# E-Shiksha: Online Exam Application

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**Abstract -** *OES is an android based system for conducting exams online through an android application. As taking exams manually is hectic, very time-consuming and an opportunity for malpractices, an online exam system is the best solution for such problems. As the inaccuracy in results can be avoided in OES, an individual can view accurate results quickly. The Admin and Student can log in according to their designations, where student can achieve the main motive of the application i.e. giving exams in a significant way. The proposed model fulfills the objectives of an online exam system with the help of an android application, a solution to the challenges faced by manual exams, with a vast future scope with limited and low price material resources.*

***Key Words***:  online examination system, JAVA, MYSQL, PHP, Android, Database

## 1.INTRODUCTION

In today's era, OES is considered as the most developing system because of its appropriate way of conducting exams, reliable and accurate results and consuming a very short period. To date, assigning tests, evaluating scores, checking, and distributing scores required a lot of time, manpower, and material resources like paper pens, and also a huge cost for exams. But as the OES is developing, it has become a preferred way for managing and appearing for exams. It has turned out to be a helping hand in the educational field. Online exams can be a peaceful way for institutional exams, to save time in checking dozens of papers and saving paper and exam costs. It's a helpful model for an individual to appear for mock tests for his/her self assessment at any time and anywhere. Taking an initiative, we have proposed **E-Shiksha** online exam application. As **E-Shiksha** is an android based platform, it's an open-source OS and therefore it allows for reusing some parts of the program to develop a new application. Android has become the fastest-growing OS and the world's leading smartphone platform in January 2015. The existing application is utilized for implementing online exams, where the system is designed for automatic checking of answers and accurate results based on student's interactions, with some premium features related to studies.

## 2. LITERATURE SURVEY

As conducting exams without a paper are a topic of great need, it has been a fast-growing method nowadays. Especially for its accuracy and speed, It has gained the attention of many researchers, and to keep them as a reference for our developed system the researches are as follows: [1] Zhenming et al.(2003) proposed an online examination system that was based on a web browser/server framework. As it supports the auto-grading system for objective questions and also for operating questions like programming, PowerPoint, MS windows, Excel, etc. [2 ] Aslihan Tufekci et al.(2013) developed an online exam system through which students can give the exam from computers and mobiles. The system provides students with an electronic environment, which can be easily used, accessed effectively. Through this system, students can give exams whenever and wherever they desire to. [3] Sungkur et al.(2013) developed a method to reduce the cost and avoid the physical-based exam. Within no time the system showed results of the exam for which students appeared. Security was taken under consideration. [4] Deepankar Vishwas Kotwal, Shubham Rajendra Bhadke, proposed OES which is efficient, fast, and reduces the material resources in a large amount. The system used HTML, JAVASCRIPT, JQUERY, AJAX, JSP and MYSQL database. The system also supports the display of random questions at exams. Issue of security and cheating in exams is solved. [5] Pang et al. proposed an online exam and training web service system architecture with specifications of high security, easy operation, powerful integration, easy management, and maintenance. [6] Bhuvaneshwari et al. proposed a centralized exam assessment system by using mobile agents. This agent-based model significantly enhances the performance of the system by considering the entire examination process. [7] Lu et al. for a mobile-based exam system developed a database management architecture. [8] Many E-exam systems are implemented by using PCs as typical exam servers. With the development of mobile devices and their capability and wireless features, it's widely used in the educational stream. [9] SIETTE Guzman and Cenejo(2005) proposed an online exam system known as SIETTE(System of Intelligent Evaluation using Tests for Tele education)

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## 3. NEED AND MOTIVE

The need of the proposed system is to save time which was previously required in checking papers and assigning scores. Accuracy in results is much required and it can be achieved through this online examination application. It's also necessary for practicing exams by pre-uploaded sets of questionnaires. The main motive to achieve in the proposed system is to reduce the paperwork for saving trees and papers and other material resources. To minimize the manpower. To decrease the costs of exams and also avoid transportation. For conducting and efficiently appearing for exams. To kill the distance between students and teachers.

## 4. KEY TECHNOLOGIES FOR IMPLEMENTATIONS

By using the following key technologies, the proposed model was brought into implementation.
- Software: Android Studio
- Device: Any android device
- Wireless Infrastructure: WiFi/Any internet services
- Frontend: XML
- Service Architecture: API, PHP
- Database: MYSQL

## 5. PROPOSED SYSTEM

As the proposed online examination system**(E-Shiksha)** saves the exam and student's information in the database, the admin can add the question, study material, assignments, create exams and manage results of exams given by students.

