Automated Interview Tool

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1.ABSTRECT

The process of admitting students to universities can be a daunting task, requiring the collection, storage, analysis, and evaluation of student information and applications. Admissions officers must review numerous applications and make tough decisions based on a variety of factors, including academic performance, extracurricular activities, and personal characteristics. Moreover, the increasing number of applicants and the need to adhere to university standards and regulations can further complicate the process. Artificial Intelligence (AI) and Machine Learning (ML) technologies can help streamline the admission process for universities by automating various tasks, leading to improved efficiency and cost savings. This project aims to create an automated admission process for Canadian universities using Python and OCR Tesseract to scan IELTS mark sheets. By utilizing AI and ML technologies, the project seeks to increase efficiency and minimize manual intervention in the admission process by collecting, storing, and analyzing student data, identifying suitable candidates, evaluating applications, and making admission decisions. The system developed in this project adheres to the university's requirements and regulations, ensuring security and reliability. Python, MS SQL, and Excel technologies are employed to achieve the project goals. The article provides data on eligibility, cost, location, course level, and name for all Canadian schools and universities from official websites. This research contributes to the automation of the admission process in Canadian universities and colleges, resulting in more efficient decision-making and better candidate selection.

2.ACKNOWLEDMENT

3.CONTENT

4.INTRODUCTION

For both students and administrators, the application process for Canadian universities and colleges may be difficult. Collecting and analyzing student data manually, assessing applications, and making choices can be time-consuming and prone to mistakes. The application of AI and ML technologies is a result of the rise in demand for higher education and the requirement for efficient admissions procedures. By automating multiple steps and removing human error, these technologies have the ability to completely transform the admissions process.

The college and university admission process can be complex and time-consuming, involving the collection and evaluation of large amounts of data and information about potential students. In recent years, advances in technology have opened new possibilities for streamlining this process and making it more efficient. Two technologies that have shown great promise in this regard are face recognition and voice to text. Face recognition technology can be used to verify the identities of applicants quickly and accurately, while voice to text technology can make it easier to collect and analyze information about their academic achievements, extracurricular activities, and personal qualities. By incorporating these technologies into the admission process, colleges and universities can reduce the amount of time and resources needed to evaluate applicants, allowing them to focus on other important aspects of the process. However, the use of these technologies also raises important questions about privacy and security, as well as concerns about potential biases or inaccuracies in the data they generate. In this paper, we will explore the potential benefits and challenges of using face recognition and voice to text in the college and university admission process and consider some of the ethical and legal issues that must be addressed in order to ensure their effective and responsible use.

This study's main objective is to assist in automating the admissions process at Canadian institutions and colleges. Data gathering, candidate identification, application review, and decision-making will all be automated by the system, enhancing its effectiveness and efficiency. By analyzing and comparing applicant data against several criteria including eligibility, cost, location, and course level, the system will also enhance the candidate selection process. This study will open the door for future research in the area of AI and ML in the educational sector and help to create admission procedures that are more effective and efficient.

5.DESCRIPTION OF DATA SET

The dataset is a crucial part of the project that seeks to automate the admission process for universities and colleges in Canada. It includes information on five universities and five colleges, such as the names of their programs, tuition and application fees, and program URLs for further details. Its purpose is to provide a comprehensive overview of the programs offered by these institutions and facilitate efficient decision-making in the admission process.

The dataset's primary objective is to serve as the foundation for developing Artificial Intelligence (AI) and Machine Learning (ML) models and frameworks to automate the university application process, making it more efficient and accessible for students. It contains all necessary information for collecting, storing, and analyzing data, allowing the development of algorithms that can identify suitable candidates based on factors like program eligibility, location, and cost. With its richness and diversity, the dataset offers a wide range of options for developing models and frameworks, ensuring that the automation process is accurate and efficient.

5.1 DATA QUALITY

The accuracy, completeness, and consistency of the dataset are crucial factors that determine the usefulness of the data. In this case, the dataset was obtained directly from the websites of the universities and colleges, which makes it highly accurate and complete. It is likely that the information in the dataset is up-to-date and relevant since it was taken from official sources. This is important as the data needs to be current and relevant for the development of an AI and ML framework for the automation of the university application process.

