



Elective Subject Suggestion Android Application Using “Fuzzy Logic”

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Abstract — Every educational institute generates huge bulky data related to all the students getting education from the institute. Though much data produced may be worthless, the institute can use some valuable information to provide better education. Data mining can be employed for such purposes so that key knowledge can be extracted for future use. Difficulty arises for the engineering students when they reach the final year. They are made to choose electives as their subjects. Students may know nothing about what the knowledge the subject represent for. This may suggest electives to them, as the electives have considerable values in the grading system too and if the student fails to choose the appropriate elective then it may affect the final grades. To eliminate this trouble, a beneficial system is planned to develop. The main objective is to help the pupils select the righteous electives in their final year of engineering and data mining concepts would be useful to gain key information about the students on the basis of which the proper elective can be pointed out.

Keywords- Android, Fuzzy Logic, C5.0

I. INTRODUCTION

II.

Data from the transcripts of students are implemented, and using this information a relationship is conducted between the respective courses and their elective subjects taken previously by the student. Rules are extracted with the help of data mining techniques and an elective subject suggestion system is implemented by using fuzzy logic. Successful results are obtained from the test, it is discovered that the scholars made from the individual courses also are made within the connected elective ones. This project is we have to choose elective subject with the help of college marks and university marks. In this project students easily find out his elective subject with the help of android application. Any institute providing education in engineering field can utilize this application for facilitating better guidance with accordance to the student's skills.

Universities also offer selected courses chosen by the candidate. In their junior study, since students are not trained about the selective courses, they lack data about the description and component of the course and generally fail to take the particular ones for their course of study. As a solution, using the knowledge of the last courses taken by the candidate it is possible to guide the student about selective courses particular for him/her. Guidelines are extracted by the help of data mining and a selected course recommendation system is created by the help of fuzzy logic. Successful results are obtained from the tests; it is observed that the students successful from the courses are also fruitful in the similar selected subject. Undergraduate syllabus of nearly all of the programs in a university incorporate selected courses award in a selected course group and to be taken by the candidate. The candidate are neither well knowledgeable about the component of the selected courses nor advise about which course to take hence they select the courses themselves with a few information about the course. Rather, if the student would take a select course correct with his pasture of activity that would be better for his course of study. Implementing the courses the student has completed, it is possible to calculate the student's abilities and activity. In order to create a system of this kind, ideal system tested in detail. An ideal system is a system which makes ideas selecting one or more objects present in the system. So, the rules separate here, and the results accessed may not be valid for all times, and also, because of the course components. It is important to select the accurate input while making implement and developing rules. Therefore, uncertain input that will affect the results thoroughly is not concluded in the system. An uncertain input can be easily described

III. EASE OF USE

The concept of Elective subject selection went through various selection techniques. Here rules are extracted with the help of data mining techniques and an elective subject suggestion system is implemented by using fuzzy logic, and successful test result are taken. It helps in less documentation and increase in automation. So this makes our project easier to use and handle. Guidelines are extracted by the help of data mining and a selected course recommendation system is created by the help of fuzzy logic.

3.1. Background

The old system has certain drawback such as in many universities and colleges, elective subjects systems are employed as a curriculum in which students make their own learning experiences. Students select multiple subjects based on their interests and preferences. Generally, each university determines members of elective subjects based on only one simple rule, such as the order of grade, random selection, and first arrival. Another problem was that it was difficult to find errors while entering the records and also difficult to update these records.

3.2. Motivation

Information from the transcripts of students is analyzed, and using this information a relationship is conducted between the respective courses and their elective subjects taken previously by the student. Rules are extracted with the help of data mining techniques and an elective subject suggestion system is implemented by using fuzzy logic. Successful results are obtained from the test; it is observed that the students successful from the respective courses are also successful in the related elective ones. Motivation of this project is we have to choose elective subject with the help of college marks and university marks. In this project students easily find out his elective subject with the help of android application. So by analyzing all these problems, we got motivated to this project in order to cure all above real time problems.

