Digital Certificate Generator and Mailer Software

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Abstract -The software would allow an organization to create certificates for an event quickly and conveniently. It would be available in the form of a web application, allowing the user to generate certificates with the click of a button. It would also be integrated with Google's Gmail API, allowing the certificates to be sent directly to the participants' e-mail addresses. The user interface of the software would be easy to understand and navigate, featuring a graphical design that would make it easier to use. The software would also be equipped with features such as the ability to customize the design of the certificate, add logos, and add images. The software would also be able to store the certificates in a database, allowing the user to access them later on. Furthermore, the software would be equipped with security features to ensure the safety and integrity of the data it stores. Overall, the software we have designed would be a great tool for organizations who are looking to conduct an event on a digital platform. The software would enable them to generate certificates quickly and conveniently, as well as send them to the participants' email addresses. The software would also feature a user-friendly UI, customization options, and security features.

Key Words: Certify, mailer, Iot, Gmail Api

1.INTRODUCTION

The software which we are going to design is an interactive web portal. This web portal is divided into two major parts:

The **first part** is the certificate generator. A user needs to upload a csv file containing the name and email address of the participants he wants to generate the certificate for. After uploading the file, the user needs to select the template for the certificate and enter the event details. After that, the certificates will be generated.

The **second part** of the software is the mailer. This part of the software will be used to send the generated certificates to the specified email addresses of the participants. We will be using Google Gmail API for this purpose. The user needs to provide his own Gmail credentials in order to send the certificates.

To generate the certificates we will be using HTML and CSS. We will create a template for the certificate and then we will use a script to generate the certificates in bulk. We will also use the Google Gmail API to send the certificates to the specified email addresses.

To make the process more secure we can also add the authentication mechanism to the software. This authentication mechanism will be used to verify the user before

LITERATURE SURVEY:

[1] ASGRT – Automated Report Generation System.
The presented software enables creation of templates containing text and tags that are recognized and substituted by values retrieved from the database, therefore enabling creation of customized reports with varying ease of use and flexibility.

[2] Automated Batch Certificate Generation and Verification System.
The technology mentioned above requires an end-user to have minor knowledge of XML to be able to

define template and template format. This research work enables an end-user to define certificate template and template format without the requisite of XML knowledge by clicking a few buttons and typing from the system GUI, verifying the certificate and generating one or more certificate(s) simultaneously in an instantaneous manner.

EXISTING METHODS:

1. Automated Batch Certificate Generation

These systems are functioning based on the predefined template and predefined template format by the system developer. However, some systems allow the end-user to define template and template format by the use of XML. The technology mentioned above requires an end-user to have minor knowledge of XML to be able to define template and template format. This research work enables an end-user to define certificate template and template format without the requisite of XML knowledge by clicking few buttons and typing from the system GUI, verifying the certificate and generating one or more certificate(s) simultaneously in an instantaneous manner
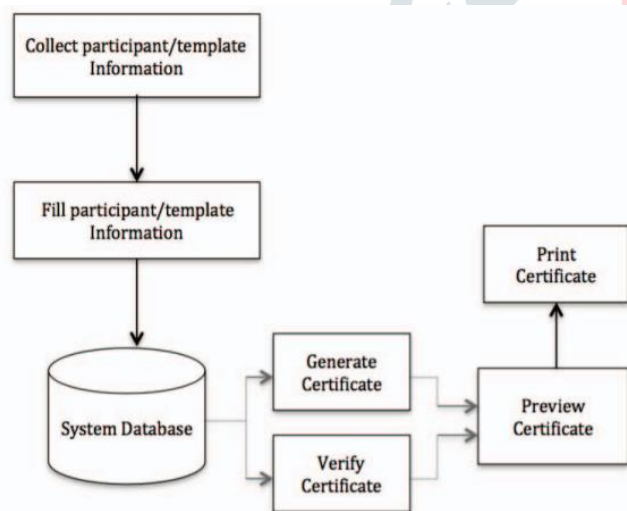
2. Google Auto-Certify-em

