EduInfoGoa: A Mobile-based Solution for Accessing Institutional Information in Goa

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ABSTRACT

The state of Goa has an abundant number of landmarks making it a popular tourist destination of the country. With the help of technology, there has been a rise in resources which aid the tourists such as tourism-based websites and apps that contain detailed information of the said landmarks. However, the misconception that people hold against Goa is that it is bound only to its beaches and luxurious life must be broken with its thriving economy, state-of-the-art-facility educational institutions, upcoming infrastructure, progressive development in rural areas. Hence, awareness of this issue needs to make a breakthrough. Moreover, with the rise in industrial development and job opportunities available, many people choose to settle here. Even though there are resources to help the tourists, there are no such means that help such professionals who relocate with their families. Similarly, students are oblivious to the programs and facilities that the institutions of Goa offer. A solution to these problems is by developing an Android compatible app – "EduInfoGoa" – that focuses on the educational institutes of Goa. The EduInfoGoa app filters institutes based on their district and educational level. It provides users with information related to each institute along with photographs, contact details, etc. The app also predicts admissions of a student based on previous years' trends. This not only promotes Goa as one of the developing states of the country but also helps institutes in promoting themselves in technologically literate manner. It acts as an aid to students and professionals, who relocate to Goa along with their families, in making them aware of the available institutes of the state and the facilities provided by them.

Keywords

App Development, Database Management System, Machine Learning

1. INTRODUCTION

The state of Goa is the most well-known tourism destination of the country. However, the misconception that it is bound only to its beaches and luxurious life must be broken with its thriving economy, state-of-the-art-facility institutions, upcoming infrastructure, progressive development in rural areas. Hence, awareness of this issue needs to make a breakthrough. In addition, with the rise in industrial development and job opportunities available, many people choose to settle here. Apps such as Goa Tourism[1] and Goa Nearby[2] are a useful aid for tourists, but there are no such means that help professionals who relocate with their families. A similar problem is faced by students who are in their transitional phase of education and would like to know about the various institutions that the state offers. Moreover, the official website of Goa Board of Secondary & Higher Secondary Education[3] which contains information regarding the state-based schools does not appease the aforementioned professionals and students alike. Therefore, developing a user-friendly Android application that displays various educational facilities available in the state will not only assist professional migrants and students alike but will also promote Goa as an educational hub. This paper focusses on the development of an Android compatible mobile application – "EduInfoGoa". The app categorically classifies the educational institutes in the state based on the users' choice of district, level, stream, etc. It displays information related to academics, facilities, extra-curricular activities and achievements of the selected institute. The user is also provided with contact information and campus photographs. Furthermore, it also features FAQs, allows users to rate an institute, predict admissions based on past years trends and obtain a comparative analysis of two institutions.

2. METHODOLOGY

2.1 System Overview

The proposed system – "EduInfoGoa" – is an Android application prototype that is a one-stop information platform for a user looking for the institutes available in Goa. The target audience for this app are professionals who settle in Goa with their families as well as students who wish to gain clarity and obtain information related to the education institutions of the state. With the help of EduInfoGoa, a user is able to gain access to certain information of institutes such as academics, extra-curricular, achievements, contact details, photographs and maps. In addition to this, the app also delivers contents that are commonly not mentioned on websites or on the internet, namely mess and transportation facilities, student-related FAQs, comparative analysis of more than one institute. The app also allows users to predict admissions based on previous year's cut off.

2.2 System Architecture

Upon opening the EduInfoGoa app on the mobile phone, the user is asked to login to the application. This can be done either by manually entering their email address and password or by logging in via Google itself. After this, the user makes the choice of district of the state, namely North Goa and South Goa.

