

Implementation of Online Performance Analysis System

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Abstract

Online Performance Analysis System is a web application that provides the collaborative platform for institutes and the students. Purpose of this system is to fulfil the requirements of the institutes to conduct the exams online. The Examiner can enter questions manually or through the CSV file in the database. The Examinee can give different types of test like challenge test, time test, practice test, etc. according to their choice. Practice test will be set by Examiner only. After finishing the test Examinee can view the result on the screen. Examinee can also download the result which will be sent to their email with topic wise suggestions. Examinee can also view different performance graphs like based on single exam or by combination of two or more exams.

Keywords: Web Application, Performance analysis, Collaborative platform, Random questions, Automatic result generation

I. INTRODUCTION

Online Performance Analysis System is being launched because of need for a destination that is beneficial for both institutes and students. Candidate can register, give exams and view their results with their performance graph. This site is an attempt to remove the existing flaws in the manual system of conducting exams manually [1].

Purpose of this system fulfils the requirements of the institutes to conduct the exams online. Examinee can give exam without the need of going to any physical destination. They can view the result at the same time and get the detailed analysis of their performance. This website can display topic wise results and generate performance graphs. Thus the purpose of the site is to provide a system that saves the efforts and time of both the institutes and the students [1].

Online Performance Analysis System is a web application that provides the collaborative platform for the institutes and the students. Questions are displayed as a test to the registered students. The answers enter by the students are then evaluated and their score is analysed and saved. This score then can be accessed by the institutes to determine the performance of students or to evaluate their performance [1].

A. Goals or Objectives

- To reduce manual works and time of evaluating the answers given by the applicants physically [1].
- To provide random generation of test question and timed questions [1].
- To generate automatic grading [1].
- To provide topic wise performance analysis and performance graphs [1].

II. LITERATURE SURVEY

“Design and Implementation of J2EE-based Online Examination System”- This paper presents the design and implementation of Online-test System Based on J2EE. The paper provides the design of data program and the approach of automatically producing

test paper. The main advantage of this is that it shows the architecture of Struts framework and it uses B/ S model to establish a layer structure which divides the system into the application layer, business layer and data layer [2].

“Online Examination System”-This paper describes the software (Online Examination System) , the principle of the online examination system, presents the main functions of the system, analyses the auto-generating test paper algorithm, and the security of the system. This paper describes the use of shuffling algorithm in an Automatic Generator Question paper System (GQS) as a randomization technique for organizing sets of exam paper [3].

“Research and Development of Online Examination System”- This paper presents the web-based Examination System developed with Java Web technologies. The system provides the functions, including question management, paper generation and test online. Also the combination of client-side programming and server-side programming techniques were used and analysed [3].

“Cryptography – Analysis of Enhanced Approach for Secure Online Exam Process Plan”- The paper describes the web-based software that is used to conduct exams online. An easy solution to the issue of security and cheating for online exams and uses an enhanced Security Control system in the Online Exam which is based on group cryptography with an e-monitoring scheme [7].

“www.time4education.com” - Provides online exam test papers. From here we got the basic idea of how the question papers are, how test is generated and how the result is evaluated automatically on timely basis.

“www.exam2win.com” - Generates topic wise test papers according to user choice. It mainly focuses on topic wise evaluation.

“www.indiabix.com” – It provides lots of fully solved aptitude questions and answers with proper explanation. Solved examples with detailed answer description, explanation are given and it would be easy to understand.

III. PROPOSED WORK

The Performance Analysis System is same as the Online Examination System. There are three actors in the system as shown in figure 1.