5.2 DATA FITNESS

The dataset is perfect for creating frameworks and models for AI and machine learning that automate the admissions process for universities. It provides a base of information that may be used to support the development of AI and machine learning models. the accuracy, completeness, and timeliness to ensure the models' performance and provide suitable recommendations to potential students, consistency and reliability are essential.

5.3 DATA USABILITY

The data set is quite useful for the project's first stage of creating an extensive database for the website. The data gathered offers a thorough picture of the entrance circumstances for numerous institutions and universities. As a foundation of knowledge that can be utilized to help the development of the AI and ML models in subsequent stages of the project, this data will be of great value in creating the database for the website.

5.4 DATA ETHICALITY

When gathering, utilizing, and storing this data, the ethical framework was taken into consideration. The universities and colleges gave their permission for the data to be gathered, and steps were taken to secure it from unauthorized access, use, or disclosure. The information was used in a manner that respected the privacy of the people and institutions involved and that was compliant with all applicable laws and rules in the country where it was gathered and utilized. To ensure the ethical use of the data, the 5 Cs of the ethical framework—Consent, Control, Clarity, Context, and Conflict of Interest—were considered.

6. EXPLORATORY DATA ANALYSIS

1. The graph displays the minimum tuition fee as per the program for different colleges and universities. Program fee varies as per the credibility of the program e.g. Undergraduate or a Master's degree. Program fee for same program may also vary depending on the university or college.

Minimum Tution fees of Program level
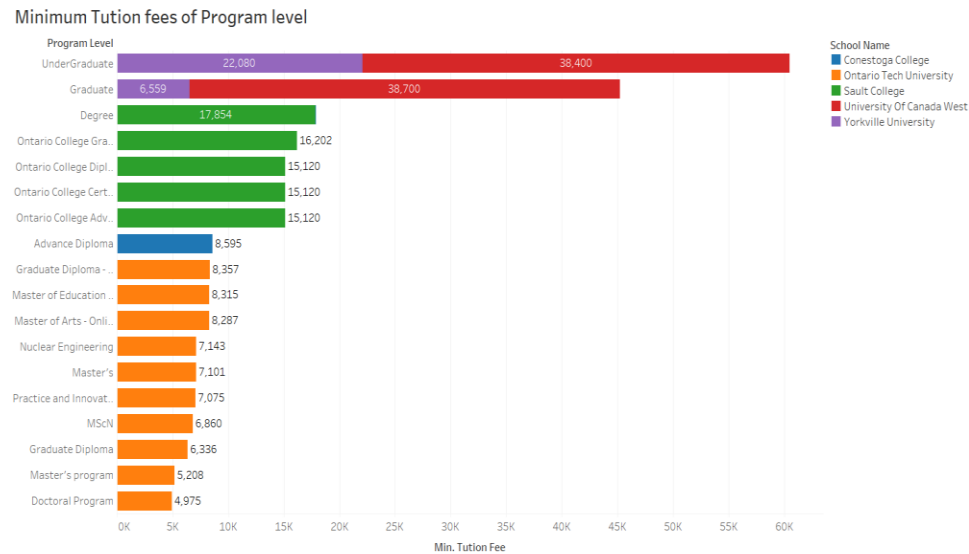
2. The graph displays how average tuition fees of a college, or a university may vary depending on its geographical location. The geographical location of a college is an important factor as it helps to determine the number of applicants, exposure to students and future job opportunities. Average fees for colleges in BC and Welland, are significantly higher than the colleges in Oshawa and Ottawa, ON.