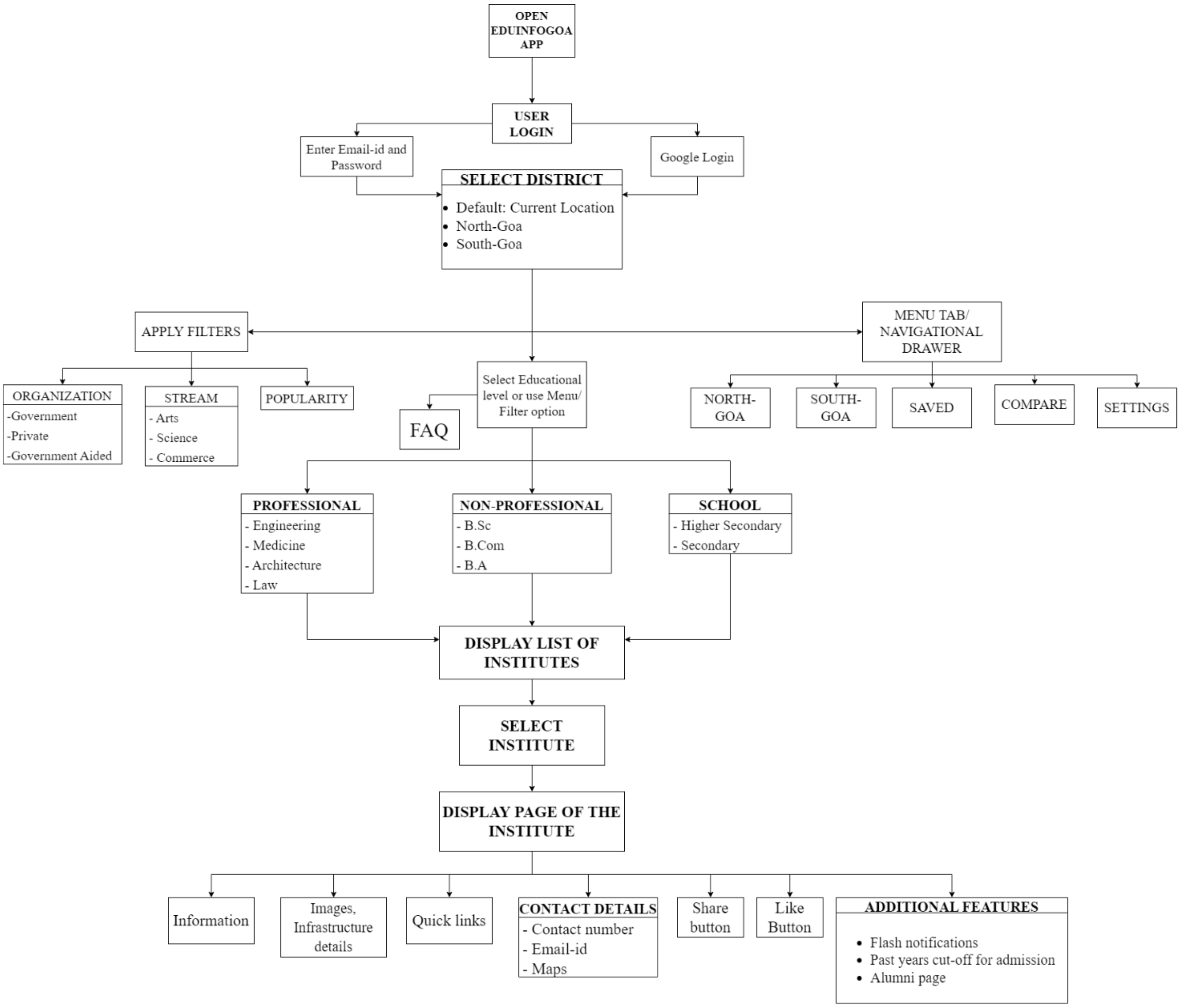


Fig 1: Flowchart

Subsequently the choice of educational level is selected which ranges from schools to colleges. Each level is further divided into program. This indicates that, upon selecting the Professional colleges as the educational level, the user is able to make a choice between courses such as Engineering, Medicine, Law and Architecture. Similarly, the courses of Bachelor in Science (B.Sc.), Bachelor in Commerce (B.Com.) and Bachelor in Arts (B.A) are listed under the Non-professional colleges. Whereas, schools include Higher Secondary Schools (HSSC) and Secondary Schools (SSC).

A filter option is available for a more specific search. Apart from making the choices mentioned above, the user can also filter out institutes based on organisation, stream and popularity. Organisation of the institute refers to whether it is a government, private or government-aided institute. The option of Stream is specifically for higher secondary schools which includes Arts, Science and Commerce; whereas Popularity refers to how prominent the institution is in the state of Goa. The Frequently Asked Questions (FAQ) tab is a feature which gives certain student-related information of an institute which is not commonly found on the internet.

A navigational drawer is also available. This is present merely for the convenience of the user. By using this, one can access previous pages of the application. The options available here are the aforementioned districts, Saved, Compare and settings. If one wishes to save a particular institute for future reference, then they can simply visit the Saved option present in the navigational drawer. The Compare aspect allows the user to select any two institutes and differentiate between them on the basis of their facilities.

Thereafter, the application displays a list of institutes based on the previously made choices of the user. Here, one can browse through and select institutions as per their preferences. Upon selection, the app exhibits the display page of that particular institute. This encompasses essential information regarding campus infrastructure, academics, courses offered, achievements, extra-curricular activities and other amenities. One can also view the campus images here. Contact details, maps and a link to the website is also available if the user wants to communicate or visit the institute.

The back-end of the application comprises of a database wherein information and images of each institute is stored. This is not only an effective way to manage data but also helps in filtering institutes. Prior to actually implementing the database, an Entity Relationship (ER) diagram is formulated. The database of this application has 4 tables – Institute, Course, Department and Facility.

As per convention, the tables devised for the proposed system is illustrated in Figure 3. The Institute table represents each institute of Goa. Hence, the attributes associated with it are name of the institute, information about it, address, website URL, fees, contact numbers, email id and name of the principal. Apart from this, the database generates a unique ID for each table. For the institute table it is given by institute_id and serves as the primary key for that table.