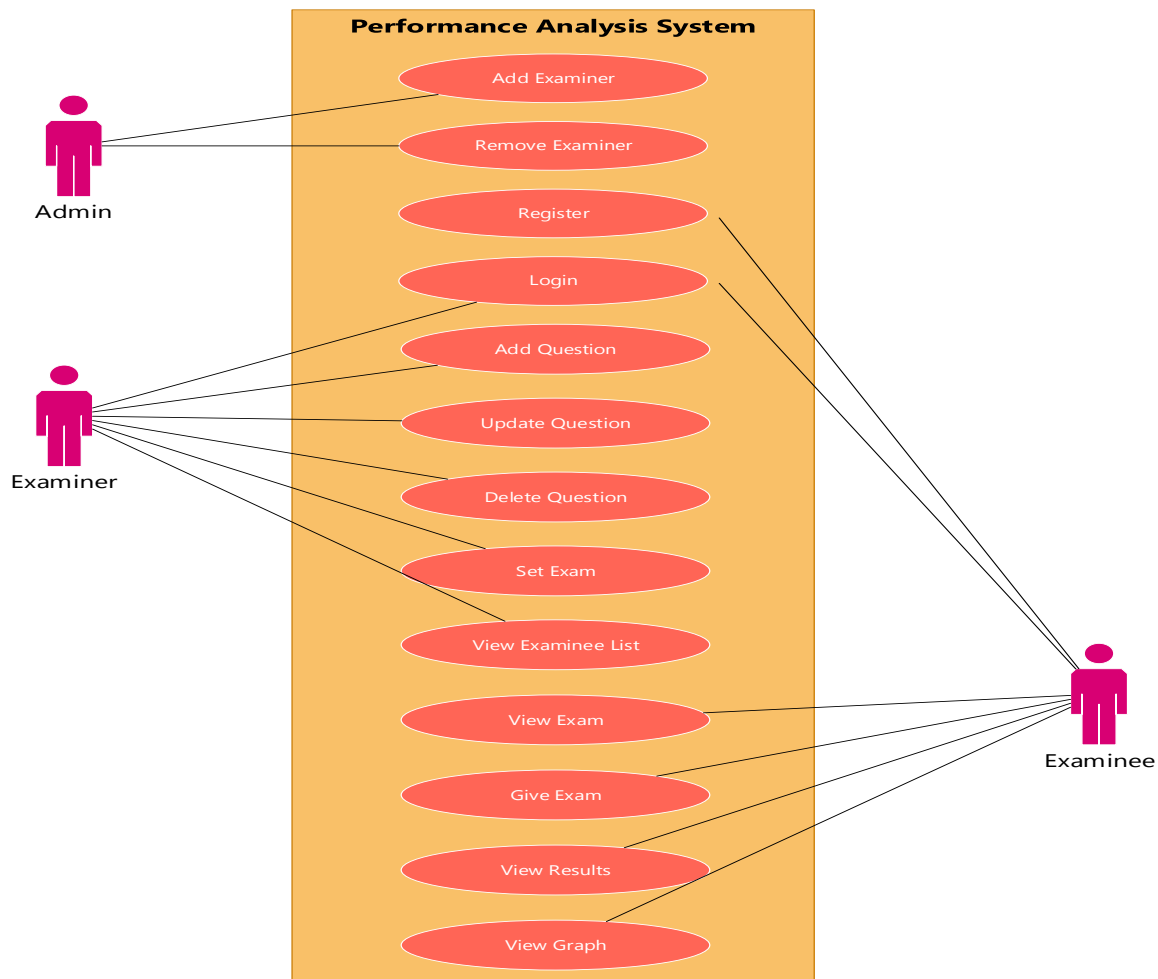


Fig. 1: UML Diagram for Performance Analysis System

There are separate login sections for Examinee, Examiner and Admin. Each section verifies the user and checks whether the user is authenticate user or not. The every new user need to register first then only can use the system. After login each user will jump to their respective profiles where they have various tabs of their responsibilities.

The Examiner is responsible for setting the questions for exam, updating the questions, view all examinee that means examiner will be able to view performance of all candidates and also can view the analysed performance of the candidates.

The Examinee i.e. Candidates can update their profiles, appear for the test and can view their performance graph.

After performing their tasks the users need to logout from the system for security.

IV. IMPLEMENTATION

The complete system is very interactive and user friendly. It is divided into four modules and there are total six tables in the database.

A. Database Structure

There are total six tables. The relationships between every table are shown in the following class diagram.

