Chapter 1: Introduction

1.1 Introduction

In the current age of globalization, the role and value of higher education can hardly be overestimated in offering paths toward social mobility and economic development. Every college and university want students who will benefit from and contribute the most to the institution. With increased competition by the year, higher education institutes are engaging more with technology to amplify recruitment processes and outreach.

One of the biggest eventual challenges for educational institutions is finding and attracting potential students. All existing traditional methods, such as online promotion and manual data collection, are often very time-consuming and, as a rule, ineffective. Emerging data science and machine learning now allow these processes to become automated and effective ways in which institutions can reach the audience.

Improving the procedure by which potential students are being recruited from the campus of the University of Technology, Sydney, to UTS College in Bangladesh is a very crucial step for the Bangladesh Education and Research Institute (BERI). UTS College, affiliated with the University of Technology Sydney, provides a distinctive opportunity for students in Bangladesh to undertake the beginning half of their studies locally and the remaining half in Australia. BERI aims to identify and engage students who have recently completed or are about to complete their A Levels and HSC English Version in Bangladesh to achieve more enrolment numbers.

The project should create a new way of student recruitment by being data science enabled. With such an enabled automated system, BERI's outreach to students will be robust, which can identify potential students through social media, gather the contact details, evaluate, and possess a profile. This not only increases the efficiency in the recruitment process but also improves the probability of successful admission.

In the following sections, details of this initiative will be discussed, focusing on the approach, the anticipated outcomes, and the technological resources to be used. This project has been designed to enhance the innovative recruitment strategy of BERI and hence develop a more significant number of qualified applicants for UTS College.

1.2 Problem Background

The Bangladesh Education and Research Institute (BERI) heavily depends on online advertisements and manual collection of data as the key source for recruiting for UTS College. In this regard, the approaches have gained a little bit of success but are way inefficient and limiting. Relying only on online ads keeps BERI within reach of only those people who happen to have access to and be interested in the ads, while a excellent portion of the target audience will remain out of reach. Moreover, this method is manual and, thus, a very laborious, time-consuming, and error-prone procedure, reducing effectiveness in the recruitment process.

Researchers and practitioners in the field of educational recruitment have turned to varied ways through which they could increase the identification and engagement of prospective students. Some resorted to using targeted online marketing strategies for reaching targeted demographics, while others have used data analytics to understand the student preferences and behavioral characteristics better. However, they often lack the required complexity to achieve an automated recruitment process while also enabling personal communication on a large scale.

The weaknesses of the current model and the research methodologies available reveal the necessity of a far more sophisticated model. The reactivity of the tactics employed in the outdated model, for example, waiting for students to respond to advertisements, and the associated inefficiencies of manual data collection processes suggest the patent insufficiency of the model in an environment that is now rapid and driven by technology.

My proposal will tackle these challenges by introducing an advanced recruitment system that employs data science and machine learning techniques. This system will, to a more significant extent, be used to identify and reach informants who have completed or will complete, A Levels and HSC English Version in Bangladesh through the content derived from social media channels. Automating collection of such information and the analysis of the student profiles, the system can give BERI actionable inputs, which then allow it to provide personalized communication with prospective students. Above all, this new way will enhance the speed and accuracy of the recruitment process; it will also expand the possible reach of BERI in their efforts to ensure that more potential candidates are reached and converted to successful enrollees of UTS College.

1.3 Problem Statement

The current student recruitment process at Bangladesh Education and Research Institute for UTS College relies heavily on traditional methods such as online advertisements and manual data collection. These methods are highly inefficient and labor-intensive and do not usually reach a vast portion of the target demographic: students who have or are currently completing A Levels and HSC English Version in Bangladesh. Furthermore, the current process is manual, which increases human error, for example, incomplete or incorrect data collection and analysis.

Though the advances in digital marketing and data analytics have gained momentum, current approaches remain reactive and on a small scale. They rely primarily on students' reactions to advertisements or calls for registration through online forms, which limit the potential pool of candidates and slow the engagement process. This, he said, is a traditional model and is not attuned to capitalizing the data available in abundance through social media platforms to identify and engage with the possible student.

Due to these limitations, an automated, data-based recruitment system is highly needed to identify, analyze, and engage prospective students in a much better way and in less time. This research work, therefore, aims at developing the same system using data science techniques to search over social networking sites the students who have recently finished or are going to be finished from A level and HSC. These functionalities will automate data collection, analysis of

profiles, and personalized outreach, significantly increasing the ability of BERI to attract and enroll students at UTS College.

1.4 Objectives

The primary objective of the project is to change the student recruitment process at BERI within UTS College. The project's significant objectives are outline as follows:

- **To Analyze Social Media Data for Identifying Prospective Students:**

Objective: Identifying students in Bangladesh who are completing or have recently completed their A Levels and HSC English Version by analyzing social media data.