IV. System Architecture

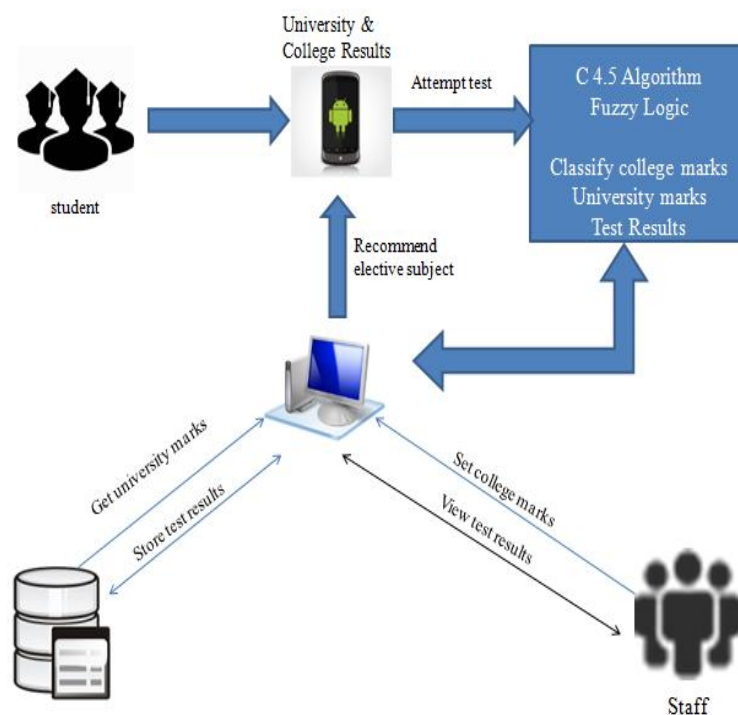


Figure 3.1. System Architectre

3.1 Developer :

Developer will store the solution of bug he solved. Developer search for solved solution. Developer sends the request for solution for not resolved bug. Developer fixes the bug which is assigned to him and in which he is expert.

3.2 System :

Sort the solution according to developer requirements. Stores the inserted bug solution. Assign the bug to expert developer using the dataset.

V. PROPOSED DESIGN

Since from the last few decades, Students select multiple subjects based on their interests and preferences. Each university determines the member of elective subjects based on only one simple rule. Thus we are preparing an Elective Subject Suggestion System Using Fuzzy Logic. In this project students easily find out his elective subject with the help of android application. The student can select maximum four subjects and minimum two subjects for the purpose of test. According to test result student attempted university result average of previous year related to those subject and college average result for those subjects the decision tree are generated.

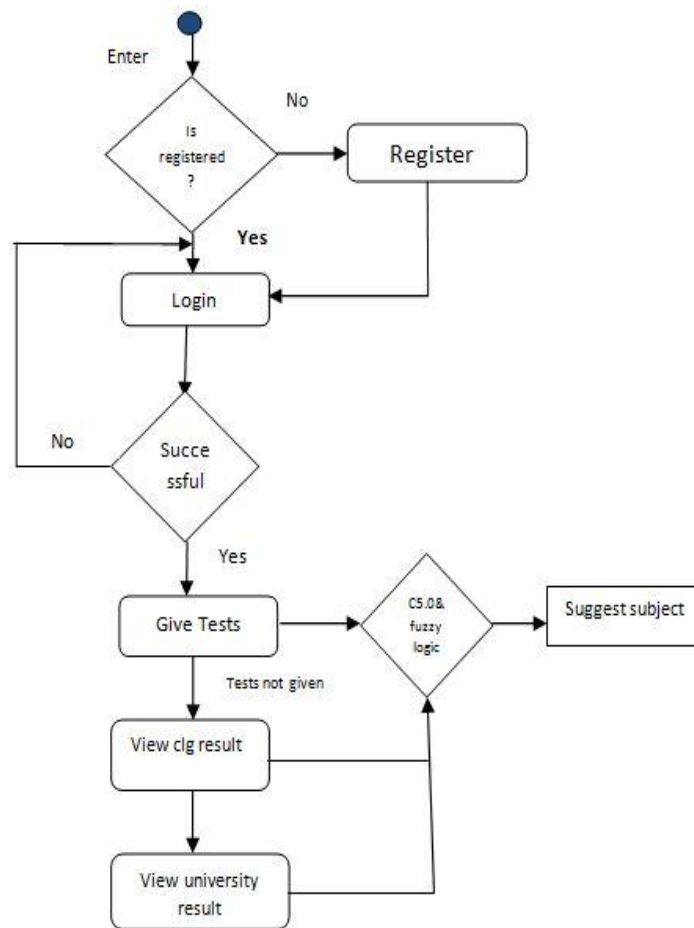


Figure 4.1. Control flow of proposed system

Then by using C4.5 algorithm to that result all these three training data subject is suggested as elective for the student. The purpose of the proposed system is to guide students of final year elective subject selection of all branches and developing the web portal from which tests questionnaires can be updated and previous results can be updated which is visible to teacher. If you're current balance falls below the disconnection units criteria, your services will get disconnected until next recharge.