The entity and attribute for the Course table is courses and name respectively. Similarly, department and name are allied to the Department table. The Facility entity has the attributes of hostel, gym, canteen, transportation, parking, auditorium, recreational, AC classrooms, AC labs and Wi-Fi campus.

All the tables are interlinked with each other illustrated in the form of a relationship. The relationship that the Courses and Department share is to show the types of programs offered in that particular course. For example, Electronics and Telecommunication department is an offered program in the Engineering course. Since each institute is classified by the type of course, the relationship between the Institute and Courses is classification. That is, Don Bosco College of Engineering is an institute classified based on the Engineering course. Hence, course_id which is the primary key of Course table, acts as foreign key in Institute table. Similarly, to indicate the facilities that an institute provides, Institute and Facility also shares a relationship and the institute_id acts as foreign key to the Facility type.

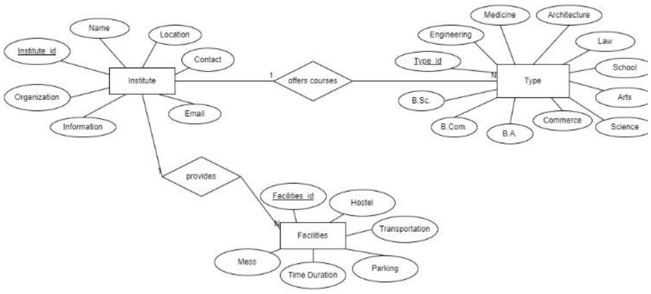
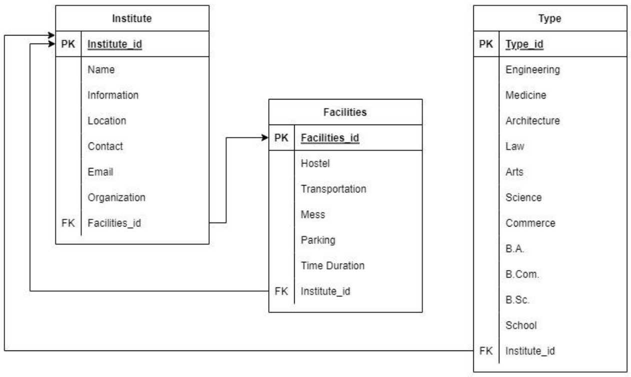


Fig 2: ER diagram for EduInfoGoa



	Institute
PK	Institute_id
	Name
	Information
	Location
	Contact
	Email
	Organization
FK	Facilities_id

	Facilities
PK	Facilities_id
	Hostel
	Transportation
	Mess
	Parking
	Time Duration
FK	Institute_id

	Type
PK	Type_id
	Engineering
	Medicine
	Architecture
	Law
	Arts
	Science
	Commerce
	B.A.
	B.Com.
	B.Sc.
	School
FK	Institute_id

Fig 3: Tables for EduInfoGoa database

Machine Learning algorithms build mathematical models using the training data which help in making decisions or predictions. For the EduInfoGoa application, machine learning is used to classify the students' admission in a college for a particular course based on their GCET scores, college of their choice and category to which they belong i.e., General, OBC, SC, ST. To predict the admission of a student for a selected course in the app, the Decision Tree Classifier is used. Based on the entered data a path is traced from the root node to leaf node by testing attribute values against the decision tree. This leaf node holds a class label or the output class. For decision tree construction attribute selection measures are used for selecting the attribute that partitions the tuples into distinct classes in the best possible way. The noise in branches and overfitting of decision trees is avoided by using the Tree Pruning method which uses statistical measures to eliminate least reliable branches. One of the attribute selection measures associated with the Decision Tree Induction is Information Gain. The Information Gain of each input class is calculated by finding the difference between entropy of the output class and entropy of every input class in the dataset. The input class with highest Information Gain is used as the splitting attribute for a node.

3. IMPLEMENTATION

The implementation of the proposed system consists of developing the User Experience (UX), managing the back-end Database Management System (DBMS) and the Machine Learning algorithm to predict the admissions of students. The system is developed in such a way that the application pages are designed but the information that is displayed is fetched from the back-end server.

3.1 Implementation of Android Studio

Android Studio software is used to design the frontend of the EduInfoGoa app. It deals with two major files as follows:

3.1.1 MainActivity.java

This is the Manifest file and is simply the Activity layout containing a Container. The UI layout is defined here. The Manifest file acts as a bridge between the Java file and the application design. The IDs assigned to each component in the Java file are connected to this file. Furthermore, Android Studio allows developers to drag and drop items directly in the design page.

