

A Fuzzy based Mobile Application for College Selection

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Abstract - Mobile phone plays a vital role in every person's life today. Every task starting from checking time to money transactions and social browsing could be done on mobile phones. In such an era, a mobile application for the students to find a best suited college based on their marks and other priorities will be much useful for them. The fuzzy-based mobile application for college selection acts as an advisor/mentor and helps students and parents to make good decisions at student's academic development. This application uses fuzzy sort algorithm for sorting the list of colleges and provides the facilities available in the college in a single screen. The primary output of this application is a shortlist of colleges in a more optimal sorted manner. Thus this paper presents an application on College selection using fuzzy sort.

I. INTRODUCTION

Entering the 21st century, the communication world has been rapidly expanding. Every person wants things to be available to them at ease, without much effort. It is true to say that the world is shrinking as all the information that is needed, is fetched within seconds with the help of mobile phones. Mobile phones play a vital part in almost everyone's life today. Starting from the basic set to a smart phone every model released till date has its own sort of uniqueness. Not only does it differ in rates but also in their functionalities and usage. Now the concepts of artificial intelligence has also crept into the application design processes for mobile phones paving way for advancements. One such concept is the fuzzy logic. Fuzzy logic is a form of many-valued logic in which truth values of variables may be any real number between 0 and 1. It has been employed to handle the concept of partial truth, where the truth value may range between completely true and completely false. Fuzzy logic includes 0 and 1 as extreme cases of truth but also includes various states of truth in between. Fuzzy logic can be applied for the purposes of sorting out the required data. It can act as a decision support system for making valuable decisions. Based on the degree of variations of truth values decisions are taken, which eventually returns multiple true values in a sorted order. Since sorting is done with the help of two extremes as keys it is also known as sorting of intervals.

This application is an Android OS based application which will be working on all the smart phones and tablets that are working on android OS 2.3 and above. Nowadays most of the students or parents are having smart phones running on android OS and it will be very much convenient for them to find an appropriate college at any time, any place and anywhere in the world just by entering their marks of the entrance exam, the stream of interest and their category.

II. BACKGROUND

2.1 COLLEGE SELECTION

In most of the available applications, searching for a college involves students entering their cut-off marks after its calculation. The result of this usually returns a list of colleges in some random order, which has got the same cut-off as that specified by the user. Even in the fetched list of colleges, if a student wishes to know about the extra facilities available they have to visit the college website separately. It cannot be obtained at a single step.

And also the list of colleges that lie between a certain cut-off ranges cannot be fetched using already existing applications.

In today's world it is not only the marks that determine the college for a student. Marks are just the criteria to enter in a college. There are many more things into which the students must look into before finding a college such as hostel facilities, transport facilities, food facilities etc. This application acts as a complete guide for selecting a perfect college for students.

2.2 FEASIBLE OPTIONS

The college selection application here acts as a better tool for selection of college in a more optimal and sorted manner. Based on the ranges of cut-off marks provided by the user, the app fetches a list of colleges to be displayed to the user that best suits the range provided. The list of colleges that are obtained as the output needs to be arranged in a proper manner to make things easy.

III. LITERATURE SURVEY

Randall G. Chapman [1] proposed the work regarding the importance of the college selection process. This paper proposes and describes a behavioral theory of how students select a college. Implicit in this theory is the notion that college selection may be viewed as a process which consists of a sequence of interrelated stages. It is posited that students move through this series of stages as they search for desirable colleges, search for and process information about colleges, and ultimately choose a specific college. The proposed model involves stages described such as pre-search behavior, search behavior, application decision, choice decision and matriculation decision. These steps define the ways that a student takes up to select a specific college. Sushil. K. Prasad [2] proposed a method of web application which runs on internet for the college selection process. This application is a web-based interactive game-playing-oriented college selection system acts as an smart advisor/mentor and helps students, parents, and teachers use an effective graphical user interface to efficiently search college information and to make good decisions at each stage of students' academic development. It is an expert agent with hierarchical fuzzy knowledge base using fuzzy logic. It is processed with the help of an assessment tree, which uses bottom-up fuzzy calculations to generate possibility of admission in various sets of colleges. The primary output is a short list of colleges to apply containing five kinds of colleges (highly-selective down to non-selective) with possibilities of acceptance in each college according to fuzzy rules provided.

Ashwani Kharola [3] proposed a fuzzy logic reasoning based approach for performance evaluation of students in school or college. The attributes considered for evaluation cover academic as well as personality traits of the students. A Stage-wise fuzzy reasoning approach has been used to eliminate the issues of rule explosion. The comparison between fuzzy and traditional average technique shows the advantage of weightage allocation in fuzzy approach. Manasi Kawathekar [4] projected a method that allows schools to utilize databases and applications such as Student Information System (SIS) thus, making the accessing of records centralized. One of the changes that came about is the online-based applications. These applications are an improvisation to the traditional- transaction processing systems. The proposed system is an Android application to manage student details on mobile and keeping them updated about latest events in college. The application will be used by students, teachers and parents. The utilities provided by the application are- student details maintenance, discussion forum, notice board, attendance and report generation.

