PREDICTING ONLINE RESULTS WITH DATA MINING

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Abstract— Because it is built on web services, the institution may administer tests in a web-based setting using the online examination system. Delays in processing and analyzing results are an issue with manual examination methods. Additionally, it might be challenging to filter records according to user need. There is a high risk of data loss and it is difficult to look for records in the current system. One of the most crucial components of online education is the online examination system. It helps save a lot of money, time, and effort. This article details the system, which displays the system's primary purpose by way of analysis papers and the resulting findings. There are additional safety mechanisms built into it. The suggested online examination system is user-friendly and trustworthy because of these features.

Keywords—— SMTP, Randomization, Analysis of Results, Data Mining, and Security

INTRODUCTION

The examination plays an important role in social life for evaluating the ability of people. Traditional way of examination is time and money consuming. Now, online examination systems are mostly used in various fields. Traditional examination systems are only giving result of the exam but our system is evaluating the overall performance of the students. This system is compatible on all browsers and devices. This system will take questions randomly from the database. Timer is set for whole examination system and also for each question. Exam

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will be submitted automatically after termination of time. Student will not be able to copy the problem and also not able to open new tab or window. The system sets different permissions and operation interface for users with different roles; the users enter into the different interface, and have different operation according to different permissions [6].

System users include administrator, teacher and student. Administrator module is the main module of system. Admin has an authority to add teachers and students. In order to ensure the correctness of the information, the teacher can view personal information and change the password after login system, and then can arrange the relevant examination [3]. Teacher can import questions in the form of excel sheets or PDF file. This system represents students' result in the graphical format. These graphs are subject-wise, unit-wise and question-wise. According to these graphs teacher will evaluate students' performance. For giving the exam students have to first register. System will verify the email ID of students. After verification, one time password (OTP) will be sent to the respective student's email ID. The student can view the test information, which includes exam subjects, exam time and rules to follow while attempting the test [3]. After termination of exam result will be stored into database and will be send to respective mail ID. The teacher will be able to visualise the result data for further analysis

I. LITERATURE SURVEY

TABLE 1

LITERATURESURVEY

Sr. No.	Paper Description	Methodologies/Algorithms/Features	Technologies used
1.	Hussein Al Bazar "Forms distribution algorithm for online examination system",ICIT,2017[1].	Form distribution algorithm is preventing forms to be repeated and shared between adjacent terminals	Virtual Private Network(VPN) technique
2.	Deepankar Vishwas Kotwal,Shubham Rajendra Bhadke,Aishwarya Sanjay Gunjal Puspendu Biswas,"Online examination system",IRJET,2016[2].	The algorithm for random number generator has been implemented.	1. JSP and JavaBeans as the business logic 2. MS Access for the database manipulation. 3. Tomcat acting as a JSP Engine and web server.
3.	Mustafa Yagci, Menderes Unal,"Designing and implementing an	Fuzzy logic and artificial intelligence techniques are used for decision making	1. Micromedia Dream ware8 software is used for designing interface in html.
	adaptive online examination system",ELSEVIBER,2013[4].		2. Security is maintained through IPSec and Kerberos authentication.

4.	LI Xiao-Feng, WANG Jian- Hua, GAO Wei-Wei,"Examination System in the Cloud Computing platform based on Data mining",ICMES,2013.	Apriori algorithm is used for predicting result in Boolean form.	Map reduce technique
5.	Huiqiang Lu, Ying Hu,"The design and implementation of online examination system",ICICE,2012[5]	Teachers and admin can export the scores in the form of excel sheets to do some statistical analysis. Implements J2EE architecture	Security aspects are considered as MD5 encryption and WEB-INF directory techniques are used
6.	E.Venkatesan,S.Selvaragini Asst.Professor Department of MCABIST BIHAR,Bharath University,Chennai-73,"A study on the result based analysis of student performance using data mining techniques".	The student result data has been analyzed with the data mining techniques that involve some of the classification algorithms.	ID3 and C4.5 classification algorithms have been used for result analysis.