Google Auto-Certification is a feature that allows Google Ads customers to automatically certify ads that are created within their account. This feature eliminates the need for manual certification by Google Ads specialists, and instead allows customers to take control of the process and certify their own ads without having to wait for approval. With Auto-Certification, customers can quickly approve their ads and start running them on Google's vast network of websites and apps. This feature makes it easier for customers to get their ads running faster, and allows them to keep their

campaigns up-to-date with the ever-changing industry regulations.

Google Auto-Certification also makes it easier for customers to track their ads' performance. With this feature, they can view their ad's performance in real-time and make any necessary adjustments to ensure that their ads are performing optimally. Additionally, customers can track the effectiveness of their campaigns over time with Google Ads reports. This allows them to monitor the performance of their ads and make changes if needed, without having to go through the manual certification process every time.

Overall, Google Auto-Certification is a great tool for Google Ads customers that allows them to take control of their campaigns and get their ads running faster. With this feature, customers can quickly certify their ads and start running them on Google's vast

PROPOSED SYSTEM

The working principle of this project is classified into three phase :
- Generating certificate
- Maling the certificate
- Eel integration

Generating certificates:

This phase of the project plays a vital role in the project, it gets the data from the input file and processes the data and creates the certificate with a name of "certify-<random_number>.pdf" in a specified directory.

To start of This phase requires the three inputs :

1. A CSV file with participants name and other attributes such as (email-id ,

2. A template of the certificate should be in .pptx format.

3. The location of the certificates to be stored in your local machine.

On the template.pptx file you should give variables to be replaced with data present on the csv file and the important thing is that you should map the variables present in the .pptx file to the column in the csv file. mapping is done on the UI part.

for instance
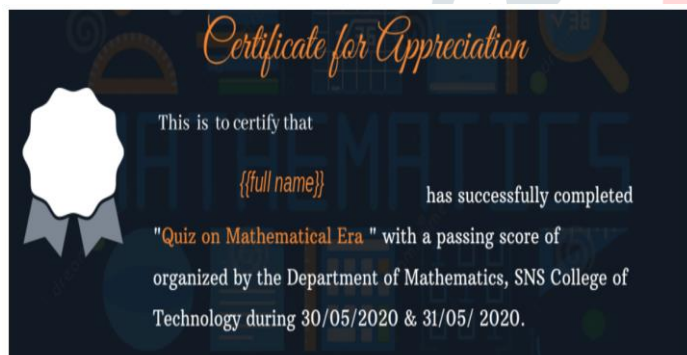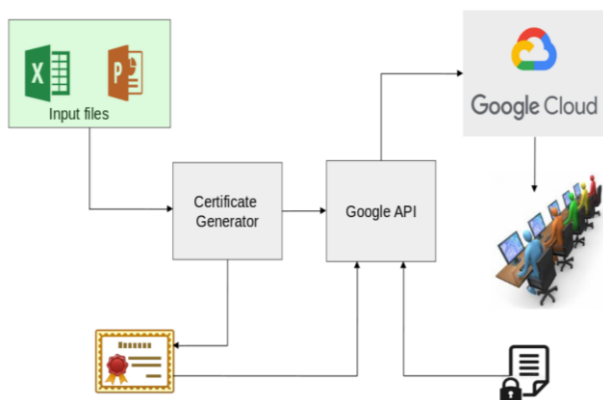
see the above two pictures the first one is the picture from a csv file and it has three columns namely Name, Email-id, Score. The second picture is a sample template file where we have a variable namely {{full name}}. To generate a certificate sample the {{full name}} variable should be mapped to csv column Name, so that it will create 5 certificates with all the names present in Name column in the csv file. **note** : The mapping of the variable and csv column will be done on the Eel part. Maling the certificate.This phase takes care of the distribution of certificates generated by certificate generator phase.we have all the certificates location and the email-id in cache memory and it is used for us to send each certificate to the respective email-id of the participants using google's gmail API.

