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Student Services App

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Abstract: ***Cross-platform mobile application development is the pressing priority in today's world and generation. Developers are enforced to either construct the same application numerous times for various OS (operating systems) or accept a low-quality similar solution that trades native speed and accuracy for portability. Flutter is an open-source SDK for developing high-performance and more reliable mobile applications for operating systems like iOS, Android and even windows [1].***
Flutter is Google's UI toolkit for building beautiful, natively compiled applications for mobile, web, and desktop from a single codebase.
Student Service App is an automation which will provide duplicate degree, duplicate marksheet, migration, transcript, provisional degree and document verification services to all registered the Universities. It will provide University services related to academics to its registered students via mobile devices on their finger tips for which they have to be present physically at respective places. It has Service oriented architecture so that it will be integrated to the existing ERP (Web Portal) of the different universities.
Keywords: Anroid Development , Flutter , MYSQL , Python Flask.

I. INTRODUCTION

Android is one of the Linux based operating systems used on mobile devices. Android systems and applications are constantly evolving, making developers to continue to advance the technology in the world [2]. A mobile application is a system that can run on both android and android iOS devices [3]. Mobile applications are widely developed using The Java, React, and Dart languages for now. It has now used a framework in a language to make it easier for developers to develop a system. Frameworks for mobile application development are Java, React Native, and Flutter [4]. Flutter is a cross-platform framework that targets developing high-performance mobile applications, with Initial release Alpha (v0.0.6) / May 2017. On December 4, 2018, Flutter 1.0 was released at the Flutter Live event, denoting the first "stable" version of the Framework. Flutter is chosen as Google's application-level framework for its next-generation operating system. Flutter is exceptional because it is dependent on the device's OEM widgets rather than consuming web views. Flutter uses a high-performance rendering engine to render each view component using its own, Written in C, C++, Dart. But flutter has advantages over other frameworks, one of which is super smooth animation. If there is no excessive element, then mobile applications developed using framework flutter can constantly run 60-120fps because it uses its own rendering system. In flutter, it can download android APK and iOS IPA files [5]. Student support and services contribute to the quality of their learning experience and their academic success. Studies show that the most important factors in education quality assurance are: quality of teaching / learning and service systems and support for students. Therefore, the importance of support activities for the students is obvious but also presents the management of services with difficulties due to the increasing number of students and their needs. Many of the universities do not have any automation to give duplicate degree, migration certificate, transcript etc. They use traditional methods to provide these services on their application given at the students' cell it will lead corruption, delay in service, and other human related issues.
The solutions to the above discussed problems could be an application-

A. Which can provide all these services at your doorstep using your own mobile.
B. Application should allow easy interaction
C. More and more number of services should be available online.
D. Application should always be ready to provide updated information as soon as possible.

II. FLUTTER – DART(FRONT-END)

In Flutter, every application is written with the help of Dart. Google has developed and maintained a programming language called Dart. It is extensively used inside Google and it has been verified to have the proficiency to develop enormous web applications, such as AdWords. Originally Dart was developed to replace and succeed JavaScript. Thus, it implements most of the important characteristics of JavaScript's next standard (ES7), such as the keywords "async" and "await" [6].

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III. DATABASE

A database is a separate application that stores a collection of data. Each database has one or more distinct APIs for creating, accessing, managing, searching and replicating the data it holds.

A. MySQL Database

MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company.

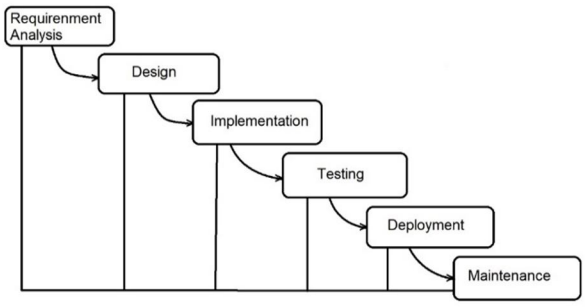
IV. PYTHON FLASK(BACK-END)

Python is a high-level, interpreted, interactive and object-oriented scripting language.

Flask is an API of Python that allows us to build up web-applications. It was developed by Armin Ronacher. Flask's framework is more explicit than Django's framework and is also easier to learn because it has less base code to implement a simple web-Application. A Web-Application Framework or Web Framework is the collection of modules and libraries that helps the developer to write applications without writing the low-level codes such as protocols, thread management, etc. Flask is based on WSGI(Web Server Gateway Interface) toolkit and Jinja2 template engine.

V. METHOD

For development SDLC, Software Development Life Cycle's Waterfall Method is used. This method is a system development cycle in software. There are several stages, as follows:



A. Planning

All possible requirements of the system to be developed are captured in this phase and documented in a requirement specification document.