Qunyong Wu [5] proposed an algorithm called the Map-Matching algorithm. Map-matching algorithm is actually a pattern identification process. In the past decades, a number of map-matching algorithms have been developed. These algorithms include Kalman filter, fuzzy logic and belief theory etc. The fuzzy ranking map matching algorithm based on measure factor. Comparing with other algorithms, this algorithm improves in strategies of the error region determination, the road grid index and auto-adapted fuzzy sorting. The fuzzy sorting method helps to sort the membership degree and to decide the matching road section.

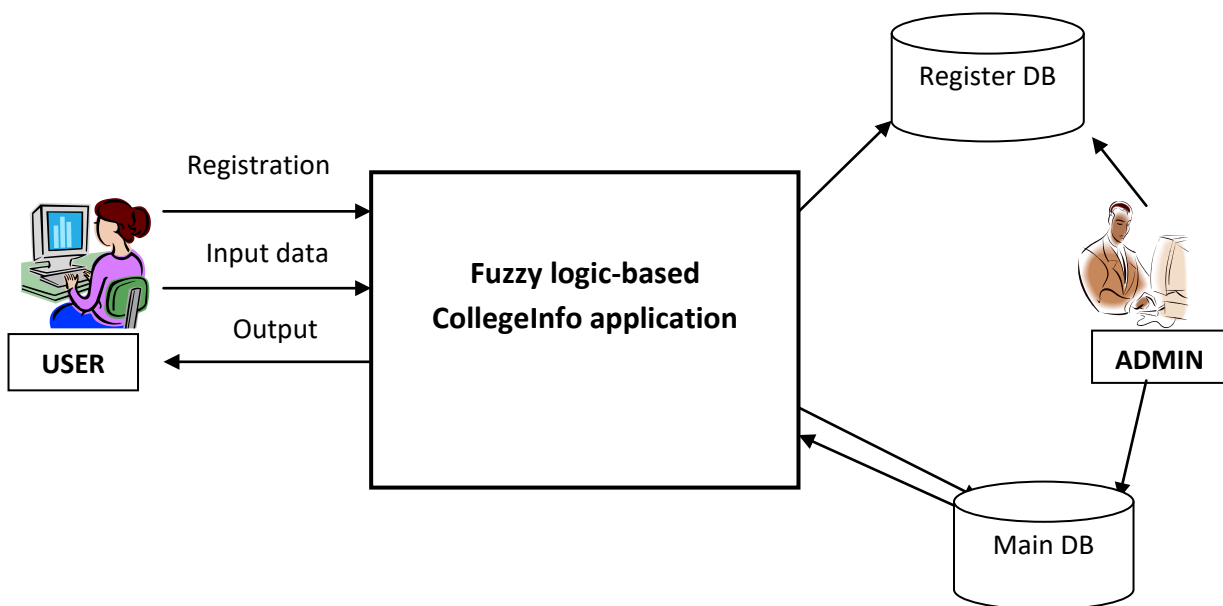
IV. PROPOSED WORK

4.1 MOTIVATION

Most applications for college selection, helps in selection of colleges only based on their marks and aggregate. Marks are just the criteria to enter in a college. There are many more things into which the students must look into before finding a college such as hostel facilities, lab facilities, food facilities etc. This app acts as a complete guide for selecting a perfect college for the students.

4.2 DIRECTIONS FOR FUTURE DEVELOPMENT

When the user enters the application, he must be registered first. The details collected during the process of registration are stored in the form of structured data called tables in a database and the table is named Register table.



Only registered users are allowed to login based on the already registered credentials. After login process, the users have to provide the input data for processing of the application. The input data includes two separate sorts of menu. The two menus are selection based on cutoff and selection based on colleges. If the selection needs to be based on cutoffs then users are prompted to enter the details related to the minimum and the maximum cutoff for a chosen department. In case of college wise selection, the user is allowed to scroll through the entire list of colleges and select a college to obtain its information.

The output list of colleges are fetched from the main DB and displayed to the end user. This output list of colleges is displayed to the end user in a more optimal and sorted manner. In order to perform this sorting, Fuzzy based sorting algorithm is used.

This algorithm follows the following steps in sort module of the application.

1. Partition the values within the range into 5 groups
 - a. Strictly less than pivot
 - b. Overlapping on the left side of the pivot
 - c. Contained in the pivot
 - d. Overlapping on the right side of the pivot
 - e. Strictly greater than pivot

2. Intervals in 1.b and 1.d can be placed in arbitrary order within their respective groups. We place these elements in their appropriate ranges and do not need further sorting.
3. Group c can be separated into intervals that
 - i. Overlap with the rightmost
 - ii. Do not overlap with the rightmost.
4. Intervals in group 3.i can be placed in arbitrary order, immediately to the left of intervals from 1.d
5. Recurse on the Group 1, Group 3.ii and Group 5.

If the user requests for any filtrations such as filtration based on food, filtration based on transport or filtration based on hostel facilities, then the filter is applied and the desired list of colleges is fetched out. The user is also provided with the details of the other departments in those fetched colleges.

V.CONCLUSION

Thus the proposed application serves as a very good advisor for parents as well as students by providing services according to cutoff marks and facilities provided, alongside extra browsing avoidance. The system refreshes the college selection mentality and choices bearing the time spent and data entries needed. When a user enters this application it provides a better browsing experience than any other application. In addition to this we also provide sufficient functionality for filtration purposes.

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