



VIVA-TECH INTERNATIONAL JOURNAL FOR RESEARCH AND INNOVATION

ANNUAL RESEARCH JOURNAL
ISSN(ONLINE): 2581-7280

Smart Portal: A Platform for Student's Profile Creation, Evaluation and Clustering

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Abstract: In today's era where almost everything is digitized, even then at the end of the day we have to come across the paperwork when it comes to document submission and verification for any process. As a result, with increased advancement in the technology, easy availability and access of data and documents is the main concern. This project is intended to develop an application based system where student data and documents will be stored on a server and create a smart profile on the basis of student data. Student can also use that data and document anywhere anytime. The main aim is to provide a common application for all parts of education. Where each necessary details and document of a student will be available on one single portal also can be accessible by other higher authorities. Additionally, evaluating the profile and clustering of students can be done for better recommendation.

The Smart Portal system will be useful in document extraction during the admission process as well as it will be used for requirement of details and document of a candidate during interview. Students can upload their data and documents on the server after registration. Then their data will be analysed by the system by evaluating and clustering. This data is retrieved using QR code scanning system or Email verification/ OTP.

Keywords – Clustering, Evaluation, Extraction, Smart portal, Verification

I. INTRODUCTION

Now a days as almost everything is digitized, even then at the end of the day we have to come across the paperwork when it comes to document submission and verification for any process. As a result, with increased advancement in the technology, easy availability and access of data and documents is the main concern. We require fast and easy interaction with complex systems that would ensure a faster response in turn. The system Smart-portal is used to provide a digital platform for maintaining student details and documents on a server so it can be easily accessible. The system can also evaluate a student's profile based on their academic performance, achievements and total marks it will help in grouping of students based on their profile and interest. The main aim is to provide a common application for all parts of education. Where each necessary details and document of a student will be available on one single portal also can be accessible by other higher authorities. Additionally, evaluating the profile and clustering of students can be done for better recommendation.

II. RELATED WORKS

R.Dinesh, et. al. [1] describes that the existing healthcare system with unlimited combinations of care and medicine specialization was decentralized. The system proposed in this paper is about smart assistant that is designed to securely access the personal health information of the patient which is outsourced or saved and accessed from the cloud provided with use of smart card as security feature to access these records. This system allows the health care providers to create, maintain, delete and control the patient personal health information on

cloud and only authorized person can access that particular information. For security purpose they said that when a Patient Health Record is server-based, it is susceptible to downtime caused by human error or glitches in the software.

Khoiriyatus Sya'iyah, et. al. [3] describes that, the author used a clustering method on student data for educational institutions, so that the student potential can be predicted or acknowledged. They used the k-means algorithm for clustering. The author formed the three groups from clusters of student data because they want to know qualities of students with performance based on excellent, standard and under excellence. So that 724 students data along with 4 variables i.e. GPA, length of study, English proficiency score, LT. The result of this research formed three clusters of students. The author also designed applications to store this data with web-applications. To improve accuracy, the amount of student data should be increased so that the distribution of data will be precise.

Anja Habus-Korbar1, et. al. [10] describes that, in this paper Clustering is used to create segments of high school graduates based on their opinions regarding their future education. Dataset used for clustering was collected in form of question answers, State Matura Exam. The following exam consists of their first choice, interest, hobbies. On basis of their selection choice they were differ not only in motivation but also in achievement and in their preference regarding the scientific field of their future study. During the application process, students could choose ten different faculties and had to rank them by preference. In this paper emphasis is on the last section where the students' assessed the importance of 13 different reason or causes for choosing a faculty selected as their first choice.

Engr Osama Ahmed Siddiqui, et. al. [5] describes that, the system proposed is to overcome the problem of storing medical data and access the data of patient whenever it's requires. Here they have built management system for hospitals which will be based on QR-Code. This divided into 2 parts i.e. web application and mobile application. This Web App will consist of a login panel for the staff members of Hospital who can feed patient data on cloud and Mobile App will consists for QR code scanning, view and update of data. For storing information of patient we will use web application that all data will be store on cloud. Only authorized person will able to feed data into the system like members of hospitals. Patient will have a unique identity in form of QR code which will help in retrieving data. Mobile application will be used for updating and viewing patient data. This application will help in enhance the outdated filing system in hospitals and will provide security to our data and easy access to data. In future we may apply data science and machine learning algorithms on such data.