B. Design

The requirement specifications from first phase are studied in this phase and the system design is prepared. This system design helps in specifying hardware and system requirements and helps in defining the overall system architecture.

C. Implementation

With inputs from the system design, the system is first developed in small programs called units, which are integrated in the next phase.

D. Testing

All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures.

E. Deployment

Once the functional and non-functional testing is done; the product is deployed in the customer environment or released into the market.

F. Maintenance

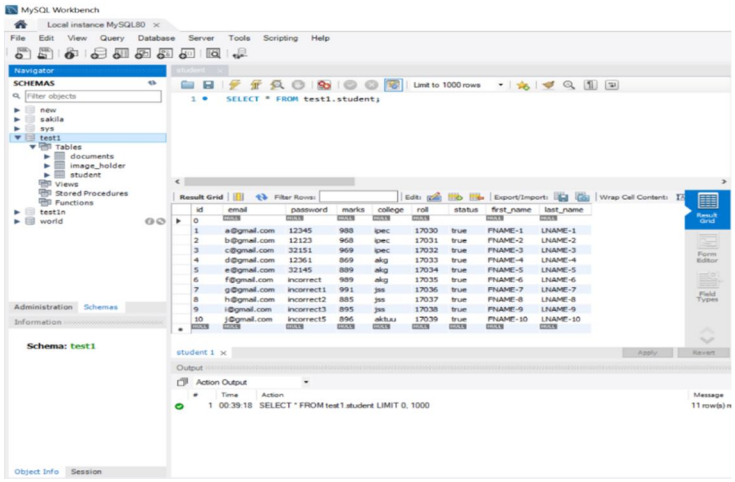
Here are some issues which come up in the client environment. To fix those issues, patches are released. Also to enhance the product some better versions are released. Maintenance is done to deliver these changes in the customer environment.

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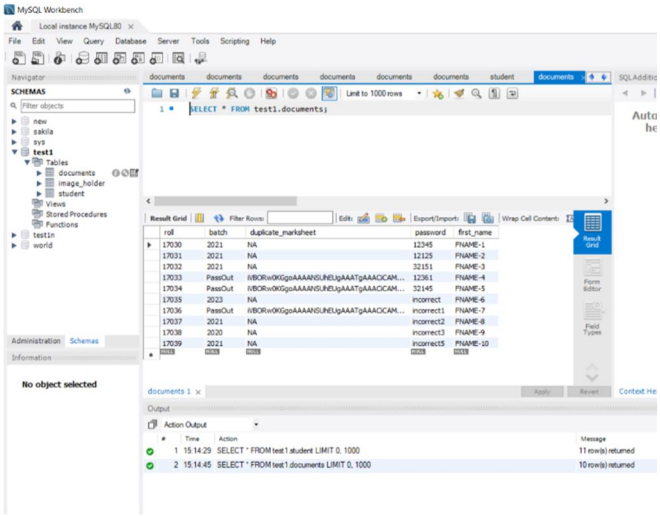
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VI. RESULTS

A. *Database Creation*



B. *Database for Duplicate Marksheet and Uploading of Image and data*



C. *Login Page*

Login page shows two fields for user name and password and one sign in button. This will allow only authorized person to sign in.

D. *Services Page*

This page shows the list of the services offered i.e. Profile Page , Duplicate Marksheet , Upload Data/Image.

E. *Profile Page*

Having a text field in which it accepts a roll number for displaying information.

F. *Duplicate Marksheet Page*

It will require two inputs i.e., roll number and password, and there is one download button that will save marksheet automatically.

G. *Error Representation*

In order download your marksheet we enter our data and If any wrong entry is done, then an alert message is displayed telling us about either the Roll Number or the Password is incorrect !!

H. *Upload data/Image*

In this three fields are required i.e Roll no and Batch and we can upload our data and image by clicking on the UPLOAD Button.

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VII. BLACK BOX TESTING

This test is carried out to determine the results of the app's execution by observing the test data by examining the overall functional and evaluating the appearance of the application and some results are-

S.No	Test Case	Expected Result	Conclusion
1.	Clear the input field in the login form and press the login button	It will bring back the login page.	Successful.
2.	Just fill in the email form and empty the password form and press the login button	It will bring back the login page.	Successful.
3.	Just fill in the password form and empty the email form and press the login button	It will bring back the login page.	Successful.
4.	Enter the Wrong Roll number while downloading duplicate marksheet with correct password.	Alert message will appear.	Successful.
5.	Enter the wrong password with correct Roll number while downloading duplicate marksheet.	Alert message will appear.	Successful
6.	Entering the correct roll number for profile.	All details will be shown	Successful
7.	Entering the incorrect roll number for profile.	Default values will be shown.	Successful
8.	Valid entry for duplicate marksheet.	Marksheet will be saved in phone storage.	Successful
9.	Using correct id &password.	Services page will be opened.	Successful

VIII. CONCLUSION

This project on Student Services App has given us an opportunity to study about many different languages like Dart(Flutter) , API(Python Flask) . This app help us to understand how Api is build and is deployed in database and how it function . In this project we make the front end using Flutter , dabatase using Mysql and for the backend we use Python (Flask api). For the next semester we will be taking a step towards adding more new services in our app, maintaining the security of the app using Encryption which is the foremost concern in Today's World.