Rationale: By utilizing data analytics on social media sites, we can more effectively identify prospective students who are interested in studying abroad. This would increase the efficacy of BERI's recruitment efforts.

- **To Design and Develop an Automated Recruitment Model:**

Objective: To design and develop a data-driven, automated recruitment model that can identify and engage students completing or recently completed A Levels and HSC English Version in Bangladesh.

Rationale: This model will leverage machine learning algorithms to scan social media platforms, collect relevant data, and analyze student profiles to streamline the recruitment process.

- **To Conduct Validation and Testing of the Developed Model:**

Objective: To conduct thorough validation and testing of the developed model to ensure its accuracy, efficiency, and effectiveness in identifying and engaging potential students.

Rationale: This will ensure the model's reliability and provide insights for further refinement and optimization.

- **To Implement and Evaluate the Model in a Real-World Setting:**

Objective: To implement the automated recruitment model in BERI’s recruitment process and evaluate its performance in a real-world setting.

Rationale: This will allow for the assessment of the model's practical utility and effectiveness, providing valuable feedback for continuous improvement.

1.5 Analysis of Gaps

There are a lot of tactics and approaches that have been investigated in the field of higher education student recruiting to increase the efficacy and efficiency of finding and interacting with potential students. There are still a lot of unmet needs, especially when it comes to using cutting-edge data science methods for automated hiring procedures.

1.5.1 The Present Methods and Their Drawbacks

- **Web-Based Advertisements:** Conventional Recruiting Techniques Even though they are widely available, online ads only work when students interact with them. Because they might not engage with these advertisements, this strategy excludes a substantial section of the intended audience.
- **Manual Data Collection:** Taking data on students by manual is time-consuming, error-prone, and labor-intensive. Recruitment efforts are impeded from realizing their full potential and often lead to incomplete or erroneous data.
- **Current Research and Technological Advancements:** Focused Advertising Campaigns: Although tailored online marketing has been employed by researchers to target particular categories, student contact with advertisements and registration forms remains a major component of these efforts.
- **Basic Data Analytics:** To better understand student preferences and habits, several schools make use of basic data analytics. These techniques, however, frequently lack the sophistication required to completely automate the hiring process and offer individualized communication on a large scale.

1.5.2 Determined Omissions

- **Active Recognition:**

Gap: The majority of the current approaches are reactive, waiting for students to interact with advertisements or sign up online. Proactively identifying prospective students who have not yet engaged with recruitment campaigns is lacking.

Impact: As a result, chances to interact with a larger group of potential pupils are lost.

- **Scalability and Automation:**

Gap: The current hiring procedures mainly rely on human participation and are not entirely automated. This restricts these methods' efficiency and scalability.

Impact: Due to their resource-intensive nature, manual systems are unable to handle the high number of possible candidates.

- **individualized Outreach:**

Gap: To evaluate student profiles and offer individualized outreach, more sophisticated data analytics and machine learning approaches are required.

Impact: Recruitment campaigns may not effectively connect with specific students in the absence of personalization, which lowers engagement and conversion rates.

- Integration with Social Media: **Gap:** Inadequate use of social media sites for proactive student participation and identification.

Impact: Incomplete data on potential students results from the underutilization of social media, a valuable data source, in existing recruitment tactics.

1.5.3 Filling in the Blanks

By implementing the following strategies, this project seeks to close these gaps:

- **Proactive Identification:** Create algorithms to search social media sites in advance and find Bangladeshi students who are completing or have recently finished their A Levels and HSC English Version.
- **Automation and Scalability:** Create an automated hiring process to reduce the need for human intervention and increase efficiency and scalability.
- **Personalized Outreach:** Build thorough student profiles and enable tailored engagement tactics by utilizing cutting-edge data analytics and machine learning.
- **Social Media Integration:** To improve the overall caliber of the recruitment database, use social media data mining to obtain thorough and precise information about prospective students.

1.6 Purpose

This project's scope describes the precise bounds and restrictions that will apply to its operation. It guarantees a targeted and controllable approach by outlining the issues the project will and won't address.

- **Creating and Putting into Practice an Automated Recruitment Model:**

In order to identify and engage students in Bangladesh who are completing or have recently completed their A Levels and HSC English Version, the project will design, develop, and execute an automated recruitment strategy that is driven by data and makes use of social media data.

Limitation: Other online or offline data sources may not be included in the model, which will mostly concentrate on social media platforms.

- **Model Testing and Validation:**

To make sure the automated recruitment model is accurate, efficient, and effective in locating and interacting with potential students, the project will thoroughly validate and test it.

Limitation: Because testing will take place in a controlled setting, not all external and real-world circumstances may be fully taken into consideration.

- **Connectivity with the CRM System at BERI:**

The project's goal is to seamlessly transfer data and enable personalized communication with potential students by integrating the proposed model with BERI's current CRM system.

Limitation: The integration may not go to other platforms or systems that BERI uses; it will only go to the company's present CRM infrastructure.