Aaditya Harish Tank, et. al. [6] describes that, they have developed a different way to increase storage capacity through QR code structure. For structure and transmission they used a grey level QR code structure instead of using only black and white modules. As compared to normally used QR codes, the code implemented by the author uses different grey levels which give large storage capacity. It also reduces the error produced by them and also improves camera capacity and accuracy to process the images and ease of scanning and decoding QR codes regularly. The author also says that the changes of error increases due to grey levels along with determination of these levels in various images and brightness conditions. It can be resolved by first detecting dark and light grey levels or using different stretching.

III. METHODOLOGY

The website is based on the Django framework which has three user students, admin, and institute. Students need to create an account on the created website. They will upload all their academic details as well as their documents, certificates and achievements to the database. This data will be used for profile creation, profile evaluation, clustering and for profile rating. Student will be able to keep their profile updated day. For profile evaluation we are using average percentage of students all academic details and using that criteria we are rating the profiles of student. This Student Profiles will be visible on the registered university portal through which they can review student's capabilities and experience, academics, achievements, etc. University can send request for documents access, this request will be visible to student on their profile also they will be notified using email regarding this. Student can accept this request by performing QR authentication by scanning QR code present in his profile which will provide access to document page to university. Then our last module clustering will form the clusters of students based on their data like interest, skills, academics, sports, etc. For Clustering we will be using fuzzy logic algorithm. So the institutes can use that data while placement, sport activities etc.

