

PLACEMENT INFORMATION SYSTEM

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ABSTRACT

Placements are crucial for students, it is the prime time where they need to make right choices, which will impact them for 2 to 3 years. During this period, students need to know which companies their interests align with and prepare accordingly. But due to lack of knowledge and experience it becomes difficult for students to decide on companies and sometimes they are not sure whom to contact and in end they select the company through word of mouth. Placement Information System is a web application which uses three-tier architecture and integrates machine learning to parse the data and recommends companies to users based on their interests.

Keywords: Three-Tier Architecture, Machine Learning.

I. INTRODUCTION

Students have diverse choices when applying for campus drive but get fumbled when making decisions for opting the right company. This happens because students do not have correct data on the companies and end up applying for companies through word of mouth. There are times where a student's interests can align with one company but can over look such company due to inadequate data. Recommending companies based on user interests, helps students increase their exposure and provides them insights about variety of companies coming to their college which allows them to make wise decisions. The web application uses recommendation system takes user interests, extracts additional features from other familiar users and recommends companies to users. The system utilizes KNN algorithm to recommend and NLP for parsing and text categorization. The goal is to recommend users with companies based on the interests provided. This makes it easier for user to explore variety of companies that are appearing for campus drives.

II. METHODOLOGY

Existing System:

E Placement Management - The paper suggests an online application which aims at making it easier for students upload their details required to apply for placements. Communication becomes feasible between placement team, recruiters, and students. Placement team can upload information related to companies, which makes it easier for students to know about the companies and their interview process. Online Training and Placement Management system - The paper uses online application to make it easier to maintain the students and placement records. Provides alerts to students about ongoing placements. Contains alumni contacts making it easier to grow connections. An Interactive Online Training and Placement System - The paper creates an online web application that aims at reducing the errors pertaining in manual work. Placement team have tough time collecting remarks about students Manual work for uploading company related data. Placement team have less knowledge on their students. The architecture used by the applications is tightly coupled, as a result addition of new services requires re factoring of code

Proposed System:

The proposed system uses hybrid recommendation system to recommend companies based on user interests. Admins/Placement team can add remarks to students and can know more about them through the favourite companies and interests the student has added to their profile. Admins can upload about multiple companies in bulk. Develop front end which contains restrictions for user in contrast to admin. Generated at a set that contains definitions of the tags. Build a model to perform NLP and categorize the test data into tags. Generate companies data sets using NLP model. Generate data set based on user interests and build KNN classifier models that are required for creating recommendation system. Integrate the recommendation system as part of logical tier.

III. MODELING AND ANALYSIS

The feature combination system takes user interests and recommends companies. To use the system, the models must be built, and which can be done only on server side and using single page architecture (SPA) in front end avoids loading the page from server, which increases the performance of the application. All this is possible with three-tier architecture which decouples the presentation layer from business layer.

The application uses three tier architecture, these layers can be classified as presentation Layer, business Layer, and data Layer.

Tier1 - The Presentation Tier: Occupies the top level and displays information related to services commonly available on the application. Developed using React framework. Takes only JSON data from server side and reloads only the contents of the page instead of loading whole page again. Session data is maintained using local storage.

Tier2 - The Logical Tier: It contains all the application logic. It provides RESTful services to the presentation tier. This tier can be divided into 4 main layers. They are Authentication, Route, Services and DAO layer. The Authentication layer verifies all the requests and responses, it uses token based authentication to verify the user's request to the API, and the route layer invokes dedicated service based on endpoint. The DAO layer also known as Data Access Object layer, manages the connection to the database and performs CRUD (create, retrieve, update and delete) operations. Text Categorization- The training data set holds the labeled data set. The labels are the tags under which data shall be classified. The data set is in form of texts which is converted to vectors using Bag of Words, the naive bayes classifier model is built and is later used for classification of company data set. The Services layer manipulates the data. It holds the hybrid recommendation engine and provides the data for training the model.

Tier3-DataTier: The Data tier holds all the information related to the user and the application's data that needs to be persisted. It further holds these session data which is used by the Authentication layer to determine the duration and authentication of user's session. It holds SQL database. This tier can only be accessed by logic tier.