Pages are designed as per its functionality. For instance, the opening page of the app allows the users to login with the help of email id and password. To do so, text fields and a button will be required to type in the email id and then to press the login button respectively. This is done by the following codes in the Java file:

```
TextView email = (TextView) findViewById(R.id.email);
TextView password = (TextView)
findViewById(R.id.password);

MaterialButton loginbtn = (MaterialButton)
findViewById(R.id.loginbtn);
```

OnClickListener is a function that is associated with buttons. It indicates that when a button is clicked, the application should execute the next operation defined in the function. To transform the letters of the password while the user types it, is a necessary step for privacy. This is done using the following code in the XML file:

```
Android: hint= “Password”

Android: inputType= “textPassword”
```

The app also allows users to directly sign-in via Gmail. To integrate the Google sign-in API, separate dependencies need to be installed. These dependencies are added from Google in the Gradle script. The following code can be declared in the build.gradle file:

```
dependencies {
        implementation
        'com.google.android.gms:play-services-auth:20.2.0'
}
```

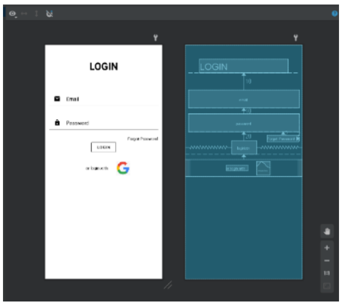


Fig 4: Login Page on Android Studio

Users of this application have an option of browsing institutes based on their district, i.e., North Goa and South Goa. The EduInfoGoa app has a dedicated page for this purpose as shown in the figure:

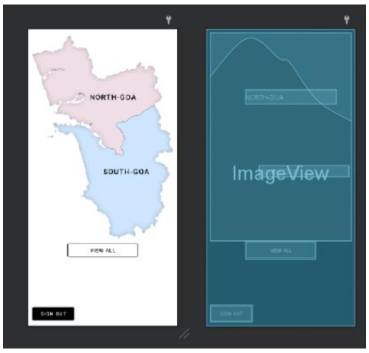


Fig 5: Districts page on Android Studio

In order to implement this page, two buttons are styled in the form of the map of Goa. To achieve this, an image of outline map of Goa is imported in the res/drawable folder. This can be directly added to the design or layout of the application by the drag and drop feature. By doing so, the Resource Manager automatically creates an ImageView which supports the image. Alternatively, the drawable can also be dragged and dropped on the XML file and the code for the same gets generated. However, this method requires specifications of the image position. Hence, the first method is preferred.

Underlying to this image, there exists two buttons- one for each district. Once initialised at the beginning of the Java file, the code used is as follows:

```
northgoa.SetOnClickListener
southgoa.SetOnClickListener
```

It corresponds to the North Goa and South Goa buttons respectively. When a part of the map is clicked, depending on whether it is in the north or south, the listener detects the changes and accordingly moves to the next page.

A common page is designed to display the information of each institute. To design this, 4 fragments have been applied inside the tab layout. Each fragment comprises of a .java and .xml file.

The first fragment is designated for the information related to the institute. TextView is initialised in the Java and the XML file in such a way that information fetched from the database is displayed here. Furthermore, a JSON API code is applied in the Java file which fetches the data from the database.

The second fragment is assigned to display the images of the institute. The Java code applies GridView and the XML file has a grid layout of all the images.

The third fragment is used in order to display Course, Facilities and FAQs. This is done using a drop-down menu and a TextView. Course and Facilities are directly fetched from the database. FAQs are student related questions, answered by students of that institute; which are not commonly available on the website or internet.

The final fragment comprises of the contact details of the institute. The Java file hosts the JSONException which fetches the contact number from the database. By initialising the call button, users can directly call the given phone number. Pages for other institutes can also be developed by following this approach.

There are two methods by which functioning of an app can be tested. The first one is by using an emulator. An emulator is a function which allows a particular system to act like another system. This is used by most developers to “emulate” or imitate the actions of a mobile application on a host system such as a laptop. The Android Studio software contains an in-built emulator. For the purpose of testing the EduInfoGoa application, the emulator present in Android Studio is used. Although the app can be viewed and is in working state, it is noted that this makes the host system very slow and lowers the performance.

Another method for testing the proposed application is the USB debugging method. In this, the application developed on the software is transferred on the mobile phone and is used by enabling the developer mode of the device. In this case, the application is able to run successfully with good performance and optimal speed.

3.2 Implementation of Database

The backend of the EduInfoGoa app comprises of 3 aspects: PyCharm, Django and SQLite Studio. PyCharm is the IDE where commands are coded in Python programming language. These commands help in the development of the web server, that is, Django. In order to view the stored data in the form of tables, SQLite Studio is used.

Before creating the tables, the foundation of the web server is laid. Since, this application uses Django as the backend web server, installing it is required. This is done by giving the following command on the Command Prompt of PyCharm: *pip install django*

All the tables that will be created in the further stages are stored in one single folder called as project. So, a project is created in PyCharm which specifically contains all the files required to create the database tables. After creating the folder and launching the server, the IDE generates a server link which gives access to the server.