We can infer that the above papers are implementing technologies and methods which are quite primitive. Hence in ourproject, we have a wider scope with following regards-

1. Analyzing the student result subject-wise with the help of decision tree based algorithms like C4.5 and Naïve Bayes through graphical representations like histograms, pie charts, etc.
2. The test will be generated unit-wise and subject-wise.
3. The result of a student is immediately delivered to him/her through the registered email ID.

SYSTEM ARCHITECTURE

The system architecture diagram is as follows which involves the MVC architecture for the purpose that the GUI works in aproper manner.
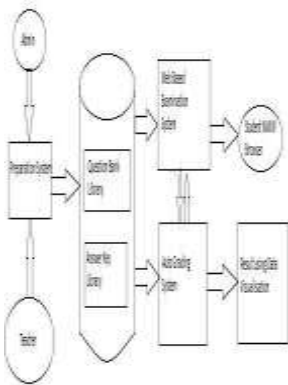

Fig. 1 System Architecture

The above system architecture involves the MVC architecture [6] for the purpose that the GUI works in a proper manner. The MVC architecture provides the separation of the display and data. This helps manage the data coming from the user interface. The data generated is thus managed and processed. That data is used further for deriving certain patterns for making predictions. The predictions will be made with the help of data mining techniques. The decision tree algorithms like C4.5, CART are used for making student result prediction. The decision trees help in deriving the association rules.

The questions are generated with the help of Random Question Generator Technique. It shuffles the questions which will allow different and unique questions to a particular student user. The score of each exam corresponding to the student user will be sent immediately. SMTP protocol is used for sending the mails.

ENTITY RELATIONSHIP DIAGRAMThe diagram below depicts the ER diagram.

Fig. 2 ER

The Entity Relationship diagram involves the entities and object variables. It helps us to understand the relationship between them. Thus helping us in constructing proper interactions between entities and its attributes. This diagram signifies the role in participating entity plays in relationship instance.

FLOW OF SYSTEM

The following diagram depicts the basic path of the functionalities involved in the application. It will guide user to understand theexact way of implementation. The flowchart works as a blueprint in designing the flow of the system.
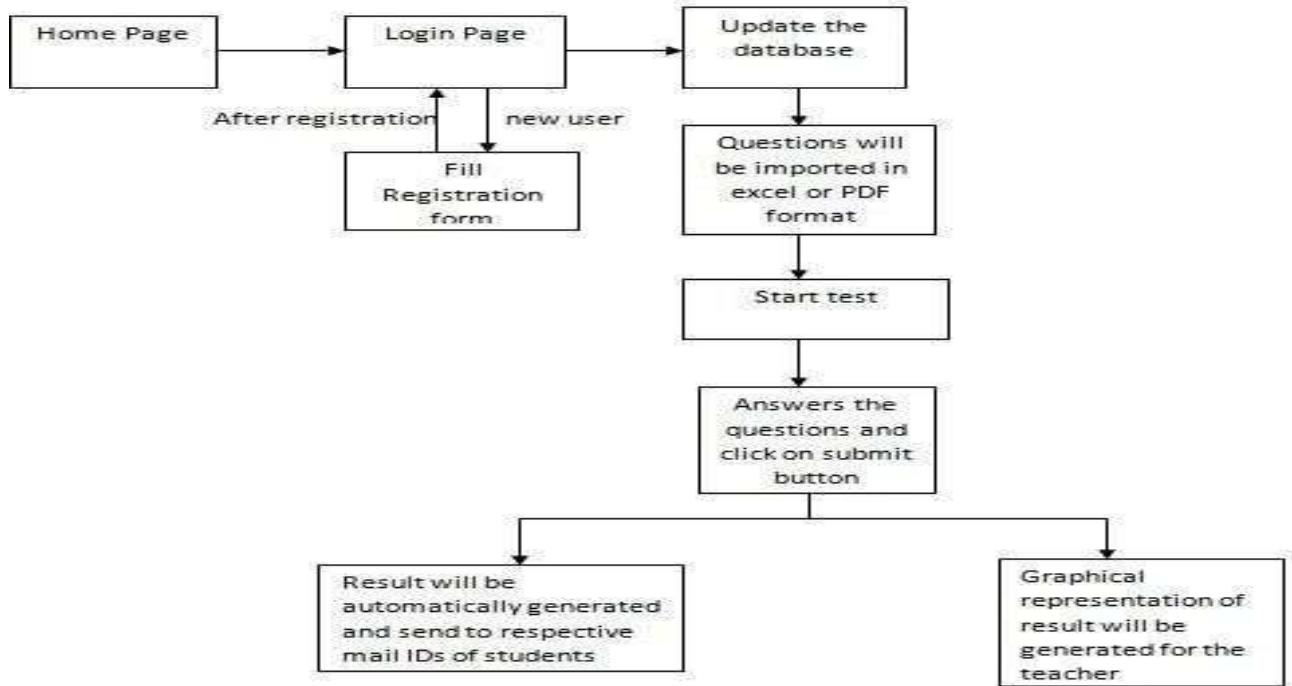