AVG tution fees according to location of Universities / Colleges
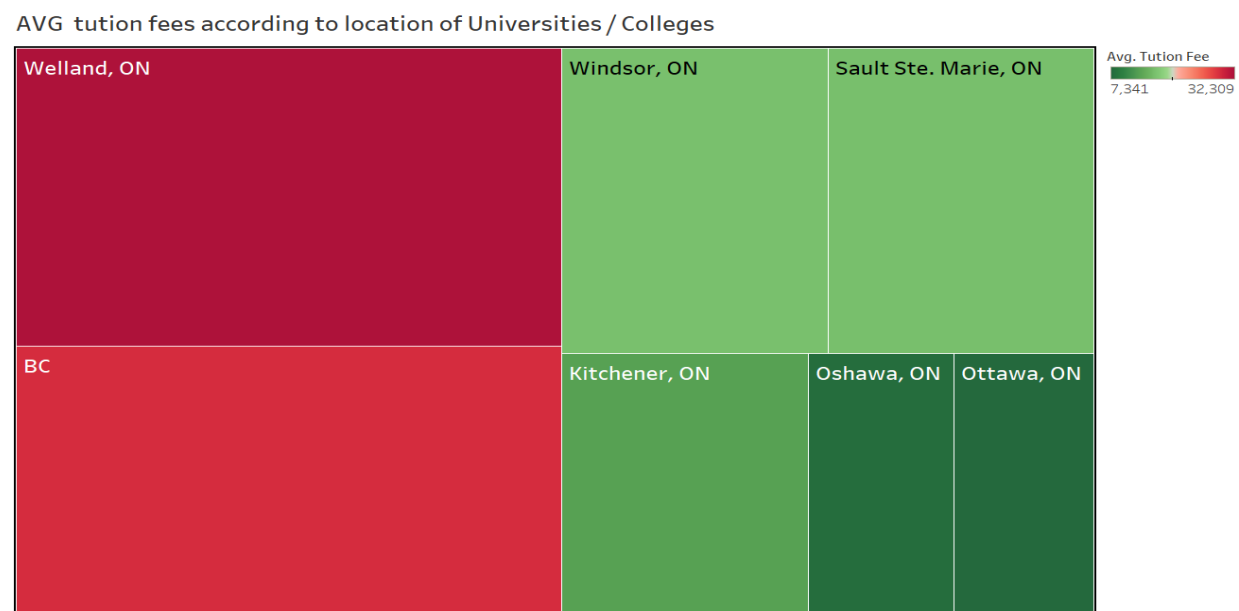
3.The graph displays the application fees of various colleges as per their geographic location.

Application Fees By School Name and Location

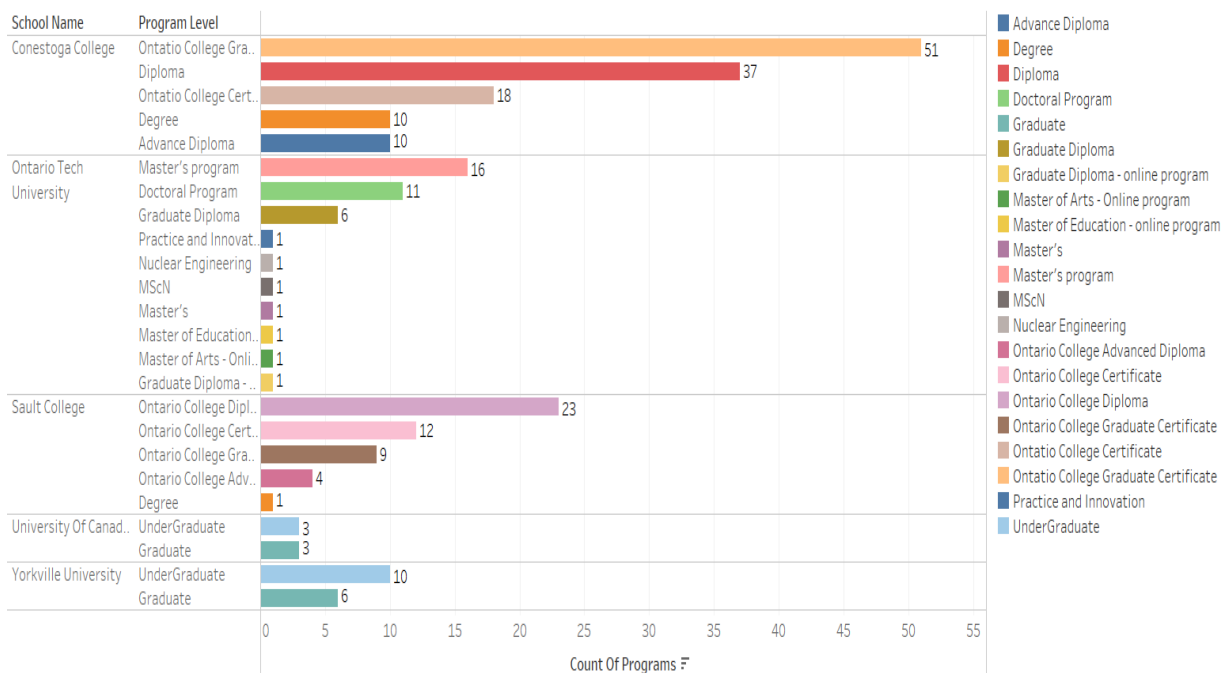| Location	School Name		Application Fee ()
BC	University Of Canada West	CAD 150	■ 75$
			■ $75
	Yorkville University	75$	■ $100
			■ $120.00
Kitchener, ON	Conestoga College	$100	■ CAD 150
Oshawa, ON	Ontatio Tech University	75$	
Ottawa, ON	Algonquin College	$100	
Sault Ste. Marie, ON	Sault College	$100	
Welland, ON	Niagara College	$100	
Windsor, ON	St Clair College	$120.00	
	University of Windsor	$75	