In order to manage and control the backend database of the application, an admin interface is created. This implies that the admins will have an account on the web server which allows them to fetch, retrieve, present or make changes to the data stored. This is done using: *python manage.py createsuperuser*

A username and password are set which is unique to each admin. This is required at the time of login each time the admin wishes to access the database.

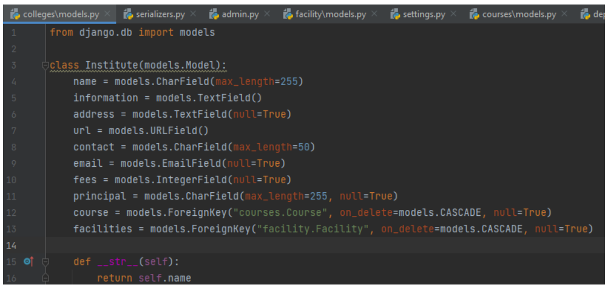
The main PyCharm project created at the beginning contains sub folders. Each folder contains a single class. The database of the EduInfoGoa app has a requirement of four tables, namely: Institute, Course, Department and Facility. The command employed for this purpose is: *manage.py startapp college*

Here, “college” is the folder or an app where Institute table is stored. Folders for other tables are created in the same manner.

Once folders are created, each of them contains a models.py file. Initialization of the tables is done in their respective file. This is carried out by importing models and creating objects and classes. Subsequently, the initialized class defines each table: *class Institute(models.Model):*

Columns of each table is defined in each class. The Institute table is designed to have the columns: name, information, address, URL, contact, email, fees and principal. Hence, each of these are defined under the Institute class. A similar approach is carried out for the other tables to define each column. However, to do so, they require a hint which marks what type a certain variable should be. For example, the name variable can be of character type or any type of number can be of integer type. Furthermore, Python also allows to specify the length of each variable in the parentheses. The codes for name, information, email and fees are as follows:

name = models.CharField(max_length=255)
information = models.TextField()
email = models.EmailField(null=True)
fees = models.IntegerField(null=True)



```
from django.db import models

class Institute(models.Model):
    name = models.CharField(max_length=255)
    information = models.TextField()
    address = models.TextField(null=True)
    url = models.URLField()
    contact = models.CharField(max_length=50)
    email = models.EmailField(null=True)
    fees = models.IntegerField(null=True)
    principal = models.CharField(max_length=255, null=True)
    course = models.ForeignKey("courses.Course", on_delete=models.CASCADE, null=True)
    facilities = models.ForeignKey("facility.Facility", on_delete=models.CASCADE, null=True)

    def __str__(self):
        return self.name
```

Fig 6: Model for Institute table

As per the ER diagram, all tables are inter-connected to each other with the means of using Foreign Keys. The Institute table has two additional columns of foreign keys by fetching IDs of Course table and Facility table. By associating, these three tables with each other, data can be fetched easily and remains in an organised manner. Moreover, it is customized for each institute. To do so, the following code is included under the class of each models.py file:

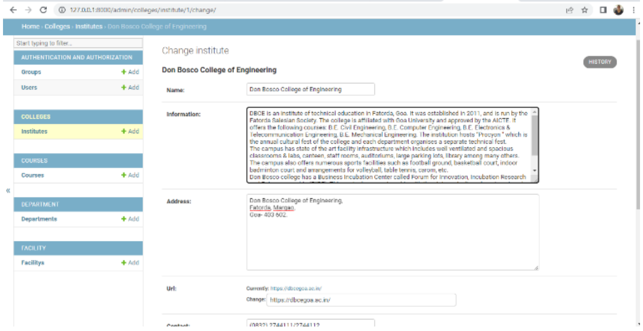
course = models.ForeignKey(“courses.Course”, on_delete = models.CASCADE, null=True)
facilities = models.ForeignKey(“facility.Facility”, on_delete = models.CASCADE, null=True)
The same syntax for Course table is used as foreign key in the Department table.

All the changes incorporated in the files need to be saved. To do so, the same two commands are applied in the Command Prompt every time a change is made in the Python files and are given one after the other. They are:

python manage.py makemigrations
python manage.py migrate

The working of the database is tested either by Django or by SQLite Studio. The former method employs the web server directly. In this, the information is stored in the form of fields wherein, each attribute represents a field. Data can be easily added, removed or changed. SQLite Studio follows the approach of tables. This is typically how a database management system appears. Data is stored in the form of rows and columns wherein each row represents a particular institute and the columns consists of information related to it.

Operating Django is more convenient as it is simple to use and requires no technical knowledge. However, it requires a stable internet connection to run. On the contrary, SQLite Studio appears to be more complex as the amount of data stored increases. At least basic knowledge on relational database management systems is required in order to operate it. However, it provides more functionality than Django and hence is a better option overall.