### 5.1 The System Design

This app utilizes the concept of client/server architecture. The client-side mechanism is handled with XML and java to create the GUI and backend operations respectively. The server side is handled using MySQL which stores the information of examination. The API performs the task of interaction and synchronization between the application and the database. Thus a virtual environment is created for examination. With the help of internet services, one can use this app to conduct online exams(fig. 1.)
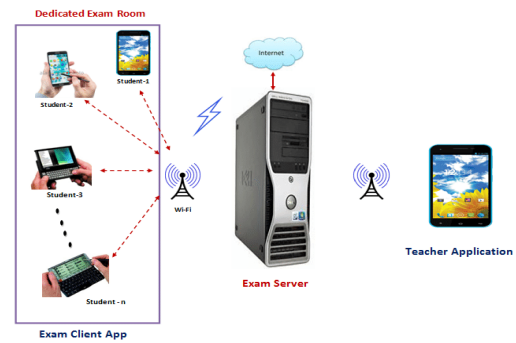


**Fig-1:** system design

## 5.2 System Activities

### 5.2.1 Login System
The login system is designed as per the designation of admin and student. One can log in as per admin or student only after a successful registration. Once the admin or student is registered he/she can log in anytime.

**a. Login as Admin:**
By utilizing the registered email id and password, the admin can easily log on to the system at his/her convenience to organize the exam, its results, and other activities of the admin. The login is successful only if the input information is equivalent to the database in which the registered details are, else a wrong password or email-id message is displayed.

**b. Login as Student:**
Each student's information will be sorted based on faculty name and class at the admin's portal, which will help the student to log on to the system immediately without going through the registration process once again.

### 5.2.2 Admin Activities
The admin activities are as follows:
1. Can add different subjects.
2. Can view feedbacks from students.
3. Can add a notice for students.
4. Can add study material subject-wise.
5. Can add assignments.
6. Can add questions with options and correct answers.
7. Can create exam of particular time duration.
8. Can manage results.

| S.NO. | Field name | Datatype | Description |
|---|---|---|---|
| 1. | Email Id | NVARCHAR | For safe logging purposes |
| 2. | Password | Text | Store password corresponding to username |
| 3. | User type | Text | User type Admin or Student |

**Table-1:** Admin Table

### 5.2.3  Student Activities

The student activities are as follows:

1. Can view notice.
2. Can view and submit assignments subject-wise.
3. Can give exam subject-wise.
4. Can update the profile with name, email-id, username, faculty name, and class.
5. Can view results subject-wise.
6. Can give feedback.

| S.NO. | Field name | Datatype | Description |
|-------|-----------|----------|-------------|
| 1. | Student name | Text | Name of the student |
| 2. | Email Id | NVARCHAR | Email Id of student and also for logging purposes |
| 3. | Username | Text | Store username for checking correct username |
| 4. | Faculty name | Text | From which faculty does student belongs |
| 5. | Class | Number | From which class student belongs |

**Table-2:** Student Table

### 5.3  Backend/Database

The backend of the proposed model is designed in Java. To conduct the examination online, this app allows the teacher to generate the questions on the server-side of the application. The teacher can upload the questions of the test from the app. The questions are uploaded using the MySQL database. The MCQ's along with their respective correct answers are stored in the form of a table. Only the teacher can make changes to this database. This stored database is used at the client-side to conduct the test by generating questions. During the test, the option selected by the students is again stored in this database and it is checked with the right answer. Once the test is submitted by the student the marks are generated. The records of previous tests and their results are also stored in the database.

### 5.4  System Execution

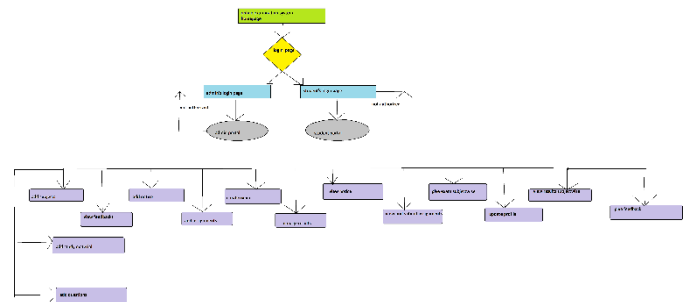The execution of the entire online examination system(**E-Shiksha**) is shown in fig. 2.