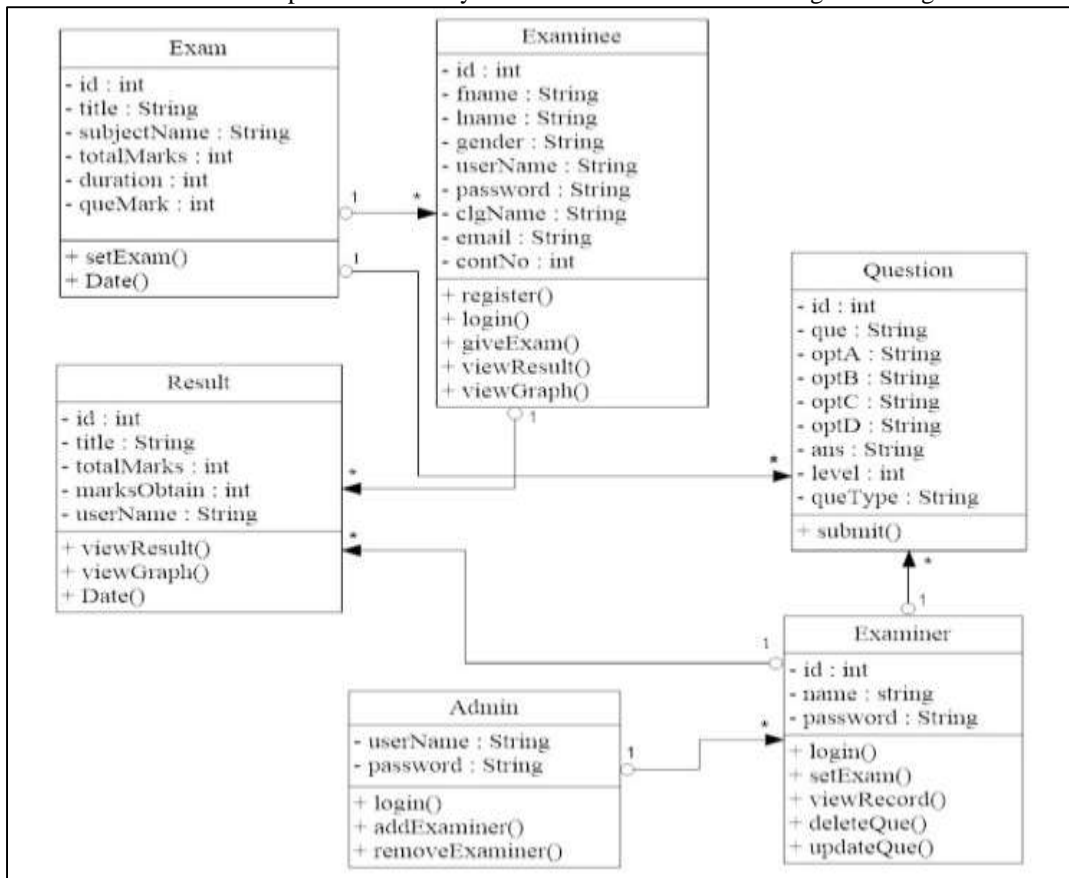


Fig. 2: Class Diagram for Performance Analysis System

- There is one-to-many relationship between Exam and Examinee i.e. one exam can be given by many Examinee.
- There is one-to-many relationship between Exam and Question i.e. one exam contain many questions.
- There is one-to-many relationship between Examinee and Result i.e. one examinee can have many results.
- There is one-to-many relationship between Examiner and Result i.e. one examinee can view many results.
- There is one-to-many relationship between Admin and Examiner i.e. one Admin can add or remove many Examiners.

B. Functional Modules

The whole system is divided into the four modules. They are Registration or Login Module, Questions Entering Module, Test Module and Result and Analysis Module [1].

C. Registration or Login Module

The Admin can directly login without any registration. There will be separate login page for the Admin Login which will be hidden from the normal users. Admin will be able to add or register the Examiners and user id of Examiner will automatically generate in the list of Examiners then they can login to their account. There will be separate registration form for the examinee. After login they can directly jump on their profile [1].