127.0.0.1:8000/admin/colleges/institute/1/change/
Home › Colleges › Institutes › Don Bosco College of Engineering
Start typing to filter...
AUTHENTICATION AND AUTHORIZATION
Groups
+ Add
Users
+ Add
COLLEGES
Institutes
+ Add
COURSES
Courses
+ Add
DEPARTMENT
Departments
+ Add
FACILITY
Facilitys
+ Add
«
HISTORY

Change institute

Don Bosco College of Engineering

Name: Don Bosco College of Engineering

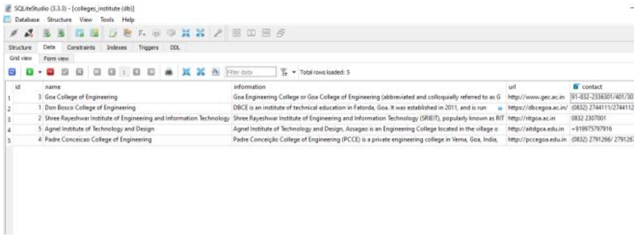
Information: DBCE is an institute of technical education in Fatorda, Goa. It was established in 2011, and is run by the Fatorda Salesian Society. The college is affiliated with Goa University and approved by the AICTE. It offers the following courses: B.E. Civil Engineering, B.E. Computer Engineering, B.E. Electronics & Telecommunication Engineering, B.E. Mechanical Engineering. The institution hosts "Procyon" which is the annual cultural fest of the college and each department organises a separate technical fest.
The campus has state of the art facility infrastructure which includes well ventilated and spacious classrooms & labs, canteen, staff rooms, auditoriums, large parking lots, library among many others.
The campus also offers numerous sports facilities such as football ground, basketball court, indoor badminton court and arrangements for volleyball, table tennis, carom, etc.
Don Bosco college has a Business Incubation Center called Forum for Innovation, Incubation Research

Address: Don Bosco College of Engineering,
Fatorda, Margao,
Goa- 403 602.

Url: Currently: https://dbcegoa.ac.in/
Change: https://dbcegoa.ac.in/

Contact: (0832) 2744111/2744112

Fig 7: Information on Django



Total rows loaded: 5

	id	name	information	url	contact
1	3	Goa College of Engineering	Goa Engineering College or Goa College of Engineering (abbreviated and colloquially referred to as G	http://www.gec.ac.in	91-832-2336301/401/30
2	1	Don Bosco College of Engineering	DBCE is an institute of technical education in Fatorda, Goa. It was established in 2011, and is run	https://dbcegoa.ac.in/	(0832) 2744111/2744112
3	2	Shree Rayeshwar Institute of Engineering and Information Technology	Shree Rayeshwar Institute of Engineering and Information Technology (SRIEIT), popularly known as RIT	http://ritgoa.ac.in	0832 2307001
4	5	Agnel Institute of Technology and Design	Agnel Institute of Technology and Design, Assagao is an Engineering College located in the village o	http://aitdgoa.edu.in	+919975797916
5	4	Padre Conceicao College of Engineering	Padre Conceição College of Engineering (PCCE) is a private engineering college in Verna, Goa, India,	http://pccegoa.edu.in	(0832) 2791266/ 279126

Fig 8: Information on SQLite

3.3 Implementation of Machine Learning

The Machine Learning model for the prediction of admission in the app is built using Google Colab tool considering the following steps:

Data collection: The dataset consists of data either in the form of images or numeric values. The images can be labelled as per the output class and stored in a folder. For storing the numerical data, an excel sheet or a comma-separated values (CSV) file is used. Using Google Colab, a new python notebook is created and this dataset is uploaded under the files section.

Data Preparation: NumPy is a library for Python consisting of high level mathematical functions used on arrays and matrices. Pandas is a high level data manipulation tool based on the NumPy package. Importing NumPy and Pandas helps to view and manipulate the data uploaded.

Specifying architecture of the Machine Learning model: Using the pandas pd.read_csv("file-name.csv") command the csv file consisting of numeric value data is read. If the data is not in numeric form, then the class label values can be categorised numerically using label-name.codes method. Once the dataset is uploaded. It is prepared for classification using the Label Encoding function which removes any duplicates in the dataset and replaces categorical values with numerical values. Using the iloc() function, specific rows or columns of the dataset are accessed by mentioning the index values. Here, with the help of this function the input and output classes are assigned to different variables. Running the variable name in the code tab of the Colab gives the output of data stored in that variable. The output class is modified into a one-dimensional array using the NumPy.array() method.

Splitting the Dataset: Before training the Model, the dataset is divided into training and testing set values. Splitting the dataset helps in understanding how the Model is performing for the given dataset.

Model Selection and Model Evaluation: To Build the Model, Decision Tree classifier is used. After successful completion of the model, it is evaluated using the accuracy-score function. This function compares actual test data values and predicted values.