This phase of this project is designed in a manner such that it sends a google's
gmail api call to send email for the participants.The whole api calls where done
by python request module.

This phase has two inputs ,

1. One is the file location of the credentials file where it holds google api credentials like access token , refresh token since google' gmail api uses Oauth2 for authentication purposes.

2. Another input is the data of all the certificates location with their to-address to be mailed.

At first this phase reads the refresh token from the credential files and it gets an access token on the flow. First it gets the access token and keeps the access token in the header of the send mail api call on gmail api.It take nearly 5-9 second for sending a mail using gmail api so, we have implemented multi-threading so that at an instance we send 15 mail api requests.

Eel integration:
Eel is a little Python library for making simple Electron-like offline HTML/JS GUI apps, with full access to Python capabilities and libraries.Eel
hosts a local webserver, then lets you annotate functions in Python so that
they can be called from Javascript, and vice versa.This part basically creates an interface between javascript and python in order to
run the script in gui mode.

How to use the software ?:
Now we can see how to use this software, the below prescribed for generating certificates and send the certificate via mail using google gmail api
Step 1 : Open the software after installing it:
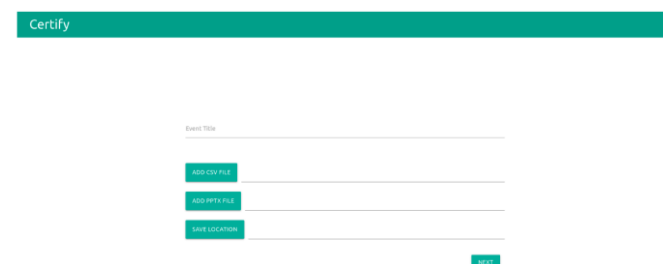
The above shown page will be displayed , there you just type your event name and browse the paths of the specified paths.

Step 2: Fill the required details.
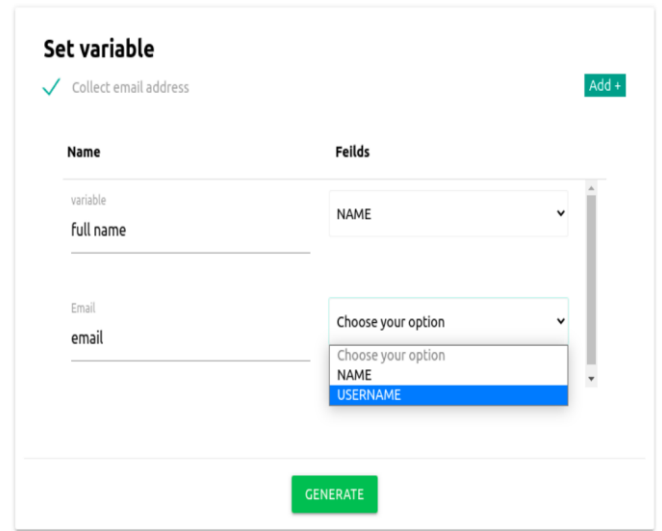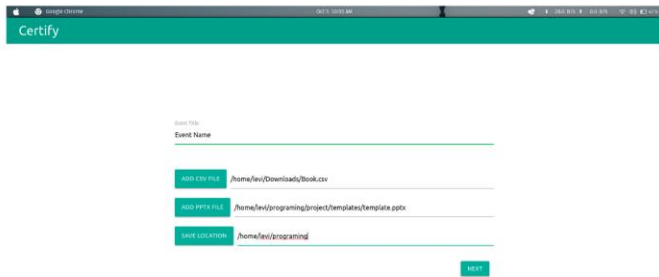
After filling the first page ,just click the next button.Note that the event string size should be greater than or equal to five.

