PROJECT SYNOPSIS

ON

"CERTIGEN: SIMPLIFYING CERTIFICATE GENERATION"

SECOND YEAR ENGINEERING

As Prescribed By

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Abstract:

The “CertiGen: Simplifying Certificate Generation” streamlines the process of creating customized certificates through a user-friendly interface built on PyQt5. It enables users to select template images, customize fonts with real-time previews, and generate multiple certificates in bulk from CSV data. The app's versatility extends to supporting various font styles, colors, and sizes, allowing users to tailor certificates to their specific requirements.

This application is particularly useful for organizations, events, or educational institutions that frequently require personalized certificates. Its automated features not only enhance efficiency but also ensure consistency in certificate design. From real-time previews to seamless email distribution of generated certificates, the “CertiGen: Simplifying Certificate Generation” offers a comprehensive solution for simplifying and optimizing the certificate creation process.

Introduction:

The “CertiGen: Simplifying Certificate Generation” project streamline the creation and distribution of certificates. Developed on PyQt5, it offers a user-friendly interface for merging data from CSV files onto customizable certificate templates. This tool ensures accurate placement of information, replicating the preview precisely. With diverse font styles, sizes, and colors, the app caters to customization preferences. Its automated bulk generation feature makes it efficient for scenarios requiring quick, personalized certificate production, suitable for various occasions like corporate events, academic achievements, or professional certifications.

Related work:

1. Boris, V. M. (2007), Automatic report generation with Web, TEX, and SQL
2. Johnpaul, A. H. (2011), Design and Implementation of Student Verification System.
3. Dejan, G. (2011), Applicative Solution for Generating Report Template – Automated Report Generation System.

4. Mahamat, M. B. (2016), A Web Service Based Database Access for Nigerian Universities' Certificate Verification System.

5. .Ahmed Dalhatu Yusuf, Moussa Mahamat Boukar, Shahriar Shamiluulu - "Automated Batch Certificate Generation and Verification System" [2024]

Project Objective:

1. Automated Certificate Generation: The system ensures a swift and automated generation of certificates, catering to both individual participants and large-scale events. This automation significantly reduces manual efforts and accelerates the certificate issuance process.

2. Customization at Your Fingertips: A user-friendly interface empowers users to customize every aspect of the certificate, from fonts and sizes to colors and positioning. This level of customization enhances the overall user experience, allowing for personalized and visually appealing certificates.

3. Gmail SMTP Integration: Seamless integration with Gmail's SMTP server facilitates direct and secure email distribution of certificates. This integration streamlines the communication process, ensuring certificates reach recipients efficiently.

4. Efficiency Enhancement: The project is geared towards optimizing efficiency in certificate generation. By implementing automated processes, the system enables prompt creation and distribution of certificates, making it an ideal solution for time sensitive scenarios.

5. Versatility for Diverse Needs: Tailored to meet the requirements of workshops, events, and training programs, the system is versatile and adaptable. Its capabilities span individual participant certificates to efficiently managing bulk processing.

6. Reduced Effort in Distribution: Automation extends to the email distribution process, minimizing manual efforts. The system facilitates timely and efficient delivery of certificates to participants, reducing the administrative burden.

7. Dynamic Font and Color Selection: Users can dynamically choose fonts, sizes, and colors, adding a personalized touch to each certificate. This feature enhances the visual appeal of certificates, ensuring they align with the intended design.

8. Reliable Email Communication: Leveraging Gmail's SMTP server, the system ensures reliable and secure email communication. This guarantees uninterrupted certificate delivery to participants, contributing to a seamless user experience.

Hardware & Software Requirement:

Hardware Requirements:

- Processor: Intel Pentium 3
- RAM: 4 GB+
- Storage: 512 GB HDD+
- Internet: Required for some features.

Software Requirements:

Operating System: Windows 10.

Python: Python 3.11.7

Libraries:

- Pygame: (Graphics library for GUI development.)
- PyQt5 (Qt Framework): (Enables robust UI creation.)
- smtplib: (Facilitates secure email communication using Gmail.)
- csv: (Handles CSV file processing.)
- os: (Supports file and directory operations.)
- sys: (Manages command-line arguments and system interactions.)
- Multiprocessing (potential performance optimization)
- PyPDF2 (manipulating PDFs, if using ReportLab)
- PyInstaller (creating standalone executables)

Additional Software:

- Gmail account (for email integration).
- IDE (e.g., PyCharm, VS Code).
- SMTP server and email account information (for email).

Reference:

1. Keluskar, M., Redkar, T., Mhatre, S., Gadkari, T., & Tonges, S. (2023). Certificate Generator. *International Journrl for research Publication and Reviews*, Volume(4).

2. Pradeep Ragul, S., Sathish, S., Manikandan, B., & Kannaka Subbu Lakshmi, B. R. (2023). Digital Certificate Generator and Mailer Software. *Journel for energing tchnologoies and innovative Research*, Volume(4.2).

3. Tekwani, B., Bandgar, S., Patil, A., & Mungekar, T**.** *(2022). ONLINE CERTIFICATE GENERATION AND VERIFICATION SYSTEM. International Research Journal of Modernization in Engineering Technology and Science, 04(02), 1157. Impact Factor: 6.752.*

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