4. The graph shows the number of programs offered by each university and college.he programs offered are of different credibility like Ontario College Graduate, Diploma, Degree, Advanced Diploma etc. As per the graph Conestoga college offers the most programs of all. It offers 51 Ontario College graduate programs, 37 diplomas, 18 Ontario College Certificates, 10 degrees and 10 advanced diplomas

Programs Offered By 5 Universities / Colleges

School Name	Program Level	Count Of Programs
Conestoga College	Ontatio College Gra..	51
	Diploma	37
	Ontatio College Cert..	18
	Degree	10
	Advance Diploma	10
Ontario Tech University	Master's program	16
	Doctoral Program	11
	Graduate Diploma	6
	Practice and Innovat..	1
	Nuclear Engineering	1
	MScN	1
	Master's	1
	Master of Education..	1
	Master of Arts - Onli..	1
	Graduate Diploma - ..	1
Sault College	Ontario College Dipl..	23
	Ontario College Cert..	12
	Ontario College Gra..	9
	Ontario College Adv..	4
	Degree	1
University Of Canad..	UnderGraduate	3
	Graduate	3
Yorkville University	UnderGraduate	10
	Graduate	6

Legend:
■ Advance Diploma
■ Degree
■ Diploma
■ Doctoral Program
■ Graduate
■ Graduate Diploma
■ Graduate Diploma - online program
■ Master of Arts - Online program
■ Master of Education - online program
■ Master's
■ Master's program
■ MScN
■ Nuclear Engineering
■ Ontario College Advanced Diploma
■ Ontario College Certificate
■ Ontario College Diploma
■ Ontario College Graduate Certificate
■ Ontatio College Certificate
■ Ontatio College Graduate Certificate
■ Practice and Innovation
■ UnderGraduate

7. FACE RECOGNITION, AND VOICE TO TEXT

Face recognition and voice to text are two cutting-edge technologies that have revolutionized the way we interact with computers and machines. Both technologies have applications in various fields, including security, healthcare, education, and entertainment. In recent years, the use of these technologies has become increasingly common in the admission process for colleges and universities. This essay explores the potential benefits and challenges of using face recognition and voice to text in the college and university admission process.

One of the primary advantages of using face recognition technology in the admission process is the ability to verify the identities of applicants quickly and accurately. This is particularly important in an era where identity theft and fraud are on the rise. By using facial recognition, colleges and universities can ensure that the person applying for admission is who they claim to be, reducing the risk of fraud and increasing the security of the admission process.

Another benefit of using face recognition technology in the admission process is the ability to streamline the application process. Facial recognition can be used to automatically populate application forms with the applicant's personal information, reducing the need for manual data entry and increasing the efficiency of the application process. This can be particularly helpful for international students who may have difficulty filling out forms in a language they are not fluent in.