**Fig-2:** system execution

### 5.5  System Interface

As shown in below fig. 3.a and fig. 3.b, the main page of **E-Shiksha** and the login page arrive where one can choose their designation either admin or student, and log in by email id and password.
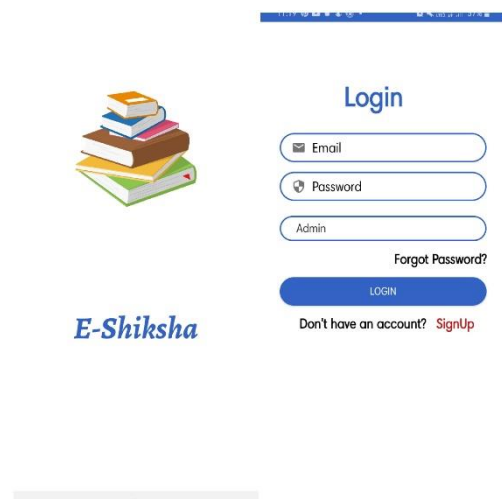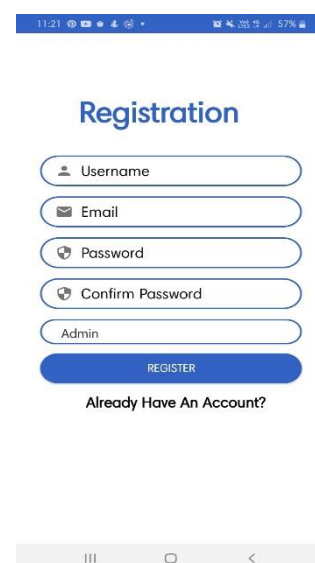


**Fig-3:** (a) Main page  (b)Login page



**Fig-4:** Registration page

If one hasn't created his/her account, they have to register first as per designation shown in fig. 4.
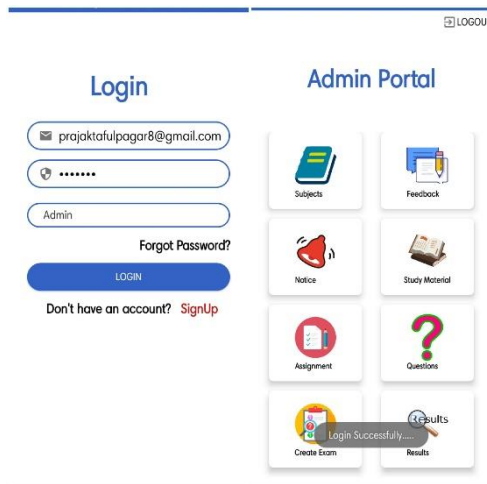
**Fig-5:** (a) admin login   (b) Admin portal

**As Admin:** After selecting the admin user type, the admin can successfully log in and reach the admin portal shown in fig. 5.a and fig 5.b. Where admin can view, add, delete, and manage all tabs regarding create exam, notice, feedback, results, study material, assignments, and questions.

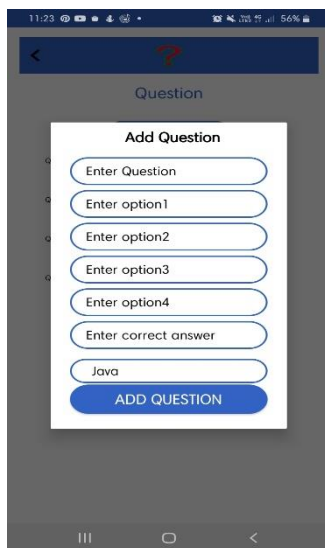As shown in fig. 6. admin can add question, options, correct answer, and subject of respective exam.
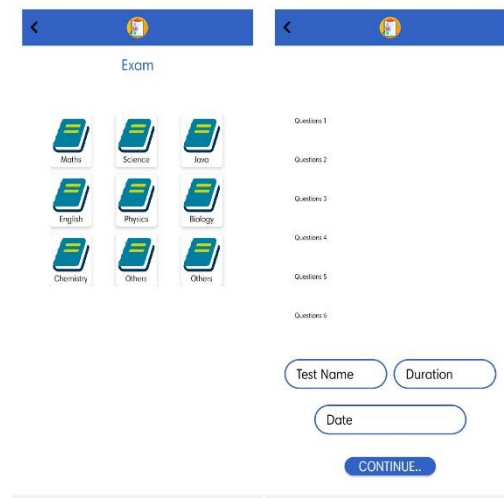


**Fig-6:** add question



**Fig-7:** create exam

In create exam tab, admin can set exam subject-wise, with test name, duration of exam and date on which the exam is going to be held(fig. 7).
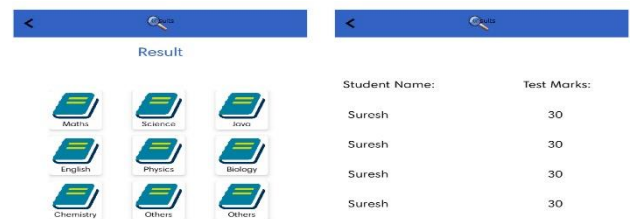


**Fig-8:** result

The admin can manage and view results subject-wise of the students with their marks in result tab as shown in fig. 8.