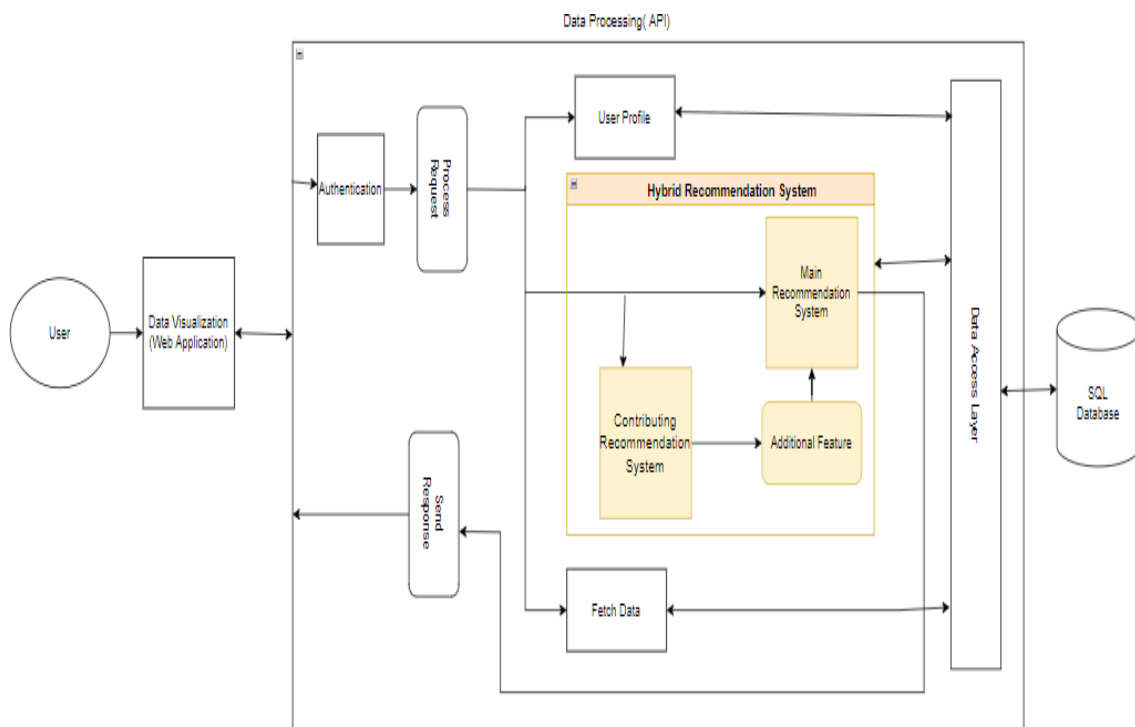


Figure 1: View of Architecture Diagram

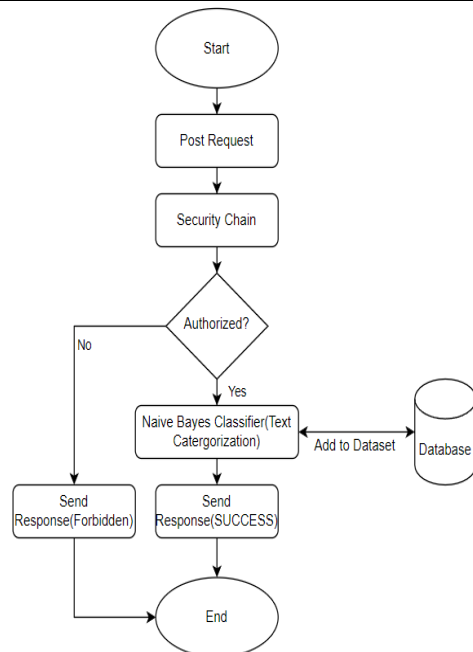


Figure 2: Flow of Data Collection Phase

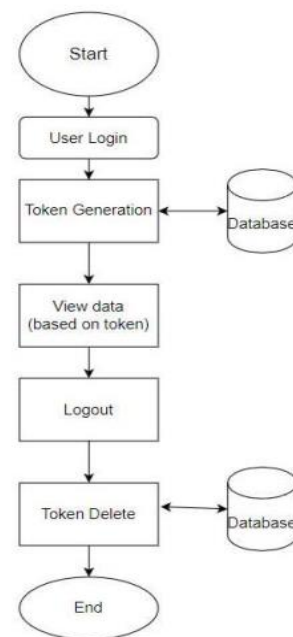


Figure 3: When User adds comment to a company

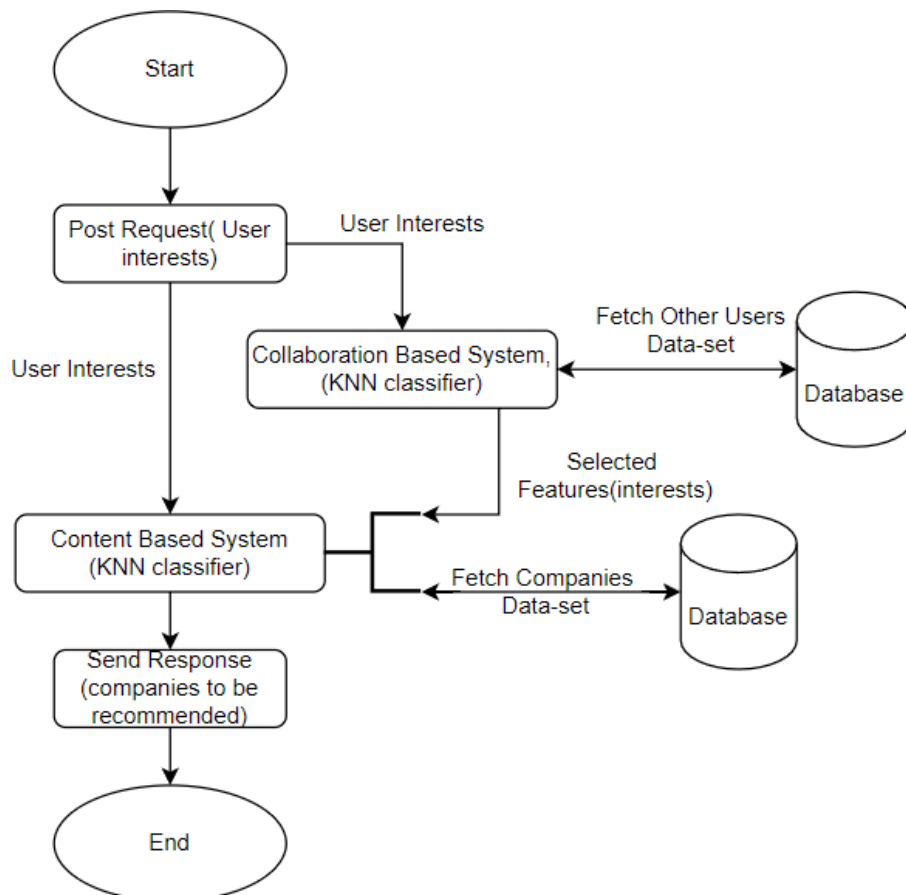
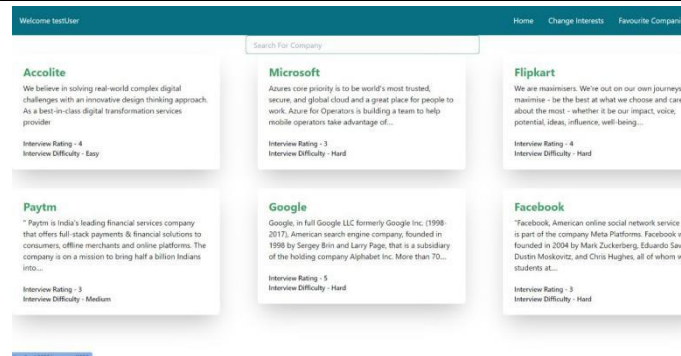


Figure 4: When User requests for company recommendations

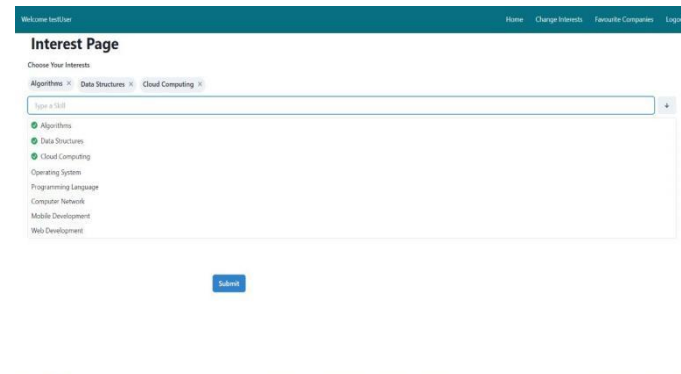
IV. RESULTS AND DISCUSSION

The paper demonstrates use of web application that makes it feasible for students to know about companies and makes it easy for placement team to know about student interests and who are willing to apply for a company and can also know about students through the marks provided by faculty. It also makes it easier to upload data related to companies, which decreases the effort to upload the data related to companies.