Voice to text technology can also play an important role in the admission process, particularly in the collection and analysis of information about applicants' academic achievements, extracurricular activities, and personal qualities. By using voice to text, colleges and universities can make it easier for applicants to provide detailed information about their qualifications and experiences, without having to worry about spelling or grammar errors. This can help admission officers make more informed decisions about which applicants to accept, based on a completer and more accurate picture of their achievements and potential.
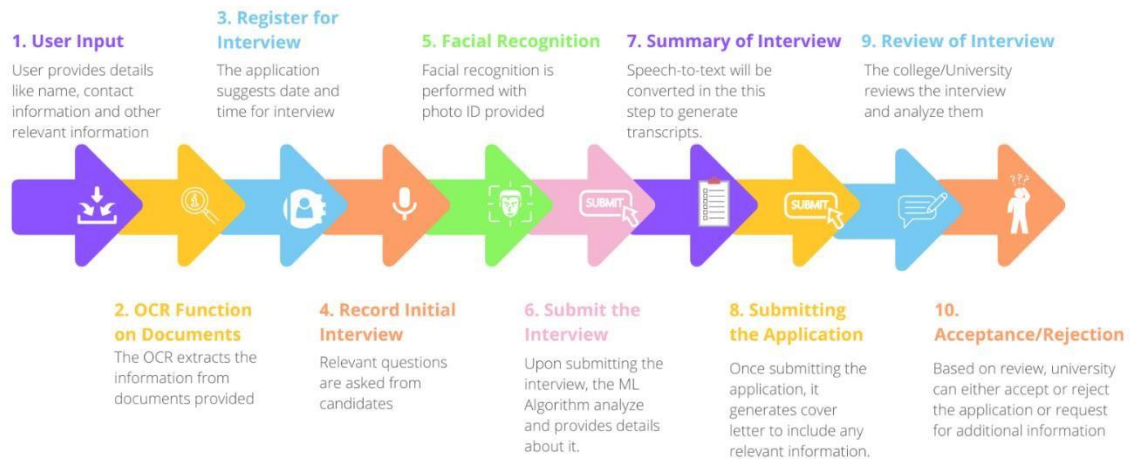
However, the use of face recognition and voice to text in the admission process also raises important ethical and legal issues that must be considered. One concern is the potential for bias and inaccuracies in the data generated by these technologies. For example, facial recognition algorithms have been shown to be less accurate in identifying people of color and women. Similarly, voice to text technology may not accurately capture the nuances of speech patterns and accents, leading to errors in data analysis.

Another concern is the privacy and security of the data collected through these technologies. Applicants may be hesitant to provide facial or voice data if they are not confident that it will be securely stored and used only for the admission process. Moreover, there is a risk that this data could be used for other purposes without the applicant's consent, raising serious privacy concerns.

In conclusion, while face recognition and voice to text technologies offer many potential benefits for the college and university admission process, it is important to carefully consider the ethical and legal implications of their use. Colleges and universities must work to ensure that these technologies are used in a responsible and transparent manner, with appropriate safeguards in place to protect applicants' privacy and ensure the accuracy and fairness of the admission process. By doing so, colleges and universities can make the admission process more efficient and accessible, while also maintaining the highest standards of integrity and fairness.

8. APPLICATION PROCESS WORKFLOW

Flow of Application

1. User Input
User provides details like name, contact information and other relevant information

2. OCR Function on Documents
The OCR extracts the information from documents provided

3. Register for Interview
The application suggests date and time for interview

4. Record Initial Interview
Relevant questions are asked from candidates

5. Facial Recognition
Facial recognition is performed with photo ID provided

6. Submit the Interview
Upon submitting the interview, the ML Algorithm analyze and provides details about it.

7. Summary of Interview
Speech-to-text will be converted in the this step to generate transcripts.

8. Submitting the Application
Once submitting the application, it generates cover letter to include any relevant information.

9. Review of Interview
The college/University reviews the interview and analyze them

10. Acceptance/Rejection
Based on review, university can either accept or reject the application or request for additional information

8.1 USER PROVIDES THEIR DETAILS

To begin the admission process, the user must provide the college or university with their personal information, which includes their name, contact details, educational background, and any additional relevant data requested by the institution. This initial step is critical in determining the eligibility of the applicant for the desired program or course of study. Additionally, it provides the college or university with the necessary information to keep the applicant informed about the admission procedures and deadlines. Providing accurate and complete information is essential to ensure a smooth and efficient admission process.

8.2 OCR FUNCTION ON DOCUMENTS PROVIDED:

The next step in the admission process involves the application system utilizing OCR (Optical Character Recognition) technology to extract the necessary information automatically from the documents provided by the user, including transcripts, certificates, and identification documents. This technology analyzes the digital versions of these documents and recognizes text and numerical characters, extracting the relevant information for the admission process. This automated process saves time and minimizes the possibility of errors associated with manual data entry, resulting in a more efficient and accurate evaluation of the applicant's credentials.