Admin can also add study material and assignments of particular subjects and can also view the submissions(fig. 9.a, fig. 9.b). If the study material or assignments are in pdf form, admin can upload them for students as shown in fig. 10.
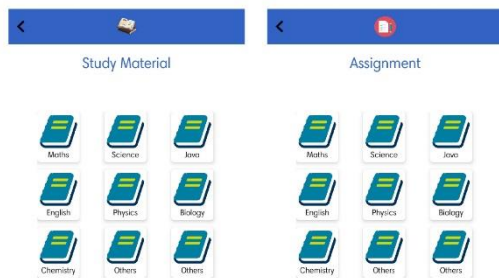
**Fig-9:** (a) study material  (b) assignment

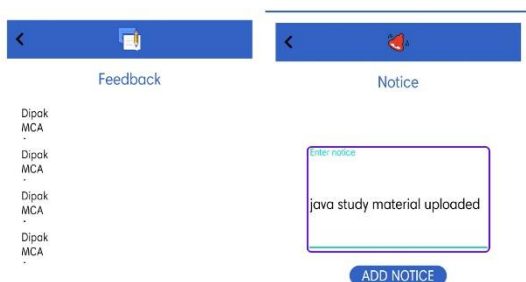**Fig-10:** upload study material in pdf form

**Fig-11:** (a) feedback    (b)notice

Admin can receive feedback from students and add notice for them(fig. 11.a, fig. 11.b).

**As Student:** After selecting the student user type, the student can login with his/her email id and password to reach the student portal as shown in fig. 12.a, fig. 12.b
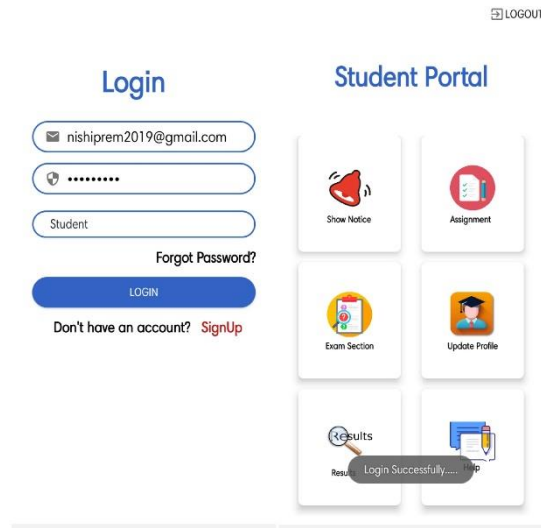
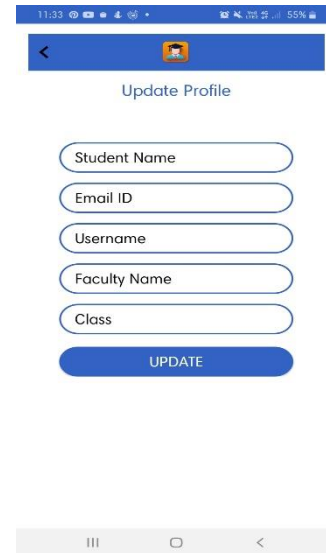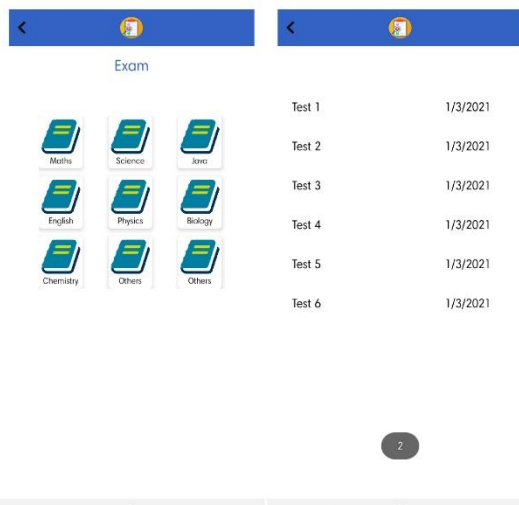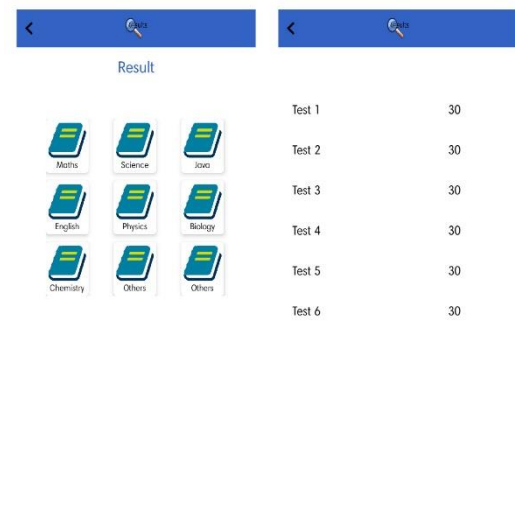**Fig-12:** (a) student login  (b) student portal