Predictions and Parameter tuning: Accuracy of the model can be improved by tuning the parameters in the Decision Tree Algorithm. Here, using entropy as the criteria of Information Gain for Attribute Selection the accuracy of the Model is enhanced.

4. RESULTS

Since the information that is displayed by the EduInfoGoa app is not static and is stored in the backend database, integration of the two systems is a crucial step. The application must fetch the data from the database and display it on the user's screen. In order to do so, the JSON API is used in the Java files of Android Studio as discussed in the previous sections. This links the application with the host system that contains the database.

To test the working of this, the app is installed on to a mobile phone and the host system is kept running. The two systems are then configured to the same IP address. This initialises the JSON API and hence, the app fetches data from the database making it visible for the user.

Following are the screenshots of the EduInfoGoa app as installed on the phone:

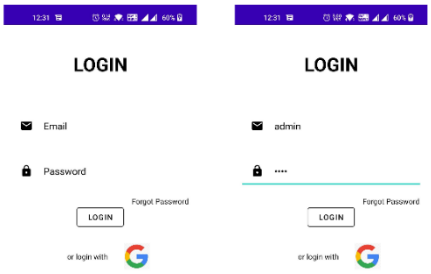


Fig 9: Login Page of EduInfoGoa app

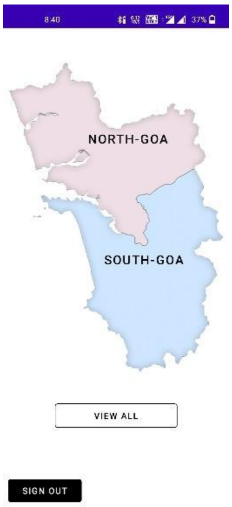


Fig 10: District Page

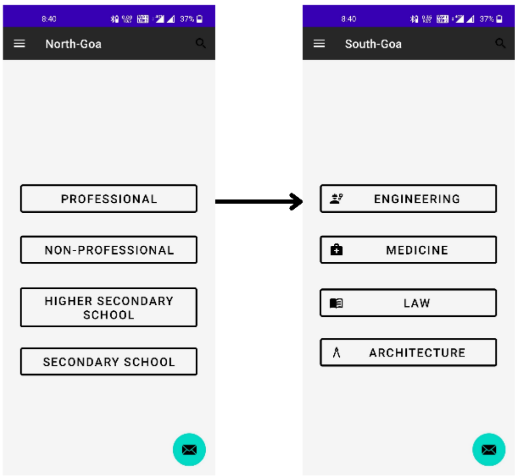


Fig 11: Educational Level and Courses

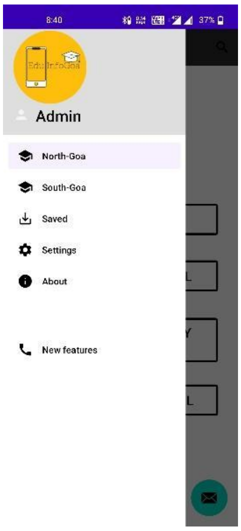
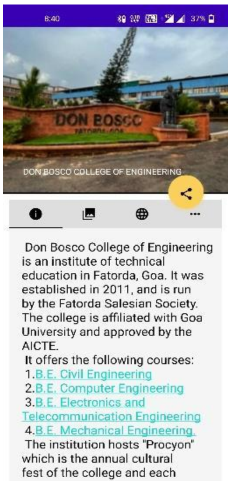


Fig 12: Navigation drawer



Don Bosco College of Engineering is an institute of technical education in Fatorda, Goa. It was established in 2011, and is run by the Fatorda Salesian Society. The college is affiliated with Goa University and approved by the AICTE.

It offers the following courses:
1.B.E. Civil Engineering
2.B.E. Computer Engineering
3.B.E. Electronics and Telecommunication Engineering
4.B.E. Mechanical Engineering
The institution hosts "Procyon" which is the annual cultural fest of the college and each