8.3 REGISTER FOR THE INTERVIEW:

After submitting their application, the user is prompted to schedule an interview with the college or university. The application system can suggest possible dates and times for the interview based on the availability of the interviewers. This approach makes it easier for the applicant to schedule the interview while also ensuring that the interviewers are available at the suggested time. Efficient scheduling of interviews helps to streamline the admission process, enabling the interviewers to be better prepared and to provide a more thorough evaluation of the candidate.

8.4 RECORD THE INITIAL INTERVIEW:

After scheduling an interview, an automated interview tool prompts the user to answer questions related to their qualifications and experience. This ensures a standardized and unbiased evaluation process, saves time, and resources for interviewers, and provides equal opportunities for all applicants. The recorded interview helps further evaluate the candidate's suitability for the program.

8.5 FACIAL RECOGNITION WITH PHOTO ID:

Facial recognition technology is used to verify the user's identity by comparing their face with the photo ID uploaded during the application process before starting the interview recording. This enhances system security and prevents fraudulent activities.

8.6 SUBMIT THE INTERVIEW:

The application prompts the user to submit the recorded interview, which is analyzed by machine learning algorithms that provide a summary to the user. This summary helps the user evaluate their performance and saves time for interviewers.

8.7 SUMMARY OF THE INTERVIEW USING SPEECH-TO-TEXT RECOGNITION:

The application generates a summary of the interview through speech to-text recognition. The user can review and modify it before submitting it to the college or university, ensuring accuracy, and avoiding misunderstandings.

8.8 SUBMIT THE APPLICATION:

The user can submit their application to the college or university after completing the interview, which includes an automatically generated cover letter and relevant document attachments. This simplifies the process, saves time, and enhances the application's quality.

8.9 REVIEW OF THE APPLICATION

The college or university evaluates the application, which includes the user's details, documents, and interviews. The system flags any discrepancies or red flags, helping reviewers to identify potential issues and maintain the admission process's integrity.

8.10 ACCEPTANCE OR REJECTION

The college or university decides on whether to accept or reject the application after reviewing it. The user can receive instant updates on the application status through the system, including requests for more information or documents. This feature enables the user to stay informed about the progress of their application, allowing them to respond promptly to any requests for additional information and ensure that the process proceeds smoothly.

9. PROTOTYPE INTERVIEW TOOL

Step 1: Input Collection The first step in the process would be to ask the student for their name, email address, and date of birth. This information would be collected through an online form or questionnaire that the student would fill out.

Step 2: ID Proof Upload After the student has provided their basic information, the tool would ask them to upload a valid ID proof such as a passport, driver's license, or other government-issued ID. This is done to verify the student's identity and ensure that they are who they claim to be.