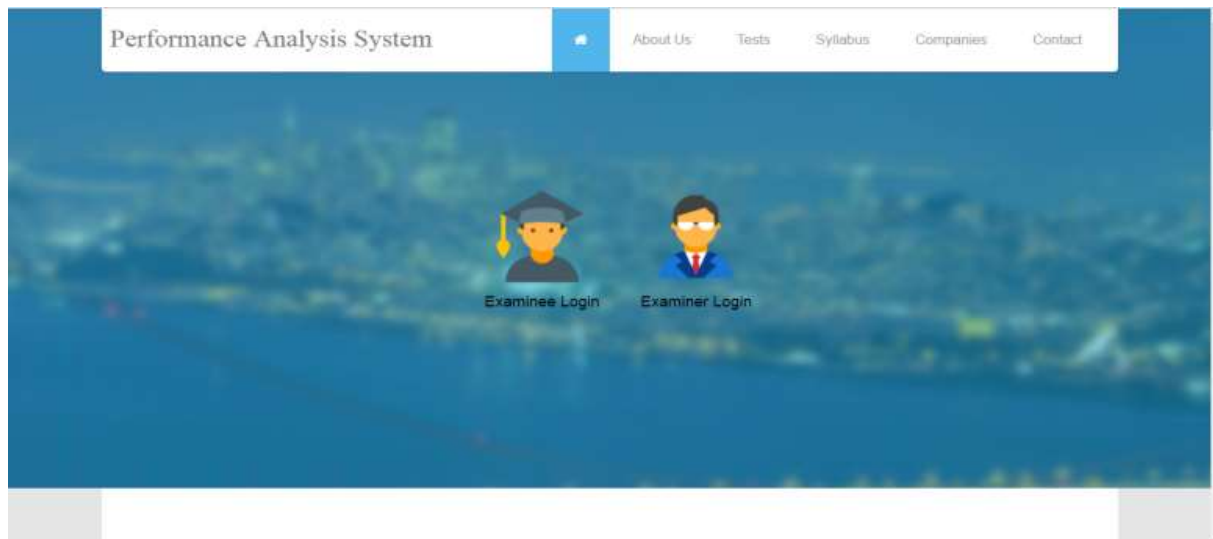


Fig. 3: Login of Examinee and Examiner

D. Questions Entering Module

The separate file should be made to enter several questions directly in the database. Each question is entered with id, options, correct answer, difficulty level of the question, topic name and subject type (optional). There is also facility of entering the questions manually [1].

