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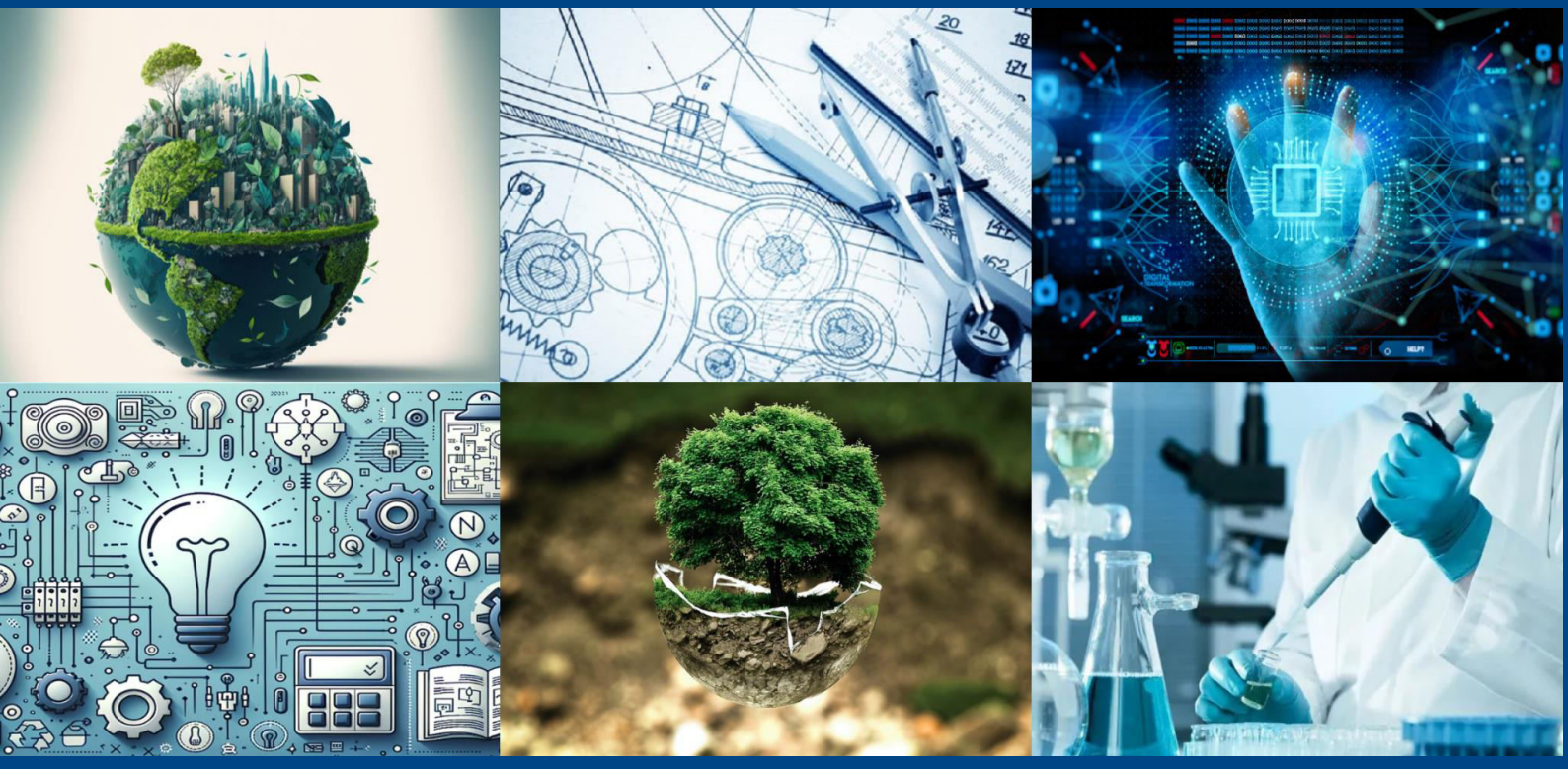

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Automated Student I-Card Generator using Google Forms and Android Studio

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ABSTRACT: This paper presents the Automated Student I-Card Generator, a capstone project developed by Diploma in Computer Engineering students. The system integrates Google Forms for student data entry and an Android application for teachers to access, manage, and generate PDF I-cards. Using Android Studio (Java & XML), Google Sheets API, and Firebase, the application provides an efficient and error-free solution for student identity card creation. The project reduces manual efforts, enhances accuracy, and speeds up the process of issuing I-cards. Future enhancements may include QR codes and cloud-based authentication for improved security.

KEYWORDS: Android Studio, Google Forms, I-Card Generation, PDF Generation, Student Data Management, Google Sheets API.

I. INTRODUCTION

Student identity cards are essential for authentication, security, and attendance tracking in educational institutions. Traditional manual I-card creation involves collecting data through forms, typing details manually, and formatting them for printing, which is time-consuming and error-prone. This project automates the entire process by allowing students to submit data via Google Forms, which is then accessed by an Android application for verification and PDF generation. The application is designed for teachers and administrators to streamline the I-card generation process, reducing paperwork and improving efficiency.