**Fig-13:** update profile for student

In the student portal, the students can update their profile with student name, email id, username, faculty name, and class as shown in above fig. 13.
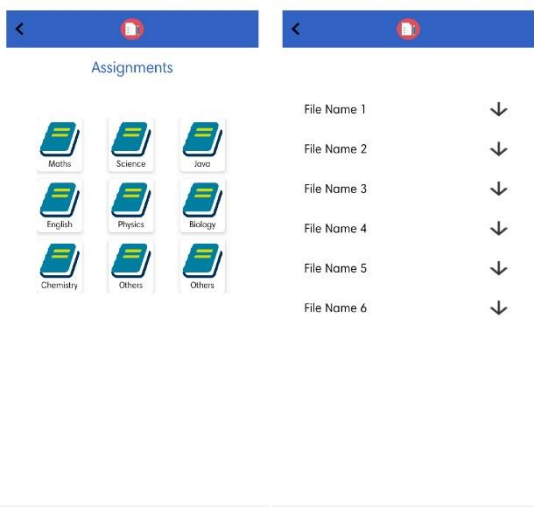
**Fig-14:** exam and no. of exam records

In exam tab, the student can give exam according to respective subjects. Also a record of given test would be present in the database(fig. 14).



**Fig-15:** assignments to view and submit subject-wise

The students can view assignments n submit them in pdf form in the assignment tab shown in above fig. 15.
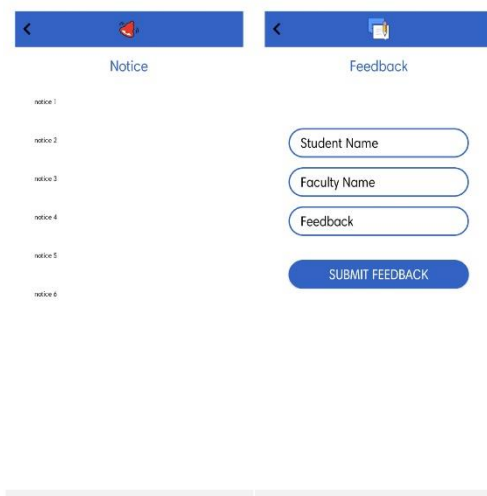


**Fig-16:** subject wise results of each test

The students can view result of their respective test in a very short period as the analysis is automated and accurate(fig. 16).



**Fig-17:** (a) notice    (b) feedback

The students can share their feedbacks in the help tab and also view notice uploaded by admin as shown in fig. 17.a, fig.17.b.

## 5.6  Features

Talking about the features of **E-Shiksha** it's convenient, easy to use, reliable, and less time-consuming. As it's highly secured while attempting the exam, students can't switch to other tabs. If they switch to other tabs, it will result in the immediate submission of the exam and prevent cheating. The result will be precise and accurate and declared in a very less period because the analysis and

calculation will be very easy in the proposed system as it's automated.

## 5. FUTURE ENHANCEMENT

There is a vast scope for android based online examination in the upcoming days and era. As **E-Shiksha** is an android based system it can be used anywhere at anytime efficiently. As this application provides an efficient way of conducting exams by saving trees and the cost of material resources, it's a great idea to continue with OES. Through OES, malpractices during an exam can be avoided which can be further implemented in educational institutes, competitive exams, and many other entrance exams..

## 6. CONCLUSION

**E-Shiksha** is developed using Android Studio, XML, PHP, Java, and MySQL which has fully achieved the objectives of the system for which it has developed. The proposed system has reached a steady-state where all bugs have been eliminated. Security and efficiency are highly prioritized in the system which is subdivided into two subsystems(admin and students), where all the associated admin and student are careful while implementing and understand the advantage of the system. As it's an open-source language it gives us more flexibility, but at the same, it requires a duration of time to be programmed. To make the exam more secure and flexible, the proposed application can be easily implemented in universities and institutions.

With this study, we have proposed a proper efficient, secure, and interesting online exam application for further great implementations.

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