Step 3: Select the required columns in the .csv files.

After selecting the clicking next button it shows another window namely required column ,here just select the required column to be mapped on the certificate.

Step 4: Map the csv columns to the variable you mentioned in the ".pptx" file Select the required columns and click the next button. After that all the list box has the select column of the csv file. now your ultimate aim is to type the variable name and mapped the csv column


for example :

You have mentioned one variable in the certificate template .pptx file , let us take it as **{{full name}}**. now you have to map this variable (i.e **{{fullname}}**) csv column Name ,so that it will create certificates for all the names present in the csv file.There is an another option called collect email address which is used for send email for the users present in the csv files and you should also mapped the **{{email}}** to email-id column in csv file.

Step 5 : Click the Generate button to Generate the certificates. Once all done click the button Generate it will generate the certificates and store it in the save dir location. Once a certificate is generated a window pops up and show "would like to send email for the participants" press yes if you want to send.
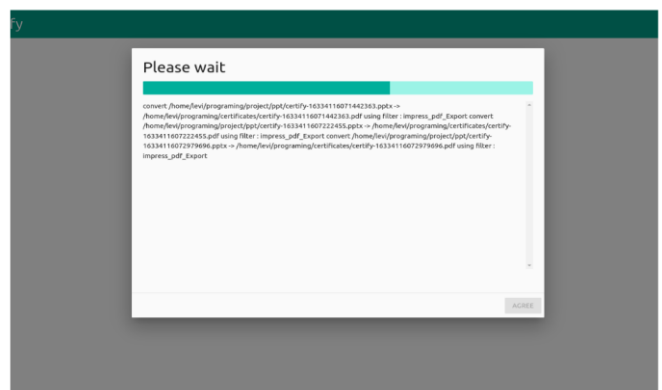
note : this pop's-up only shows when you select the collect email address check box while mapping the variable.

SOFTWARE REQUIREMENTS

●   Eel (Python framework)
●   Unittesting
●   Html ,CSS, Javascript (for frontend purpose)
●   Google Gmail API .

Eel (python framework):

There are several options for making GUI apps in Python, but if you want
to use HTML/JS (in order to use jQueryUI or Bootstrap, for example) then you generally have to write a lot of boilerplate code to communicate from the Client (Javascript) side to the Server (Python) side. The closest Python equivalent to Electron (to my knowledge) is cef -python. It is a bit heavy for what I wanted.

Eel is not as fully-fledged as Electron - it is probably not suitable for making full blown applications like Atom - but it is very suitable for making the GUI equivalent of little utility scripts that you use internally in your team.For some reason many of the best-in-class number crunching and math libraries are in Python (Tensorflow, Numpy, Scipy etc) but many of the best visualization libraries are in Javascript (D3, THREE.js etc). Hopefully Eel makes it easy to combine these into simple utility apps for assisting your development.

Unittesting(python):

The unittest, unit testing framework was originally inspired by JUnit and has a similar flavor as major unit testing frameworks in other languages. It supports test automation, sharing of setup and shutdown code for tests, aggregation of tests into collections, and independence of the tests from the reporting framework.

Test fixture

A test fixture represents the preparation needed to perform one or more tests,and any associated cleanup actions. This may involve, for example, creating temporary or proxy databases, directories, or starting a server process.

Test case :

A test case is the individual unit of testing. It checks for a specific response to a particular set of inputs. unittest provides a base class, TestCase, which may be used to create new test cases.

Google Gmail API :

The Gmail API is a RESTful API that can be used to access Gmail mailboxes and send mail. For most web applications the Gmail API is the best choice for authorized access to a user's Gmail data and is suitable for various
applications, such as:

●   Read-only mail extraction, indexing, and backup
●   Automated or programmatic message sending
●   Email account migration
●   Email organization including filtering and sorting of messages
●   Standardization of email signatures across an organization.

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