VI. IMPLEMENTATION DETAILS

Our project is based on the android application. The application will be useful for selecting elective subject during the final year. Elective subject will be suggested from the maximum four subjects. This contains test for two elective subjects for each subject you have to attempt test. The student can select maximum four subjects and minimum two subjects for the purpose of test. According to test result student attempted, university result average of previous year related to those subjects and college average result for those subjects the decision tree are generated. Then by using C4.5 algorithm to that result all these three training data subject is suggested as elective for the student.

VII. ALGORITHM

Algorithm C4.5 :

C4.5 is an algorithm used to generate a decision tree. C4.5 is an extension of Quinlans earlier ID3 algorithm. The decision trees generated by C4.5 can be used for classification and for this reason; it is often referred to as a statistical classifier.

Input:-An attribute value data set D

Tree={}

If D is "pure" OR other stopping criteria met then 3. Terminate.

End if

for all attributes

Compute information theoretic criteria if we split on a.

End for

a_{best} =best attribute according to above computed criteria.
 Tree=Create a decision node that tests a_{best} in the root.
 D_v = Induced sub-datasets from D based on a_{best} .
 For all D_v do
 Tree $_v$ = C4.5 (D_v)
 Attach Tree $_v$ to the corresponding branch of tree.
 End for.
 Return tree.

VIII. TECHNOLOGY OVERVIEW

7.1 Android Development Tools (ADT)

Android Development Tools is a platform that provides a framework to develop new interactive applications. With the help of this tool, new developer can build various applications in very efficient way.

7.2 Android

It is a mobile operating system based on Linux kernel. It is low cost, modifiable and readymade operating system which helps the user to develop applications at user level. Main advantage of this system is that it provides default user interface which helps for direct manipulation without any developer interference. It has various functions as ability to create applications, develop and publish new applications as per user expectations.

7.3 Microsoft Visual Studio 2012 (For Web Services):

It is an (IDE) from Microsoft. Visual Basic Express 2012 has lots of new features than earlier version of VB. It is useful to develop the computer program, web application, web sites, web pages, web services and mobile apps. It support for new project templates for building Metro UI apps for multiple devices.

7.4 Windows Server 2008 R2 (For Database):

The back end technology will be SQL server 2008 R2. It is a server operating system produced by Microsoft. It can supports up to 64 physical processors or up to 256 logical processors per system. SQL Server Management Studio is an integrated environment for accessing, configuring, managing, and administering all components of SQL Server. Microsoft SQL Server 2008 R2 will provide support for geospatial visualization including mapping, routing, and custom shapes. SQL Server 2008 R2 provides lot many new features and capabilities for Business Intelligence users which can be leveraged by many organizations around the world.

IX. Mathematical Model

Let S be a system that describes used to generate a Decision tree $S = \{.. \}$
 Identify input as I
 $S = \{I, ..\}$
 Let $I = \{i1, i2, i3, ..., id\}$
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 The input will be Test Result, university Marks and college mark.
 Identify output as O
 $S = \{I, O, \}$
 O= the output will be student take Elective subject
 Identify the processes as P
 $S = \{I, O, P, ..\}$
 $P = \{E, D\}$
 $E = \{\text{parameter, Test Result, university Marks}\}$
 $D = \{\text{parameter, Decision tree}\}$
 Identify failure cases as F
 $S = \{I, O, P, F, ..\}$
 $F = \{\text{Failure occurs when student cannot get elective subject}\}$
 Identify success as s.
 $S = \{I, O, P, F, s, \}$
 $s = \{\text{When student cannot get elective subject}\}$
 Identify the initial condition as I_c $S = \{I, O, P, F, s, I_c, \}$
 $I_c = \{\text{Student get an elective subject}\}$