Step 3: Register Button Once the student has provided all the required information and uploaded their ID proof, they will need to click on the "Register" button. This action would trigger the tool to process the information and save it in a database or other storage location.
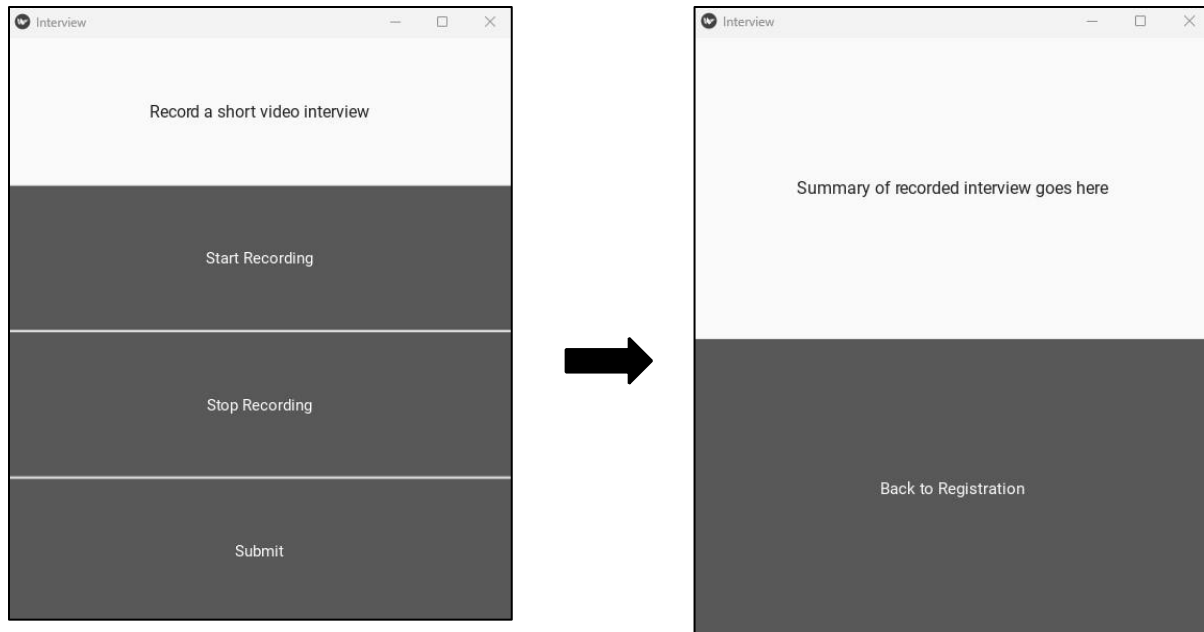
Step 4: Record Interview After registering, the tool would prompt the user to record a short video interview. This could be done through a camera on the user's device or through an integrated video recording tool. The interview questions may be pre-set or randomized.

Step 5: Face Recognition Once the user opens the camera to record the interview, the tool would initiate face recognition to verify the authenticity of the user. This is to ensure that the person recording the interview is the same person who registered earlier.

Step 6: Submit and Transcript After recording the interview, the user would click on the submit button. The tool would then generate a summary of the interview which would be displayed on the screen. This summary could be in the form of a transcript of the recorded video interview.

9.1 BENEFITS

- Efficient Registration Process: The tool streamlines the registration process by allowing the user to input their basic information and upload their ID proof in a single interface.
- Enhanced Security: The tool uses face recognition technology to ensure the authenticity of the user, preventing the possibility of impersonation or fraudulent activity.
- Timesaving: The tool allows the user to record a short video interview at their own convenience, eliminating the need for in person interviews or scheduling conflicts.
- Transcript of Interview: The tool generates a transcript of the interview, making it easier for the interviewer to review and evaluate the candidate's responses.
- Data Management: The tool stores all information collected during the registration and interview process in a database or other storage location, making it easy to manage and analyze candidate data.

10. CHALLENGES

DATA COLLECTION

Collecting data on courses and their details involved searching and compiling information from multiple websites, which required a significant amount of manual effort and time. This process may have involved navigating different interfaces, logging in to different accounts, and manually copying and pasting information from various sources. The data may have also needed to be cross-checked for accuracy and completeness, which added to the overall workload.

FORMAT OF OCR

Optical Character Recognition (OCR) technology is used to convert scanned documents into digital text that can be easily edited and searched. However, the accuracy of OCR can be compromised by various factors, such as the format of the input document, the type of font used, and the layout of the text. For example, if the input document contains tables, charts, or images, the OCR software may have difficulty accurately recognizing and converting the text. Similarly, if the font type or size varies throughout the document, this can also impact the OCR accuracy. Overall, OCR accuracy depends on various factors, and it's important to carefully consider the quality of input documents before using OCR technology.

VOICE REGOGNITION ACCURACY: Voice recognition technology can also be challenging, especially when dealing with accents, dialects, and background noise. Dealing with different microphone compatibility was another challenge that was faced. The system will need to be trained on a diverse set of voices to ensure accuracy and prevent bias.

FACE DETECTION ACCURACY: Face detection technology also faced challenges, especially when dealing with low-quality images, lighting conditions and facial expressions that can be misinterpreted. Ensuring that the models are trained on diverse datasets that represent the variability in facial appearances can be critical.

INTEGRATION AND COMPATIBILITY: Integrating both the above-mentioned modules in a single application was another challenge as the combined unit testing was required. Combining this combined module with OCR was another challenge that was faced by the team.