IV. PROPOSED SYSTEM

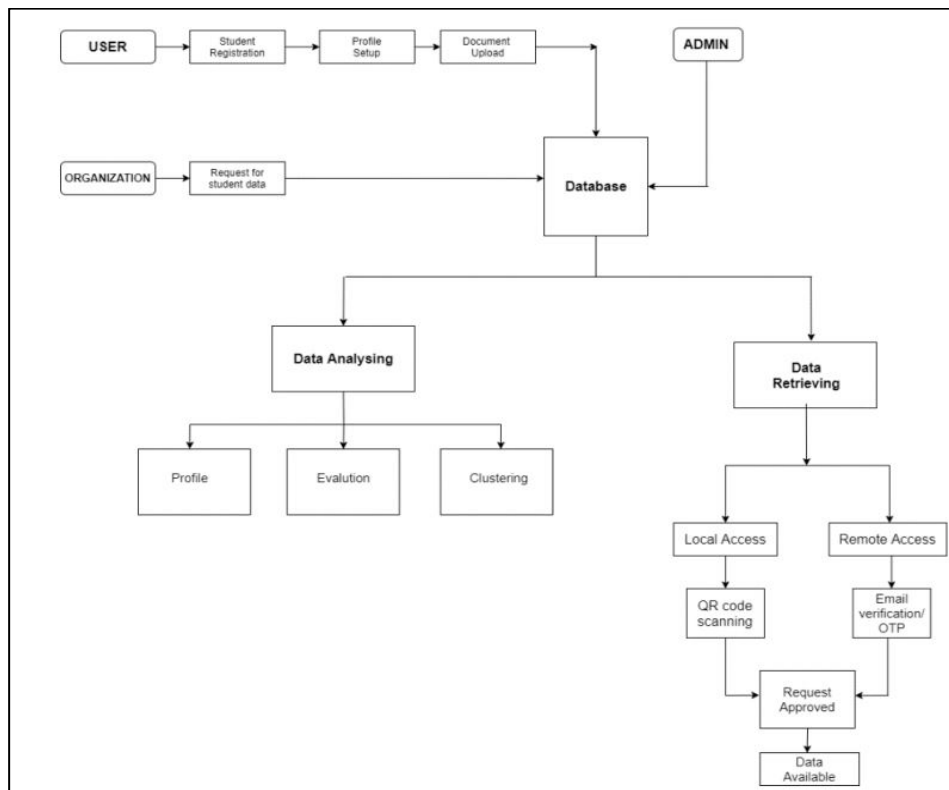


Fig. IV.i Block Diagram

Fig. IV.i depicts the block diagram of the proposed system. The student profile will be created by the user on the website and documents will be stored in the database. In the system, the data uploaded by the student will be the input. The input data will be fed to the profile evaluation, grading algorithm and clustering algorithm. Admin will have the access to the database. Universities and institutions will also have access to the student profile but only when students accept the request for data sharing. For that OTP and QR authentication module will be applied. After authentication data will be available to organizations or institutions. After evaluation profile will show the percentage and grades as per data. After clustering organizations can form students clusters based on their data which can be used for different purposes.

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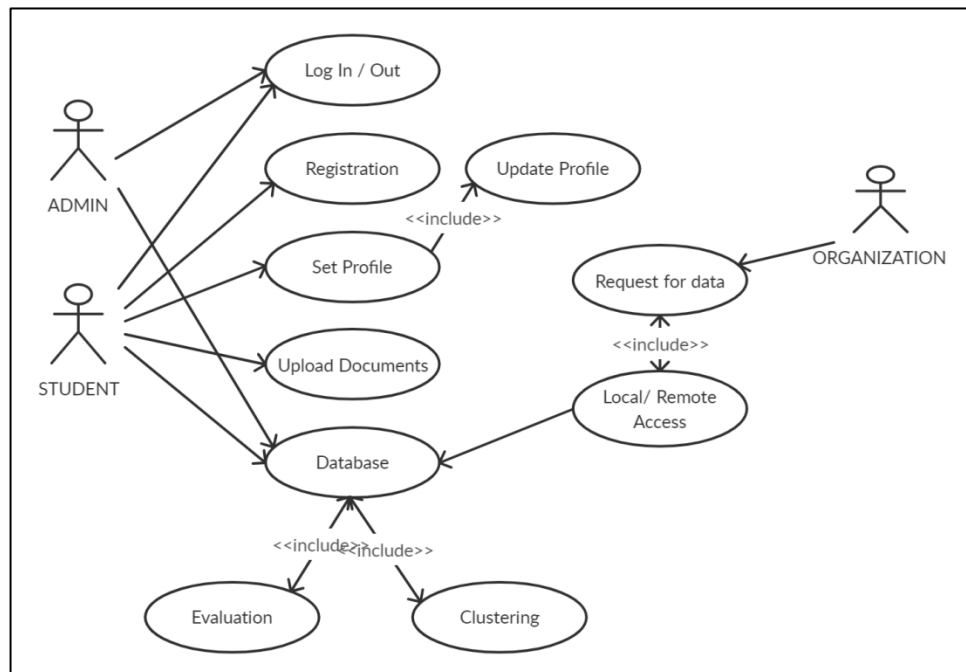


Fig. IV.ii Use Case Diagram

Fig. IV.ii depicts the use case diagram of the proposed system. The student will create the profile and upload all his career data on the server. The Admin will access and verify the student data from the website server. Database contains images, certificates & academic details, mark sheets and achievement of students which will undergo clustering technique, profile evaluation. Clustering of the dataset will also focus on classification or forming clusters of students using the Fuzzy logic algorithm. The organization will use this data and accordingly form clusters of students which can be used for activities.