Fig 13: Institute Page

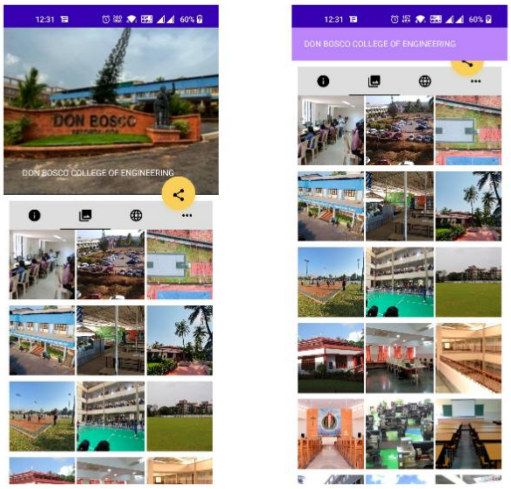
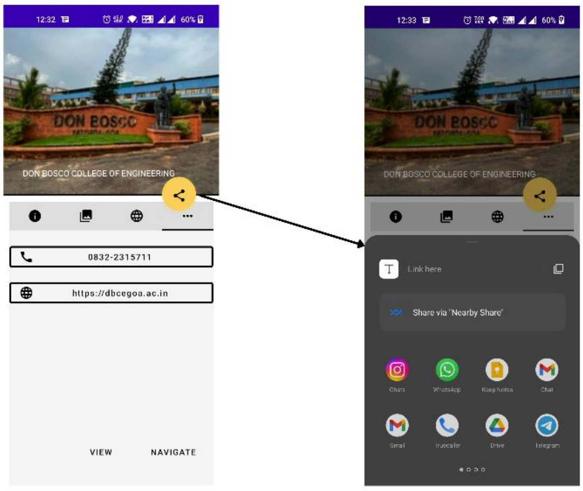

12:31
DON BOSCO COLLEGE OF ENGINEERING
12:31
DON BOSCO COLLEGE OF ENGINEERING

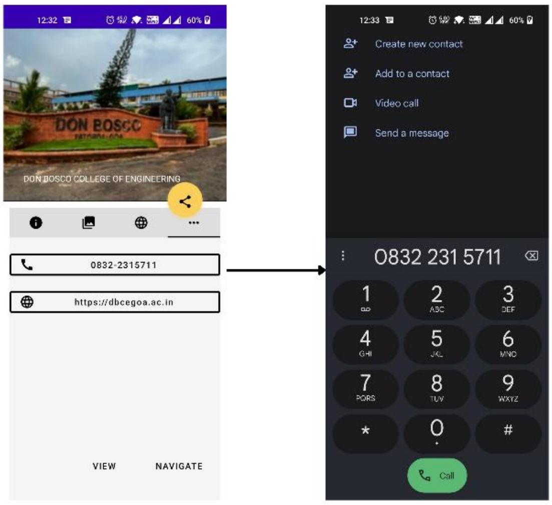
Fig 14: Photographs on Institute Page


12:32
DON BOSCO COLLEGE OF ENGINEERING
VIEW
NAVIGATE
12:33
DON BOSCO COLLEGE OF ENGINEERING
Link here
Share via 'Nearby Share'

0832-2315711

https://dbcegoa.ac.in

Fig 15: Option to share an institute on other apps



0832-2315711

https://dbcegoa.ac.in

0832 231 5711

Fig 16: Option to call an institute

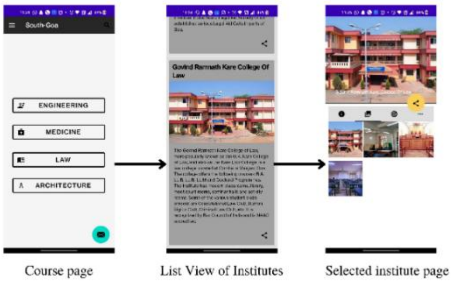


Fig 17: Navigation of the app

5. CONCLUSION AND FUTURE WORK

5.1 Conclusion

The “EduInfoGoa” app is developed with the aim of creating awareness among people who are not familiar with the educational institutes present in Goa. For the purpose of this paper, the application displays information related to academics, extra-curricular activities, campus facilities, contact details and images of the professional colleges of Goa. This information is stored in a backend database management system which fetches the data and displays it on the app when the server is operated. Hence, data becomes dynamic and information can be modified at any time as per the changes occurring in each institute. This also reduces the storage space and optimises the overall app.

Users can select their choice by browsing through the list of institutes available. This is done by filtering the institutes based on their district, educational level and courses. The option to log-in with the help of an email id or directly via Gmail is given to the user. A share button is also available. Furthermore, the app displays institute specific FAQs which are student related and are answered by students enrolled in the particular institute. The EduInfoGoa app also allows users to compare two institutes based on their facilities. Prediction of admissions based on previous years' trends using machine learning is developed and integrated in the app. Students can predict their admission in engineering colleges of Goa based on their category, GCET score and choice of department.

By doing so, the EduInfoGoa app guides and provides necessary resources to professionals who move to the state with their families and students who are in their transitional phase of education by making them aware of the existence of the institutes in Goa and the facilities provided by them.

5.2 Future Work

Since the proposed system is a prototype, it can be enhanced in the future by incorporating the following:

Features such as search bar to manually search a particular institute and an option to save an institute for future reference.

Allow users to rate an institute on a scale of 5 stars.

Provide admin rights to various institutes so as to give live updates specific to each institute w.r.t events, notices, exam timetables, etc.

Allow students to ask queries at the time of admission in the institute.

Further develop the app for institutes of different educational levels, programs and courses.

Enhance filtering of institutions by providing more options such as popularity in the state and nearby locations.

Improve the machine learning model by predicting admissions in colleges of various courses that are beyond engineering.

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