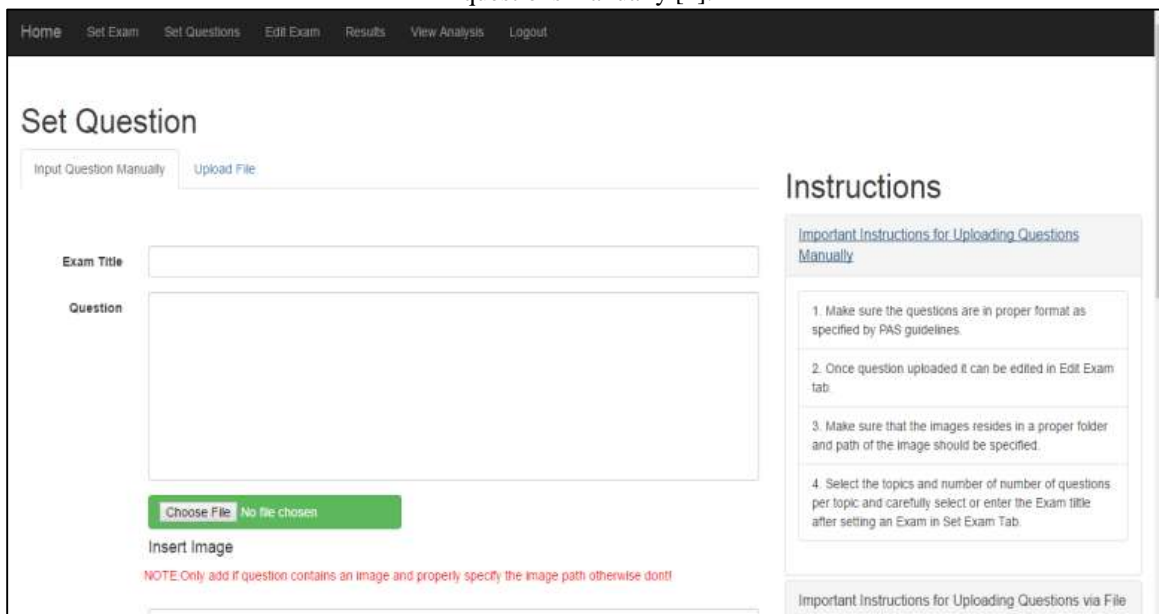


Fig. 4: Set Question manually or through CSV file

E. Exam Module

The test paper generation is an important part of the online examination system. Automatic test paper formation means that the system select the questions automatically from the database so as to form a test paper according to the requirement of the Examiner like question topic, level of difficulty, etc. Whenever Examiner click on generate test button the questions will be randomly generated from the questions of database [1]. The exam page is designed very strictly so that the examinee is not allowed to change the tab, copy the text, use the keyboard and also back button of browser is disabled.

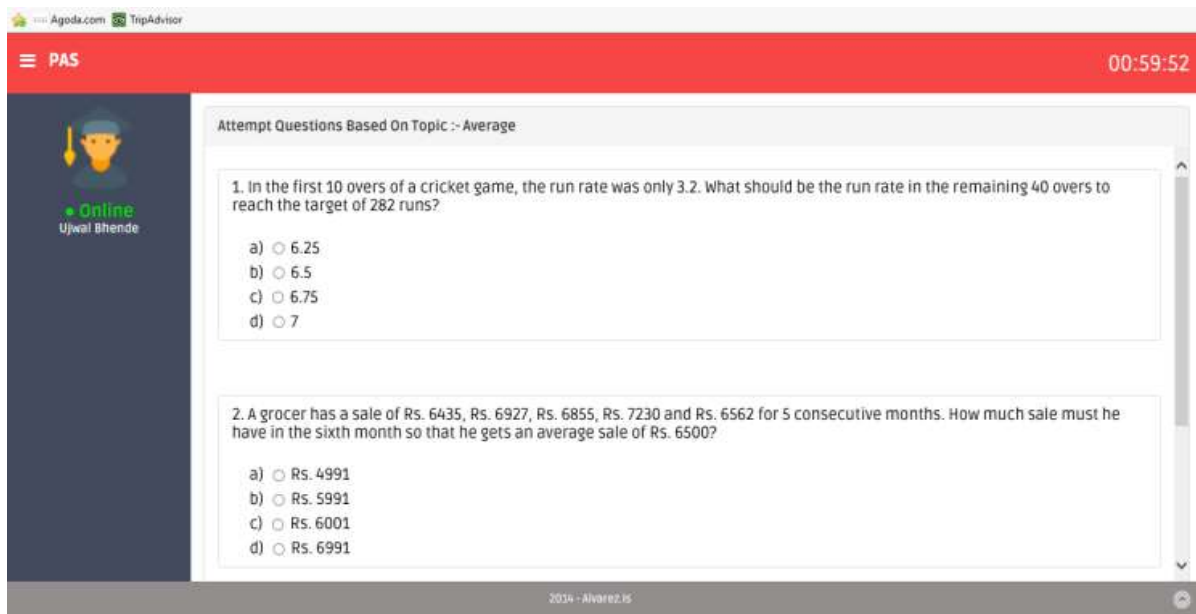


Fig. 5: Exam Page

There are some other tests are also present for the students to practice like Challenge Test which consist of difficult questions and no time limit, Time bound test in which student can attempt number of questions within particular time limit and Practice Test which do not have any time limit and level of questions are changed based on their performance [1].

V. RESULT AND ANALYSIS MODULE

After submitting the test the result will automatically be generated with the detailed subject wise analysis. Examinee can also download their result which will be sent to their mails. Examinee can also view the performance graph based on the previous and current scores of the test. The result of every exam is sent to the mail of the examinee in PDF format with question, options, given answer, correct answer and explanation. The result PDF has the complete details of the examinee and also the date, time and exam title. The examinee as well as examiner can view the performances graphs of the examinee based on particular test. The graph can be generated based on one or two or more than two exams.