X. RESULTS

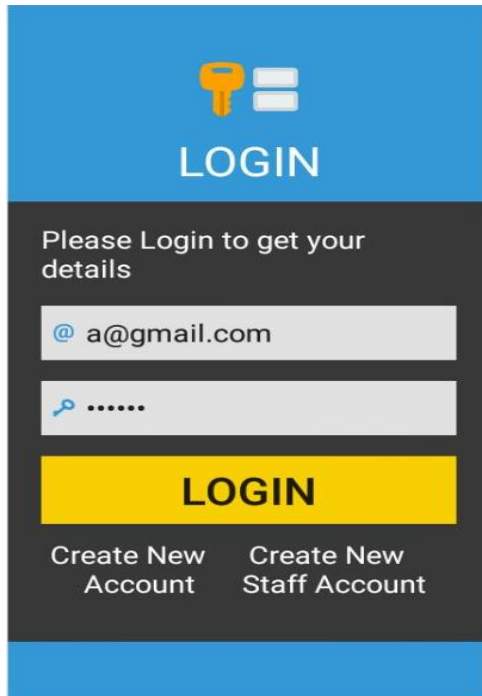


Figure 9.1

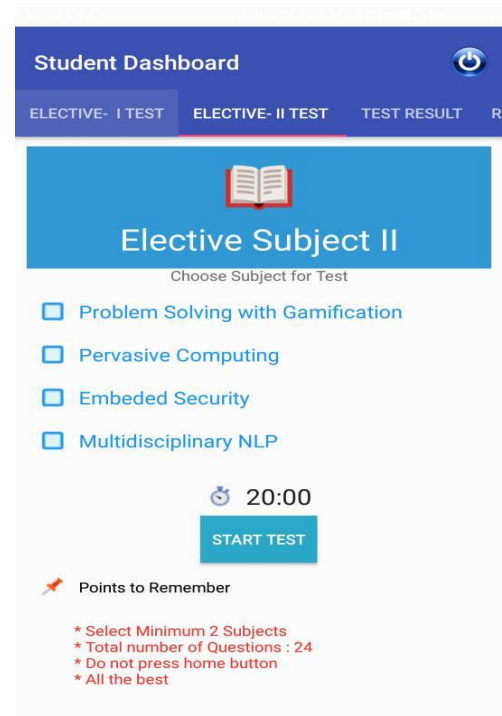


Figure 9.2

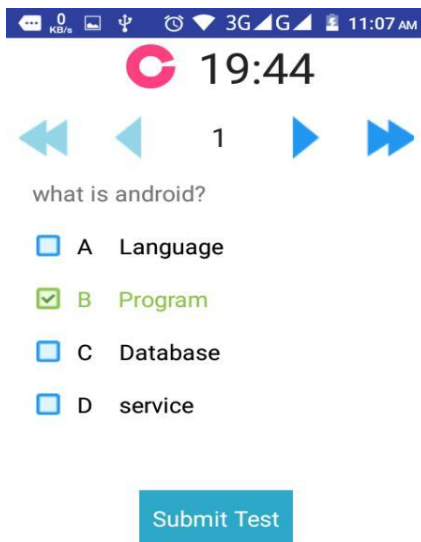


Figure 9.3

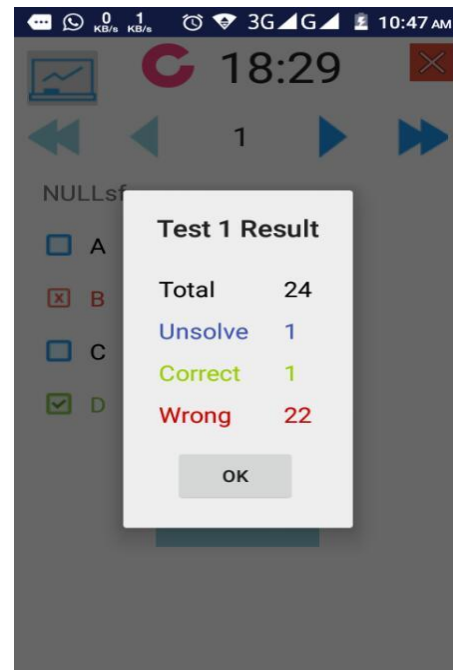


Figure 9.4

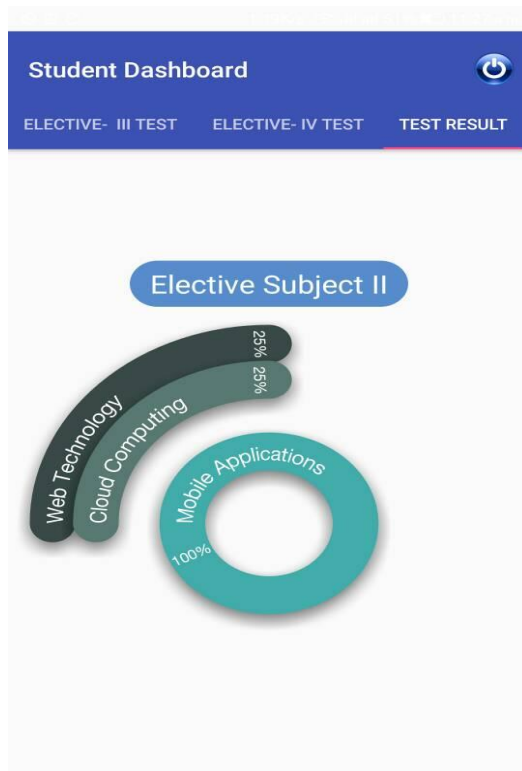


Figure 9.5

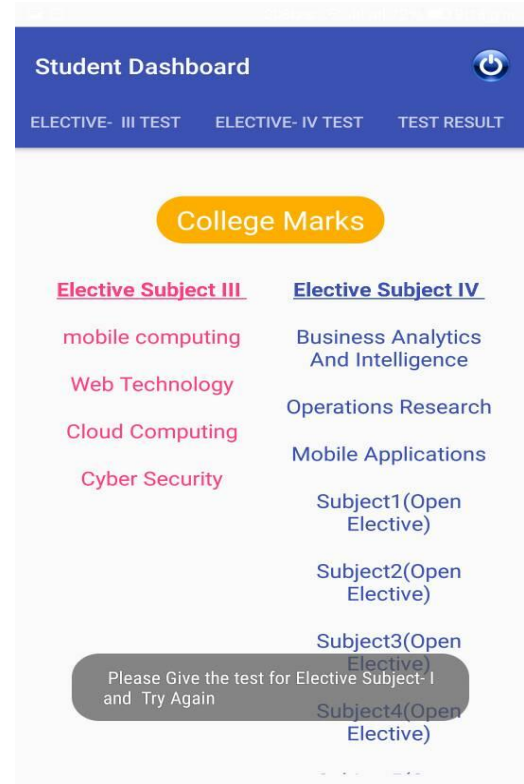


Figure 9.6



Figure 9.7

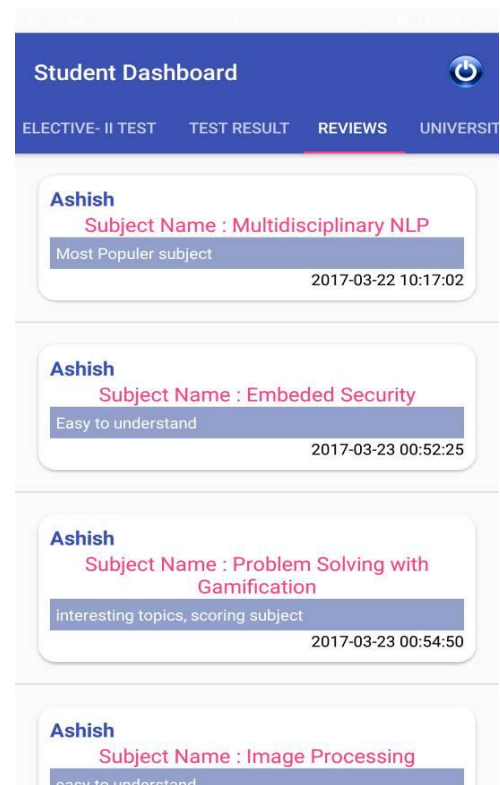


Figure 9.8

XI. APPLICATION

Android oriented smart phones can use this application efficiently. Useful for students and teachers to determine the elective subject details of every branch. Any institute providing education in engineering field can utilize this application for facilitating better guidance with accordance to the student's skills.

XII. CONCLUSION

For translation of a number of students are examined, and it is observed that the success of students in their last appropriate courses affect their success in selective courses. Grade range of 0-4, shows the success of the student, and is particular into three groups as Low, Middle and High. Grouping the grades in this way generate more adequate results. C5.0 decision tree algorithm is used to calculate, on the basis of these groups, success in which courses are active on which select courses. Rules are derive in fuzzy logic using the decision trees. The elective course resolution system developed here can be used to help undergraduate students of Computer Engineering program to choose the elective courses from the fields they are successful at. Then the method would guide the student about the courses from which he would be more apparently unsuccessful, so the anticipation of student failure from a course can be decrease.

XIII. FUTURE SCOPE

To develop an android application for elective subject selection for students. The purpose of this application is to guide students for final year elective subject selection of all branches. Developing the web portal from which tests questionnaires can be updated and previous results can be updated (Visible to teachers).

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