The system helps in providing automation to give duplicate degree , migration certificate , transcript etc. More apps like this can easily be developed using framework.

IX. FUTURE OF THIS APP

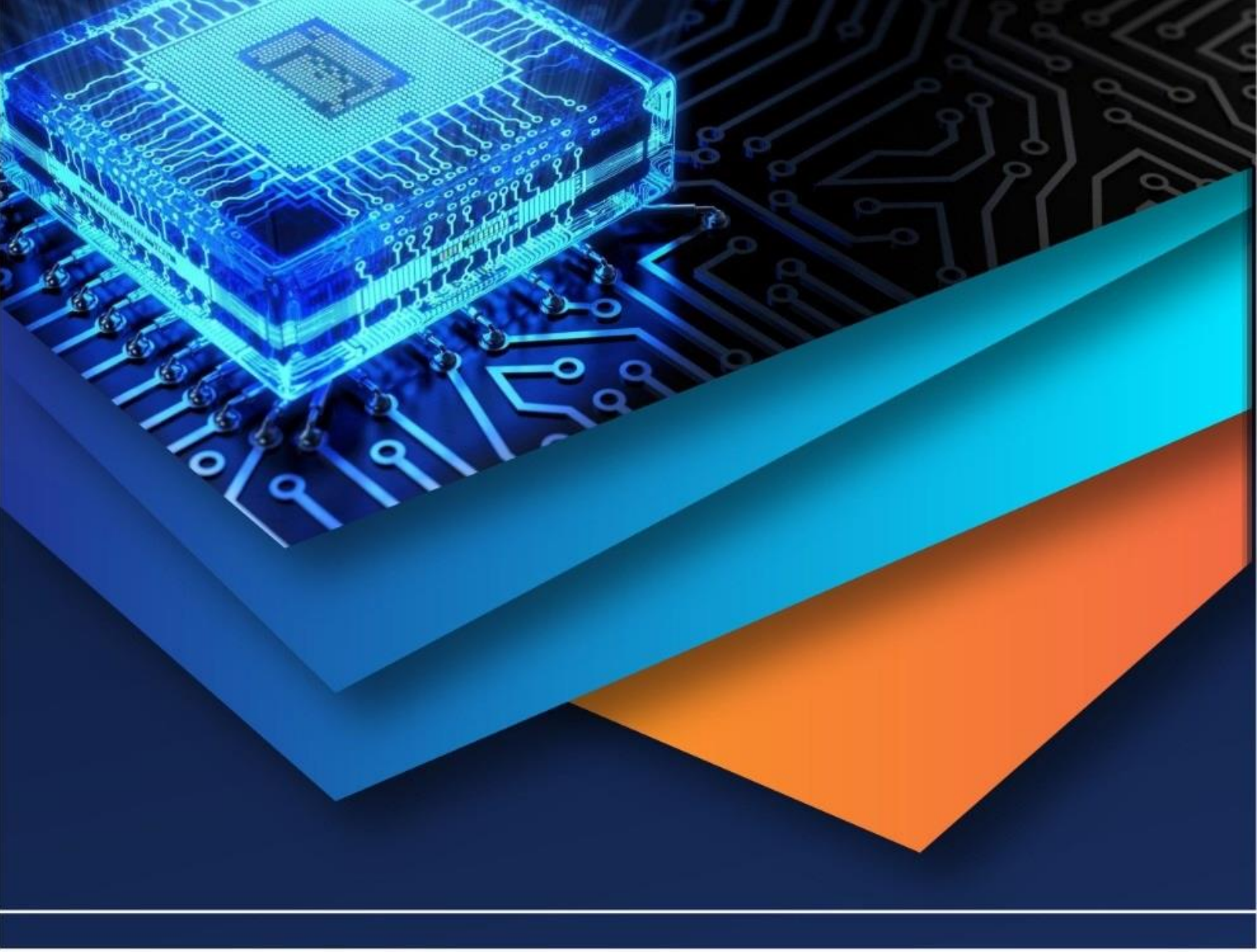
A. We will make this app very flexible so that adding new features will be easy.
B. We will make a repository for documents provided by student services.
C. Monetization.
D. Advertisements.
E. Chatbot.
F. Multiple Gateway Payment Integration.

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