Online Examination Form System for J&K State Board of Technical Education

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ABSTRACT:- Examination Conduction, Evaluation and Certification at Polytechnic and ITI levels in the state of Jammu and Kashmir are the primary and core responsibilities of J&K State Board of Technical Education. Examination Process starts with the process of Examination Form Submission, then the process of Roll Number Assignment to eligible Students, then the actual process of examination and finally culminates in Evaluation, Result Processing and Result Declaration. The Examination Form Submission like all other processes of J&KSBOTE used to be manual and hence more prone to errors and extremely time consuming. To improve efficiency in terms of cost and time, an Online Examination Form Submission is developed which not only reduces the number of errors but also simplifies the entire system.

KEYWORDS: The Jammu and Kashmir State Board of Technical Education (JKSBOTE); Data base; Model; User interface. Examination Form Submission System,

Introduction

The Jammu and Kashmir State Board of Technical Education (JKSBOTE) came into being as an individual entity under the Directorate of Technical Education in 1981. It has now been transformed into an autonomous body by an Act of 2002, of the J&K State Legislature. The volume of the work of the JKSBOTE has increased manifold over the years with the increase in the number of courses offered by the Polytechnics and also the increase in the number of Institutions/Seats.

The examination process starts with the issuance of examination forms. Earlier the entire process of examination forms would be to fill the manual forms 2 or 3 months before the actual process of examination. The forms would be first scrutinized at the institute level for various kinds of issues and then the institutes after due verification of forms physically will send the forms to the divisional office for further verification. The Divisional offices of board after the process of verification of examination forms would issue roll numbers by writing manually the roll numbers on each form and admit card slip attached to the form. The Process being manual was susceptible to the lot of errors and would create a lot of issues later on and hence the need for automation.

The Online Examination Form System comprises of a module for Creation of new account on the examination portal, the user-login page, the interface for submitting exam form and then printing the confirmation page along with the Fee Receipt. Both Online and Offline payment methods have been incorporated in the system.

The Institutes would in turn then verify the credentials of the students in the portal and then online roll numbers would be issued through Special Scripts and then the students have to download their admit cards online. The Board officials would then download the attendance sheets from the portal itself and the same would be distributed to the examination centers.

METHODOLGY

The Overall design and development of the Online Examination System consists of three components,

1. Backend Database Design & Development
2. Front End Interface.
3. The Middleware Logical Design, the Controller.

I.   Backend Database Design & Development:

The Database adopted for the system is Relational Database Management System and the database language used is MSSQL. The ER Model for the Database is depicted as:
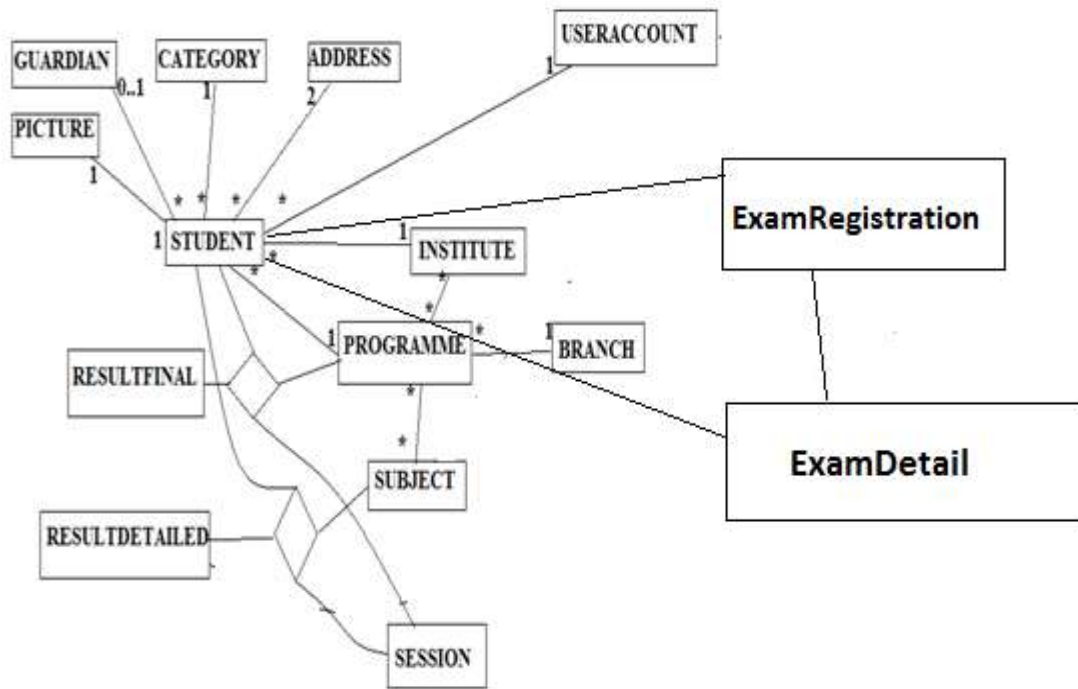
Fig.1-ER Model of JKSBOTE Online Examination Form System