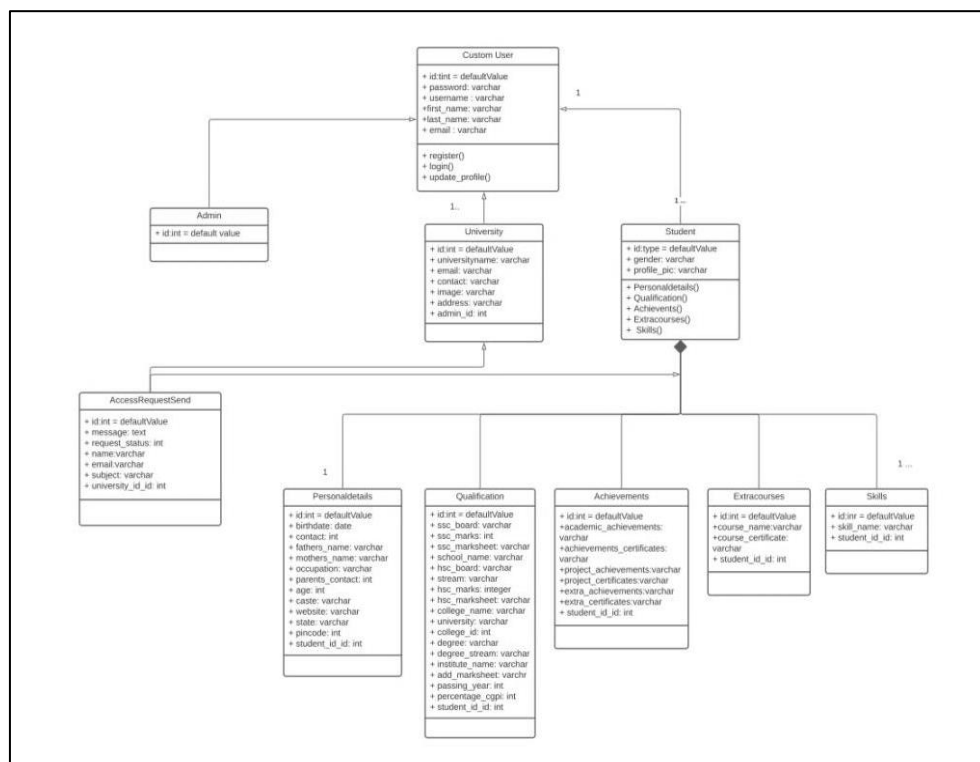


Fig. IV.iii Class Diagram

Fig. IV.iii is the class diagram. A class diagram in UML is a static structure diagram which describes the structure of system by showing the system's classes, attributes, methods and the relationship between the objects.

V. CONCLUSION

Thus the system is able to store data in database along with that data is store in QR code and the system is able to display the store data using QR code. Also Android application is ready containing feature such as login, register and QR code scan option. Further on based of student data, profile evaluation and clustering of similar kind of student is yet to complete. The system will be useful in document extraction during admission process as well as it will be used for requirement of details and document of a candidate during interview. By evolution of profile the student will be able to improve themselves and organization can select students on basis of the choice they want. We can also refer to different students with the same educational background such as grouping of similar technical background, group of same graduation courses, same skills etc. In hospitals there are such systems used for keeping records of patients to reduce paper work and for easy access to details of patients in case of emergency. Where the details can be updated and stored and accessed by higher authority. This proposed system will be able to interact with the data in a direct way without carrying any hardcopy of documents. Such a system can be helpful for Admission process, banking, job interviews etc. In future more features will be included in this system such as Chabot, notifications, suggestions etc.

Acknowledgements

We would like to express a deep sense of gratitude towards our guide Prof. Dnyaneshwar Bhabad, Computer Engineering Department for his constant encouragement and valuable suggestions. The work that we are able to present is possible because of his timely guidance. We would like to pay gratitude to the panel of examiners Prof. Sunita Naik, Dr. Tatwadarshi P. N., Prof. Dnyaneshwar Bhabad, & Prof. Vinit Raut for their time, effort they put to evaluate our work and their valuable suggestions time to time. We would like to thank Project Head of the Computer Engineering Department, Prof. Janhavi Sangoi for her support and co-ordination. We would like to thank Head of the Computer Engineering Department, Prof. Ashwini Save for her support and co-ordination. We are also grateful to teaching and non-teaching staff of Computer Engineering Department who lend their helping hands in providing continuous support.

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