Fig. 6: Automatic result after submitting Exam

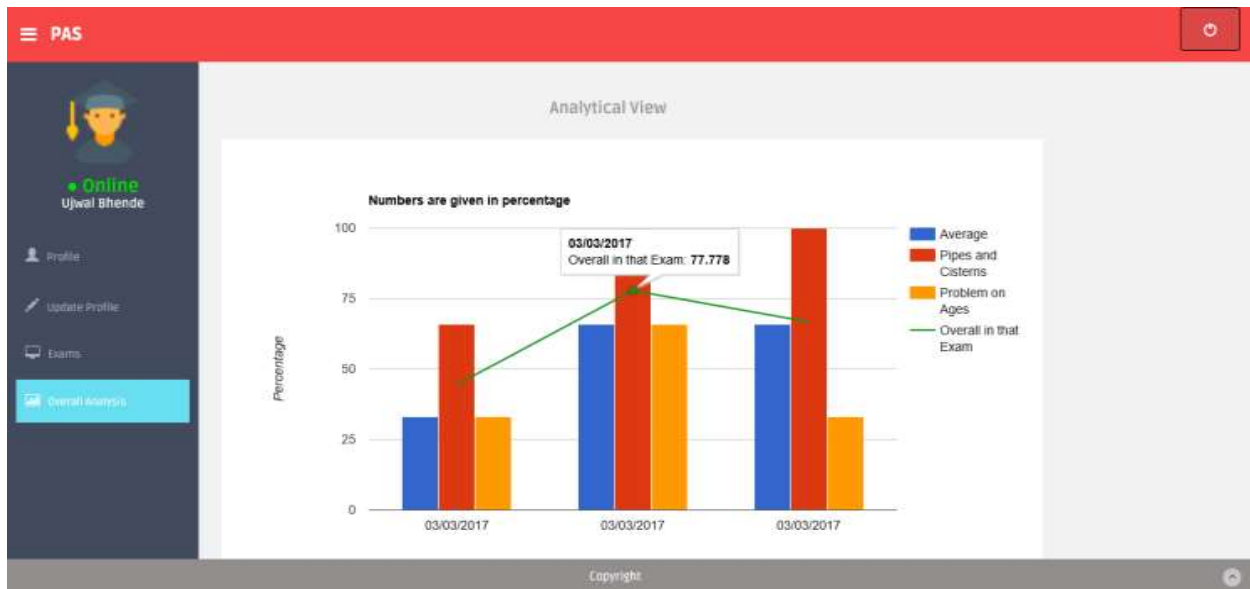


Fig. 7: Performance graph of examinee based on all exams

**Aptitude 1
Result**

Name: Kavita Thakur
Email id: kavita.dashraaj.thakur@gmail.com
Total Duration: 60 min
Marks per Question: 1
No. of Questions: 15
Total Marks: 15
Total Marks Obtain: 12

1 In the first 10 overs of a cricket game, the run rate was only 3.2. What should be the run rate in the remaining 40 overs to reach the target of 282 runs?

a. 6.25
b. 6.5
c. 6.75
d. 7

Correct Answer: a
Your Answer: a
Explanation:

Fig. 8: Result PDF (part 1)

Topic	Obtain Marks / Total Marks	Percentage	Comment
Average	3 / 3	100 %	You are excellent in this topic
Pipes and Cisterns	1 / 3	33 %	You need to practice hard
Problem on Ages	3 / 3	100 %	You are excellent in this topic
Simple Interest	2 / 3	66 %	Your performance is good
Problems on Trains	3 / 3	100 %	You are excellent in this topic

Fig. 9: Result PDF (part 2)

VI. CONCLUSION

The Online Performance Analysis System overcomes the problem of existing systems that does not provide the performance analysis of examinee. The system has different number of tests which are either set by examiner or set randomly. The tests are beneficial for those who regularly want to do practice. If by mistake the result of test gets lost from the dataset then there is no need to worry because the result will be sent to the mail id of student. There is no problem of loss of records. It also has the facility to give the explanation behind every answer.

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