The various entities (tables) that are part of the database for the examination system include

Student, Result Final, Result Detailed Registration, User Account, Picture, Programme, Institute, Subject, Exam Registration and Exam Detail. The functions of each entity are briefly as:

i)   Student: This table stores the basic details of the student.
ii) Result Final: This table is used for the storage of overall result of a student for every semester in each session.
iii) ResultDetailed: The detailed result is stored subject wise and component wise in this table.
iv) Registration: This table stores the data of students who have been successfully registered for the examination.
v)   UserAccount: The Login credentials for the student are stored in this table for authentication and security.
vi) Picture: The photographs are stored in this relation.
vii) Subject, Programme and Institute: The Subject Details, Branch Details, Institute Details are stored in these relations respectively.
viii) Exam Registration: This table stores the data related to students who submit forms online successfully.
ix) Exam Detail: This table stores the detailed data for the students who fill forms regarding the subjects in which they have to appear in the examination.

Transactional Queries (T-SQL queries embedded in PHP) are used for the data management (Insertion and Updation).

II.   Front End Interface :

The Interface for online examination form consists of an interface for the student and for the various other officials of the board and for institutes as well.

Every candidate who has to submit the examination portal has to first create an account. As the data is already populated from the servers of JKSBOTE , the student is asked to provide roll number of previous semesters and by giving the previous roll numbers, the details are displayed and the student provides a phone number and a system generated sms containing an One Time Password is triggered for authentication of the student.

Fig.2: Interface for Sign-up

After authentication, the candidate is redirected to the home page which asks for Photograph Updation of the candidate. Without photograph update, the student is not able to do anything on the portal and the photograph once uploaded on the portal cannot be changed at any subsequent step to prevent any malicious use at the later stage.

Fig.3: The home page after login/new account creation if the photograph is not updated

Fig.4: The home page after login after photograph Updation.

After the student uploads successfully his/ photograph, his/her basic details are displayed and the student through the different options can fill the form online. The student has to select the appropriate semester and if the forms are available online at that time, then only he/she can fill it.

After the selection of appropriate semester, the interface displayed is like as shown in Fig 5.

Fig.5: List of Subjects that the student has to appear in for exams.

After the student registers, the interface of the home page changes from 'Submit Exam Form' to Print Form. A Unique Acknowledgement Number gets generated for every successful submission of exam form and the student gets the option for paying fee either through online methods or a prefilled bank challan can be printed from the same page and the student has the option of paying the fee offline on that challan.

III.   Overview of the Middle Ware Logical Design, Controller.

The Logical design of the Online Examination form system consists of the various handlers that are critical for the overall smooth and efficient functioning of the portal.

The Signup handler checks for the previous details of the student from the existing data and prevents the user from creation of multiple accounts.

The Login Handler fetches the data from the server by sending the username and password to the server. The password is being sent in encrypted form to prevent various kinds of active attacks.

The Upload Photo Handler looks after the pictures that are being submitted to the portal. The pictures are stored in the database itself and hence due verification is done related to their size and shape.

The Form Register Handler is the core handler in the entire online examination form submission system. Initially it checks from the Exam Registration entity about the previous form submission. If the form has been already submitted, then the corresponding options pertaining to the printing of form and fee receipt are being displayed to the student. In case the form is not submitted, then depending upon the semester, a list of subjects is being generated for that semester. Also the previous data, in case the student is appearing as a Reappear candidate, is displayed and student gets the information about the subjects in which he/she has to appear. The handler handles this entire data in one go using transactions and then the data is being stored in Exam Registration and Exam Detail table.

Conclusion

The project was developed to eliminate all kinds of errors besides making the system efficient for examination form submission. Hence it resulted in the reduction of time, cost and energy and all kinds of manual interventions were removed from the examination form submission that used to be there earlier.

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