II. SYSTEM ARCHITECTURE

The system comprises three major components:
1. Student Data Collection: Students fill out a Google Form with details such as name, roll number, course, and photo upload. The responses are automatically stored in Google Sheets.
2. Data Processing & Management: The Android application retrieves data from Google Sheets using the Google Sheets API. Teachers can view, sort, and filter student records.
3. I-Card PDF Generation: Teachers can select student records and generate PDF I-cards using the iText Java library. The generated I-cards can be printed or shared digitally.

III. IMPLEMENTATION

Fetching Data from Google Sheets Using CSV in Android (Java) – Explanation
1. Publishing Google Sheet as a CSV
In Google Sheets, you can publish the data in CSV format, which allows it to be accessed as a simple text file containing rows and columns separated by commas.
You get a public URL that provides direct access to the sheet's contents in CSV format.

2. Fetching Data in Android
The Android app sends a request to the Google Sheet's CSV URL using an HTTP connection.
The response is received as a string, which contains the entire sheet's data in comma-separated values (CSV) format.

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3. Parsing CSV Data
The received CSV data is split into rows based on new lines (\n).
Each row is further split into columns using commas (,) to extract individual values.
These values are then processed and displayed in a UI component, such as a TableLayout or RecyclerView.

4. Displaying Data in a Table
The parsed values are inserted into a dynamic table where each row corresponds to a row in Google Sheets.
A TextView or other UI components are used to display the extracted data.

5. Handling Images from Google Drive
If Google Drive links are used for images, they need to be converted to direct download links before loading them into the app.
The correct format ensures the images can be displayed using libraries like Glide or Picasso.

6. Updating Data
Since this method only fetches data, direct updates to Google Sheets are not possible without using an API.
However, users can be redirected to a Google Form linked to the sheet for modifying or adding new data.

7. Advantages of Using CSV
No API required → Simplifies integration.
Real-time updates → Any change in the sheet reflects in the app.
Easy setup → Only requires a public Google Sheets link.

Converting an ID Card (ImageView Layout) into a PDF in Android (Java) – Explanation
1. Designing the ID Card Layout
The ID card is created using a separate XML layout containing an ImageView and other required TextViews.
The layout is dynamically populated with user details such as name, branch, DOB, address, contact, and blood group.
2. Capturing the Layout as a Bitmap
The entire ID card layout (View) is converted into a Bitmap image.
This is done by measuring and drawing the layout into a Canvas, which stores it as an image.
3. Creating a PDF Document
The Android PDFDocument API is used to create a new PDF file.
A PDF page is initialized with the size of an A4 page or a custom size based on the ID card dimensions.
The Bitmap of the ID card is then drawn onto the PDF page using a Canvas.
4. Saving the PDF File
The generated PDF is saved to device storage, typically in the Downloads or app-specific directory.
It can be stored as a shareable file, allowing users to access, print, or send it.
5. Viewing & Sharing the PDF
The generated PDF can be opened using a PDF Viewer by launching an intent.
It can also be shared via email, WhatsApp, or other apps using Android's share intent.
Advantages of This Approach
✅ No external libraries required (Uses built-in Android PDFDocument).
✅ High-quality PDF output without loss of image clarity.
✅ Offline functionality (No need for API integration).

IV. FEATURES AND BENEFITS

A. Key Features
1. Automated I-Card Processing: Eliminates manual data entry, reducing human errors.
2. Easy Data Management: Teachers can view, search, and filter student records in the app.
3. One-Click PDF Generation: Saves time and provides a consistent I-card format.
4. Cloud Integration: Google Sheets ensures real-time data accessibility.
5. Secure and Scalable: Can be expanded to support barcode/QR codes for authentication.

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B. Benefits
- Efficiency: Reduces administrative workload and speeds up the I-card creation process.
- Accuracy: Avoids manual errors in student details.
- Convenience: Digital access allows teachers to manage records anytime, anywhere.

V. CONCLUSION AND FUTURE SCOPE

The Automated Student I-Card Generator successfully streamlines student ID card creation using Android Studio, Google Forms, and Google Sheets API. The system saves time, minimizes errors, and enhances efficiency in educational institutions.

Future Enhancements:
- Cloud Authentication for securing student records.
- Multi-user login to enable access for multiple faculty members.

This project can be extended beyond educational institutions to other areas where ID card generation is required, such as corporate offices, events, and conferences.

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REFERENCES

[1] J. Smith, "Efficient Data Management for Student Records," in Proc. IEEE Int. Conf. on Computing, 2021, pp. 45-50.
[2] R. Kumar and M. Gupta, "Automated Identity Card Generation Using Cloud Services," Journal of Computer Applications, vol. 35, no. 4, pp. 78-85, 2022.

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