11 CONCLUSIONS

The conclusion of the project is focused on the advantages of incorporating AI and ML technologies to streamline and automate the admission process for universities and colleges. The conventional manual process can be time-consuming and error-prone, but with AI and ML, it can be more accurate and effective. The aim of the project was to create a system that automates different stages of the admission process such as data collection, candidate identification, application evaluation, and decision-making, using OCR Tesseract and AI/ML technologies in Python. The project also conforms to the university's rules and regulations to ensure safety and reliability.

The tools employed in the project are Python and Excel for data management, and the data from official websites were collected for all colleges and universities in Canada, including metrics such as eligibility, cost, location, course level, and name. The dataset used is complete, consistent, and highly accurate, which makes it a suitable foundation for the development of AI and ML frameworks and models to automate the university admission process.

The project's primary objective is to contribute to the automation of the admission process in Canadian universities and colleges, resulting in a more efficient and effective admission process while improving candidate selection through the comparison and analysis of candidate data against various metrics. The dataset provides a basis for the creation of algorithms that can identify eligible candidates based on different criteria, including program eligibility, location, and cost.

The conclusion of the project emphasizes the importance of using AI and ML technologies in the education sector to automate and streamline processes and make them more efficient and effective. The project's success is a steppingstone for future research in the field of AI and ML in the education sector, leading to the development of more efficient and effective admission processes. In summary, the project demonstrates the potential of AI and ML technologies to transform the traditional admission process and make it more accessible and efficient for both students and administrators.

12 FUTURE SCOPE

12.1 FUTURE WORK

Automated Interview tool: It is feasible to develop a functioning prototype that combines all of these features and offers a comprehensive solution, as discussed. This calls for the creation of software that can conduct interviews, capture answers, and provide the interviewer and the interviewee feedback. To make sure the prototype works flawlessly and achieves the necessary goals, it will need to be tested and improved.

Automated Interview Tool for Companies: The automated interview tool might be a useful resource for businesses trying to simplify their hiring procedures. The application may be used to conduct interviews with prospective employees, doing away with the requirement for time-consuming and expensive in-person or phone interviews. Each organization's objectives may be met by tailoring the tool, which enables them to evaluate applicants in accordance with particular standards and offer a more uniform and impartial evaluation procedure. This may lead to a more rapid and successful hiring process that enables businesses to select the most qualified applicants.

Integration with ATS: For a more streamlined and effective admissions process, the automated interview tool can be utilised in conjunction with a wider collection of admission tools, such as applicant tracking systems. Many elements of the admissions process, including the screening of resumes, the assessment of applicants, and the scheduling of interviews, can be automated by integrating these tools. As a result, the workload for admission personnel may be reduced, and the procedure may become more effective and reliable. Furthermore, combining the automated interview tool with other admissions tools can deliver more thorough data and insights into the admissions process, which can be used to enhance subsequent recruitment efforts.

12.2 FUTURE SCOPE

The project mentioned aims to automate the admission process for universities using Artificial Intelligence and Machine Learning. The project has a significant future scope in terms of improving the admission process for universities and colleges. Below are some future scopes for this project:

Implementation in other countries: The proposed system can be implemented in other countries to automate their university admission process. The system can be customized to suit the specific needs of the universities and colleges in those countries.

Integration with other systems: The system can be integrated with other university systems, such as student information systems and financial aid systems. This will allow for a more streamlined admission process and provide a more comprehensive view of the student's application.

Use of other data sources: In addition to the official websites of universities and colleges, other data sources can be used to gather more comprehensive data on applicants. For example, social media profiles, online resumes, and personal blogs can provide additional information that can be used to evaluate applicants.

Predictive analytics: The system can be enhanced with predictive analytics capabilities that can help universities forecast enrollment trends, identify trends in student demographics and preferences, and optimize recruitment efforts.

Personalized recommendations: AI and ML technologies can be used to provide personalized recommendations to applicants based on their academic profile, interests, and preferences. This can help universities to attract the right candidates and improve the overall admission process.

Chatbots and virtual assistants: The use of chatbots and virtual assistants can improve the overall experience for applicants and provide them with instant support and guidance throughout the admission process.

Natural language processing: The use of natural language processing (NLP) can help universities to analyze applicant essays and personal statements more efficiently and accurately, providing a more comprehensive evaluation of the applicant. Overall, the project has great potential to revolutionize the admission process for universities and colleges.

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