of user profile creation, form validation of profile and sign-in/signup form.

Interface Testing
The web server and application server interfaces communicate with one another, and interface testing makes sure everything goes without a hitch. This involves ensuring that error messages are shown accurately and that the communication procedures are being checked.
Our programme has undergone interface testing, and the results show that all operations and communication between modules are operating as intended.

10.   FUTURE SCOPE

➢ Premium Feature of storing data onto Blockchain

➢ Being able upload self templates and edit them on the system

11.   CONCLUSION

"TRUSTIFY" will help the new/experienced developers across the world to explore their technical skills, connect, interact and build their dream projects with buddies across the world.

12. ACKNOWLEDGMENTS

9.2   Scenarios

Table 2: Testing Use cases

Sr. No.	Scenario	Description	Result
1	Integration of profile creation page	To integrate the profile page with the signup and login page which were made separately.	Pass
2	QR Code Generation	To be able to generate a unique QR code of each set of data	Pass
3	Validation of user data through email and password	Validating the email and password of the user if it's present in the database.	Pass
4	Taking input details for each unique certificate	Take input in 'form' format and store it into database	Pass
5	Data Retrieval from database	Being able to retrieve all the data for certificates	Fail

13.   REFERENCES

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