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NIE Placements: An Automated Application for Android Users

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Abstract - *NIE Placements application is designed to automate the existing placement system in NIE. The application allows the authenticated students to upload the CV, get notifications through SMS/Emails about companies visiting the campus for recruitment using the Naive Bayes classification algorithm, apply for the job based on the eligibility criteria, use discussion forum to ask questions related to placements and companies and avail the training materials provided in the application. For storing and retrieving data, a backend service called Firebase is used. Academic faculty can obtain the department wise list of students placed to update the attendance status of the students.*

Key Words: Automate, CV, Firebase, NIE, TPO.

1. INTRODUCTION

Mobile devices these days have gradually become more powerful and distributive, influencing the daily lives on a large scale. Android, a trending operating system powering smartphones and tablets, has proven to be one of the best mobile based application development platforms[1], provides the developers with the methods of communication for software components called Application Programming Interface(APIs) and tools for the development of Android applications[2]. This led to design a unique Android based application for Training and Placement Office (TPO).

NIE Placements is an automated Android application designed for the Training and Placement division of The National Institute of Engineering (NIE). It is an application that can be accessed by students and academic faculties of NIE with mandatory registration to the application. The TPO staff is the administrator and has its own login module to manage the application such as providing details about upcoming companies, their criteria for recruitment, adding the list of students placed, sending notifications to students and providing the training schedules. Students of NIE can use this application for uploading their information in the form of Curriculum Vitae (CV) and get notifications to their phones about upcoming companies for hiring through Short Message Service (SMS) or Emails. The application uses Naive Bayes classification algorithm which is one of the most effective methods in the field of text classification [3]. It is computationally fast in making decisions [4] and simple yet optimal algorithm to provide accurate results [5]. Academic faculties of NIE can use this application to obtain the list of students placed according to their respective departments for updating the attendance status of the students. All the information regarding the TPO is stored in the Firebase database[6], a backend service which is scalable and lightweight and where the applications can be hosted for free[7]The main purpose of designing this application is to automate the existing system of TPO at NIE. All the notifications regarding the placement process will be able to check the details of the companies visiting NIE.

2. EXISTING SYSTEM

The existing system of TPO in NIE is manual. Currently, there is no automated system used by the college, dedicated to Training and Placement division. For broadcasting notices, Google Groups are created and invitations to join the group are sent to every student willing to participate in the placement processes. The TPO division does not have a database because of which maintaining the records of the students becomes a tedious task. Also, the student details are maintained in spreadsheets and have to be updated manually every time there is a modification. Spreadsheets being less optimized lead to the duplication of details and hence the problem of data redundancy [8].Based on the eligibility criteria mentioned by the companies, the Placement Coordinators (PCs) have to identify the eligible students by searching the spreadsheets. Google Forms are sent to register for the company visiting the campus for recruitment and the responses collected are used for further placement processes [9].

Attendance status of the students will be obtained only when the TPO division sends the list of students to respective departments. Academic staff then updates the attendance status of the students participating in placement activities. However, the TPO staff sometimes may delay the process and this affects the academics.

2. PROPOSED SYSTEM

The proposed design for *NIE Placements* is to automate the existing system of TPO. The application starts with a splash screen showing the college logo lasting for 3 seconds and then directed to the user registration/login page which is mandatory for all the user to access the application. The fields for registration are authorized University Seat Number (USN) for students and Faculty ID

for the academic staff, Email ID and password. Once registered, students have to upload the CV and further can start using the application. For logging in to the application the users can use the authorized Email ID and password. The important notifications regarding company recruitment and training schedules will be sent to students through SMS or Emails.

Modules in the *NIE Placements* application include:

1. *About Us:* This module contains information about Vision and Mission of the TPO division, Training Culture, Placement Statistics till date, Companies Visited section that contains the list of companies that have visited the NIE campus and contact information of TPO.

2. *Achievements*: This module gives information about the achievements of the TPO division such as the number of students placed through campus recruitment in the last five years, companies that visit the campus including dream, core and mass companies.

3. *Discussion Forum*: This module contains a Frequently Asked Questions (FAQ) section which includes questions regarding the placement process and a chat room for current students and alumni through which information regarding placement and companies can be exchanged.

4. *Company Specific Training (CST) materials:* This module consists of five sections which includes links for reference books to prepare for the online or pre-interview tests and recently asked company specific coding questions. Also, materials for technical interviews, puzzles, HR and Managerial interviews. The module also includes a section for company specific preparation such as Cisco, Amazon, SAP and many more.

5. *News Feed:* This module contains four sections which includes Training Schedule section for giving information about training sessions and workshops for placement preparation, Companies Visited section that gives list of companies that have visited NIE in the current academic year, Upcoming Companies section to give information about the companies that will be visiting the campus and apply to the job if the students are eligible and Department wise list of students placed section for the academic staff to obtain the list of students placed for updating the attendance status of students.

6. *Logout:* A logout module to sign-out from the application and further page redirects to the login page if the user wishes to continue using the application.

All these modules are supervised by the TPO staff (as administrator) and the staff has authentication and authorization to modify the contents of the application. The administrator will have the right to add or delete a user to access the application. The eligibility of students is finalized based on the CV submitted by using Naive Bayes classification algorithm.

Firebase is used as a backend service for this application. The user information is stored in the Authentication module when a user registers and administrator can also add a user directly from the console. The CVs collected from the students are stored in Database module of Firebase in the form of JSON data. CST materials in the application are stored in the Storage module which can be accessed easily as it will be stored on cloud storage. The number of users using the application can be obtained by the Analytics module which also offers the statistics of their usage.

The following figure Fig.1 shows the process of converting unstructured data into structured data by using Naive Bayes Classification algorithm and does pattern matching with the company criteria provided. This classification algorithm decides about which class the input document (CV) has to be assigned using the probabilities obtained from the company criteria. It analyzes the relationship between the words in CV and company criteria and then available results are collected using calculations based on Bayes' theorem and are assigned to the respective classes. The process uses CV as the input and sends notification to students through SMS or Emails as output.

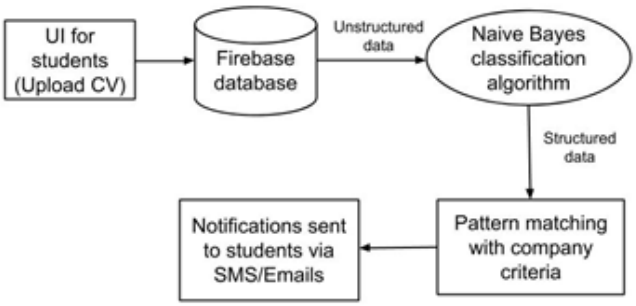

Fig -1: Model of the classification process

The intention of the proposed system is to automate the existing system of TPO in a cost effective method and introduce new features which can ease the process of TPO division.

3. CONCLUSIONS

In the existing system, every work is done manually which takes a lot of time and is subjected to error. Also, there is

no automation for searching student records and updating the details. Thus, the design for *NIE Placements* can help in improving the disadvantages in the existing system and can automate the same to save time and human effort.

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