

Information Systems and Data Modeling

IT1090



Group Assignment

Title: Online Examination System

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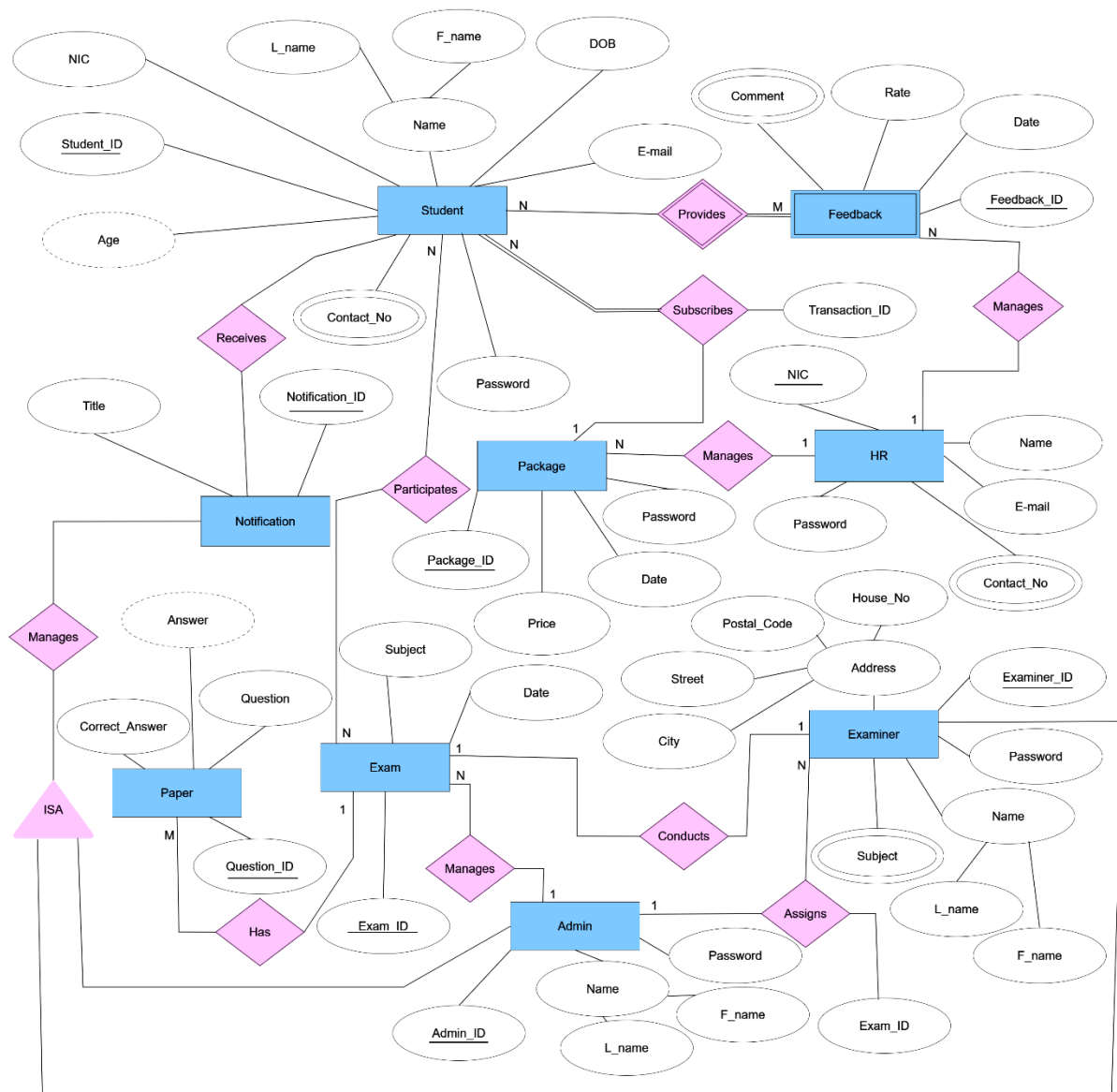
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1. Introduction

In the study of online education systems, we delved into how the Internet facilitates connections among educators, administrators, and students, ultimately improving the accessibility and effectiveness of examination procedures. Consequently, we developed an online examination platform that enables seamless interaction among users. Unregistered students can browse exam templates, while registered students must make a payment before gaining access to and completing exams. Examiners can generate and oversee exam papers, monitor student performance, and issue notifications. The administrator holds authority in assigning examiners and exams and monitoring the total user count and ongoing exams. Both examiners and students can modify their profiles, and all users have the option to access customer support as needed. The system is designed to offer a streamlined experience for all users, ensuring academic integrity and security, and efficiency in online examinations.

To develop an online examination system website, various technologies need to be studied and understood. Among them are relational databases and programming languages including HTML, CSS and JavaScript.

A variety of data types should support a database. Maintaining a computer-based data system is easier than maintaining written or typed materials, making a database necessary. This also results in time and effort savings for both administrators and examiners, with no risk of data loss since it is stored in a database. The system is controlled only by its admin and examiners. Gathering requirements and conducting requirement analysis are crucial when creating a database. Following that, the data requirements and the functional and nonfunctional specifications can be developed.