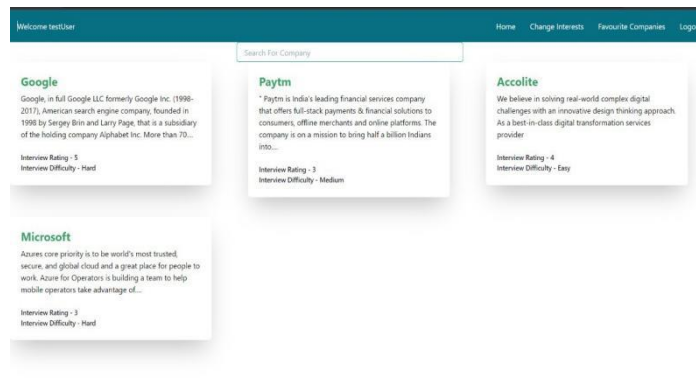
Screen 1: User Access(User Home Page)

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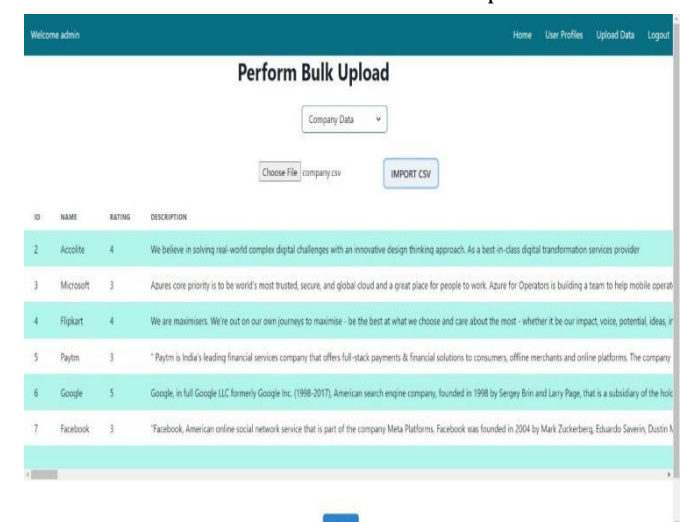
Screen 2: User Interests Page

Screen 2: User Interests Page



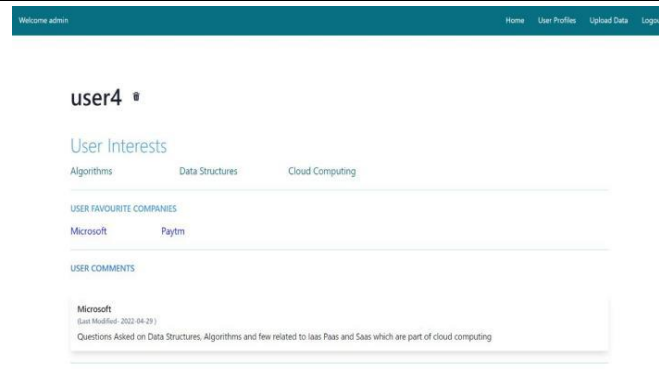
Screen 3: Recommended Companies

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Screen 4: Admin Access

Screen 4: Admin Access



Screen 5: View Users Data

V. CONCLUSION

The three-tier architecture makes it easier to develop and reduces the load on server's side and allows caching the data and maintaining session. Recommending makes it easier for students know more about the companies, as a result makes it easier for them to apply and try for companies that they are interested in. Develop front end which contains restrictions for user in contrast to admin. Generated at a set that contains definitions of the tags. Build a model to perform NLP and categorize the test data into tags. Generate company's data sets using NLP model. Generate data set based on user interests and build KNN classifier models that are required for creating recommendation system. Integrate the recommendation system as part of logical tier.

VI. REFERENCES

- [1] Santhosh Kumar H," Online Training and Placement Management system", International Journal of Engineering Research Technology (IJERT), ICACT 2019 Conference Proceedings.
- [2] Mythili M, Aishwarya R, Shenbagam P, Sandhiya C," E Placement Management", International Journal of Pure and Applied Mathematics (IJPAM), Volume 119 No.10 2017.
- [3] Mr. Nilesh Rathod, Dr Seema Shah, Prof Kavita Shirsat," An Interactive Online Training and Placement System", IJARCSSE, 2016.
- [4] React Guide - <https://reactjs.org/>
- [5] Spring MVC-
<https://docs.spring.io/springframework/docs/3.2.x/spring-frameworkreference/html/mvc.html>