Fig. 3 Flow Chart of System

It starts with the login page. After the successful login the database gets updated. For the test to commence, the teacher needs to import the excel sheet of the questions. The student also needs to register before applying for test. The student user then can give the test. After the student user finishes his/her attempt of the test, the respective result of the student gets delivered to the email IDs instantly. For the teachers to understand the individual student performance with regards to the subject, passing rate,

failure rate, and many more such parameters. This will involve data mining techniques for this analysis and further prediction. The decision tree algorithms like C4.5, CART are used for making student result prediction. These decision tree algorithms design the association rules. This help in deriving the prediction.
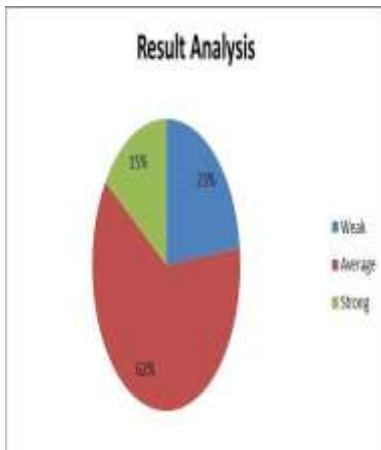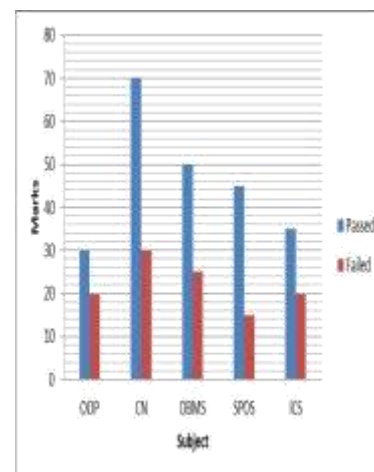

Fig. 5 Visualization using Bar-graph

Fig. 4 Visualization using Pie chart

Teachers in charge of that subject area will see the final outcome presented in visual formats like the pie charts and bar graphs in

the image above. The number of students who attempted the test, as well as the percentage who succeeded or failed, will be used to create this picture. Only the class instructor will be able to see and analyze the students' performance. Accordingly, analysis will be conducted, and pupils will get their marks (i.e., Excellent, Average, Weak) by postal mail. The grades a student receives will reflect how well he or she performed on the exam or test. For purposes of self-evaluation and enhancement, students may see their question appearance counts and their answers, complete with justifications, on the report sheet.

The results of the examination will be sent to the instructors. The pupils will also get a summary of their test results. Every incorrect response will be documented, along with the thought process behind the selection of that answer.

CONCLUSIONS AND FUTURE WORK

A paperless examination system may be replaced with an equally effective digital alternative: the online examination system. It is possible to significantly reduce the amount of water, energy, and other materials used in paper production. The natural resources will be preserved with this. In addition,

Quicker and more productive. Those who have created question banks would have access to the resulting data. It will be visualized using data mining tools and presented to the audience. Pie charts, histograms, and other visualization tools will be used to present the data. This program is available for use by any educational organization. Extending this project to create tests with detailed answers is possible. This will need the use of NLP and IR methods to analyze descriptive replies and arrive at a conclusion about the polarity of those answers.

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