2. Hypothetical Scenario

ExamCore is an advanced online examination system designed to facilitate seamless interaction between students, examiners, and administrators. The platform ensures efficient exam management while providing distinct functionalities for each user role to optimize the examination process.

The platform allows administrators to log in seamlessly without having to enter their credentials. On the admin homepage, they can view an overview of system activity, including the total number of registered users, comprising both students and examiners. Administrators can also access performance data, such as pass/fail rates for each subject, presented as percentages. When it comes to system management, admins can allocate specific exams to examiners, ensuring effective monitoring and oversight for each assessment. Additionally, they have the authority to send important notifications to both students and examiners, keeping all participants informed about key updates or exam-related communications. Admins maintain control over the overall system functionality.

Within ExamCore, examiners have a crucial role and must register and log in with their credentials. After logging in, examiners will see a homepage displaying ongoing and completed exams under them. They are responsible for creating exam questions and ensuring fair and comprehensive assessments for exams they are assigned to by administrators. Apart from overseeing the examination process, examiners can access student performance data to view pass/fail rates for each exam they supervise. They can also send exam-related updates or important messages to students. Like students, examiners can update their personal details and manage their profiles as needed.

Students can easily create an account on ExamCore by submitting their personal information and credentials. After registration, they can log in by entering their credentials, which will be verified by the system. Upon successful login, students will be directed to their personalized homepage, where they can access various features. The homepage prominently shows recent exams the student has taken, as well as notifications about upcoming assessments and important messages. On the exam page, students will see a list of available exams they are eligible to take. To proceed, they must complete the payment process and provide the required credentials. Once these steps are completed, students can then access and complete their exams. In addition, ExamCore provides strong support services. If students come across any problems, they can ask for help from the platform. Students also have the freedom to control their profiles, enabling them to modify personal details and reset passwords when necessary.

Prospective students who have not yet registered can utilize a feature provided by ExamCore to view and explore available exam templates. This feature allows potential users to understand the format and content of exams, giving them a preview of what to expect upon registration.

ExamCore ensures a controlled, efficient, and user-friendly environment for online examinations by offering distinct and clear functionalities for each type of user, enabling all participants to effectively engage with the system.

3. Requirement Analysis

3.1 Main Requirements

3.1.1 Functional Requirements

Functional Requirements explain the website's main functions and user interactions with the system. There are four users using the ExamCore , an online examination system. Namely, Student, Examiner, Admin and HR manager.

1. Student

User Requirements -

- Student can participate in exams
- Student can receive results
- Student can provide feedback
- Student can receive notification
- Student can subscribe to a package

System Requirements -

- System should approve the registration information and create the student account
- System should display exams
- System should have subscription packages
- System should send notifications
- System should update the results

2. Examiner

User Requirements -

- Examiner can register into ExamCore
- Examiner can edit exams
- Examiner can send notifications
- Examiner can view profile
- Examiner can review students results

System Requirements -

- System should update exam history.
- System should approve the registration information and create the examiner account.
- System should save updated exam questions.
- The system should update the notification database.

3. Admin

User Requirements -

- Admin can manage exams.
- The system should update the exam table and the examiner table.
- Admin can update notifications.

System Requirements -

- System should update notification according to admin and examiner.
- The system should update the exam table and the examiner table.

4. HR manager

User Requirements -

- HR manager can receive complaint
- HR manager can respond to complaints
- HR manager can distribute complaints

System Requirements -

- System should update the database according to the feedback and complaints

3.1.2 Non-Functional Requirements

Nonfunctional requirements are a set of specifications that describe the system's operation capabilities and constraints. Sometimes, non-functional requirements can be more critical than functional requirements because the system might not function correctly if some non-functional requirements are not met.

Speed

- The system needs to be fast.
- More than one user can access the system simultaneously without any problem.

Security

- The system needs to protect user data and stop misuse and illegal access.
- No unauthorized access to the system. Each registered user has a unique username and password.

User friendly

- Any user who has a basic IT literacy can utilize the system Reliability
- The capability to identify unauthorized access into the system by checking user credentials.

Availability

- The system needs to be working continuously

Scalability

- On demand, the system needs to be able to manage a large amount of load.

Performance

- A property's admin can add, edit, remove, or update it.
- Even if A large number of users can access the system simultaneously, the system will respond to user requests without slowing.

3.2 Data Requirements

- Student
 - E-mail
 - DOB
 - Name
 - NIC
 - Student ID
 - Age
 - Contact No
- Feedback
 - Comment
 - Rate
 - Date
 - Feedback ID
- HR
 - NIC
 - Name
 - Email
 - Contact No
 - Password
- Package
 - Password
 - Date
 - Price
 - Package ID
- Notification
 - Title
 - Notification ID
- Exam

- Subject
 - Date
 - Exam ID
- Admin
 - Admin ID
 - Name
 - Password
- Examiner
 - Password
 - Examiner ID
 - Address
 - Subject
 - Name