ARFA

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Developers

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Overview

We take inspiration from the project "Question Bank" and implement it for an IIT JEE coaching institution (we named it "ARFA") as a Web Application.

The reason for taking up this project was that there was a great diversity and volume of the questions that were available in the market, thanks to the multitude of sources. This not only makes it hard for the student to keep track of his/her syllabus completion/relative performance but also made it hard for the faculty to set question papers.

We add automatic OMR correction and automatic question paper generation as the key highlights of our project. These key features are based upon the implementation of a question bank constituting features such as shared repository with controlled access, where you can have editor, contributor, hidden and reader privileges.

The application also tells the student about their performance in a temporal way i.e. improvement or degradation of performance and a detailed analysis of what went wrong/ which topic is weak. Read forward for more .

Goals

1. Frontend
    a. Student/ Faculty portal
        i. Login Page/Sign Up (common to all and redirected as necessary)
        ii. Student Portal
            1. Home Page containing basic info about student such as :
                a. Personal Details
                b. Recent Tests Given and Marks obtained
            2. Facility to view all tests and performance curve
            3. Facility to give a test
            4. View Practice Questions
        iii. Teachers Portal
            1. Home Page containing basic info about Teacher such as :
                a. Persona Details

    b. Recent Tests Conducted and average Marks in them

2. Facility to add/modify a question.

3. Facility to change privileges of a question

4. Create a test and its timings

2. Backend

   a. Tables

      i. Student

         1. ID   (primary key)

         2. Name (not null)

         3. Phone Number (not null)

         4. Mail ID

         5. Address (not null)
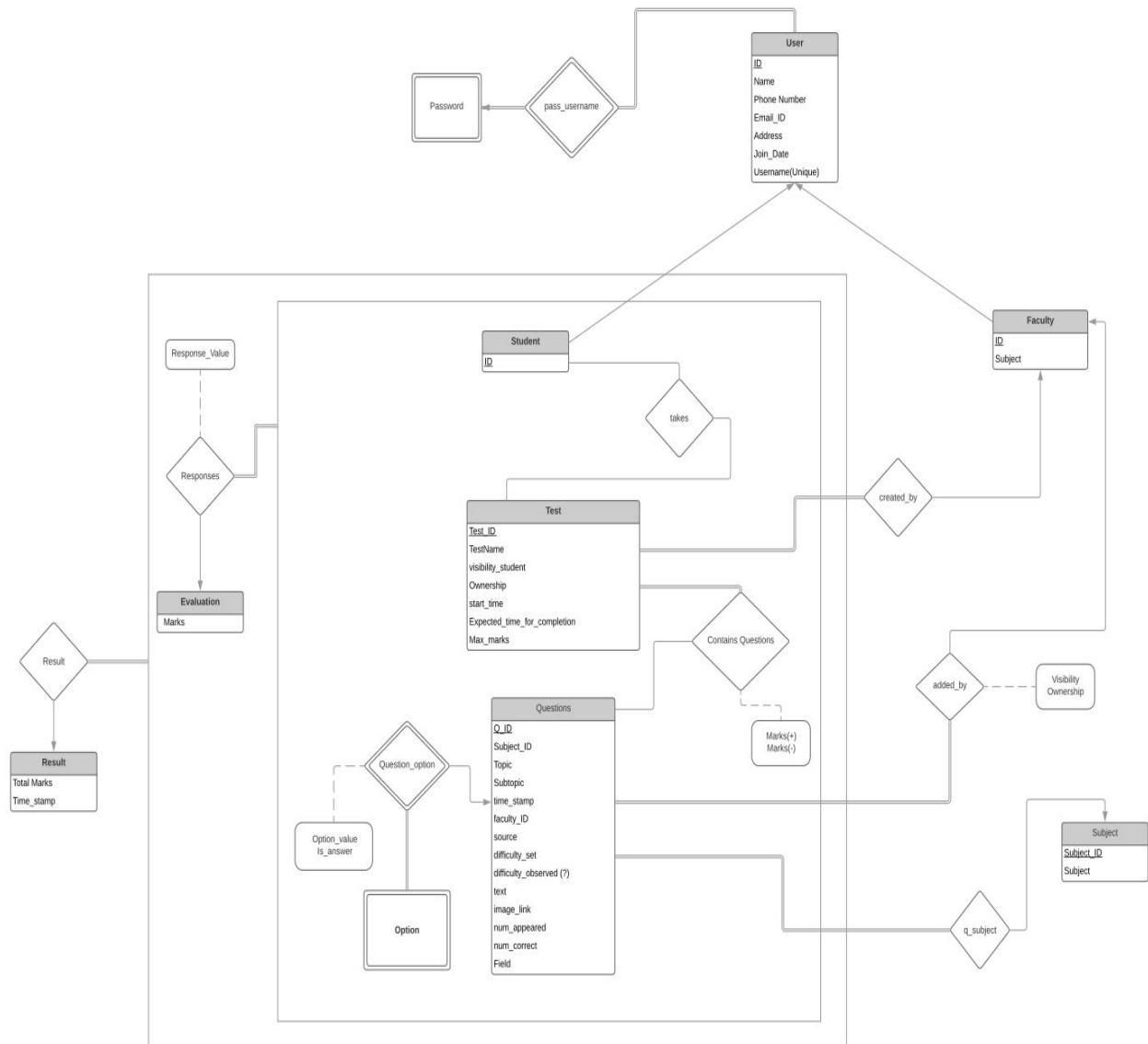
         6. Date of Joining (not null)

      ii. Faculty

         1. ID

         2. Name

         3. Phone Number

         4. Mail ID

         5. Address

         6. Date of Joining

         7. Subject

      iii. Questions
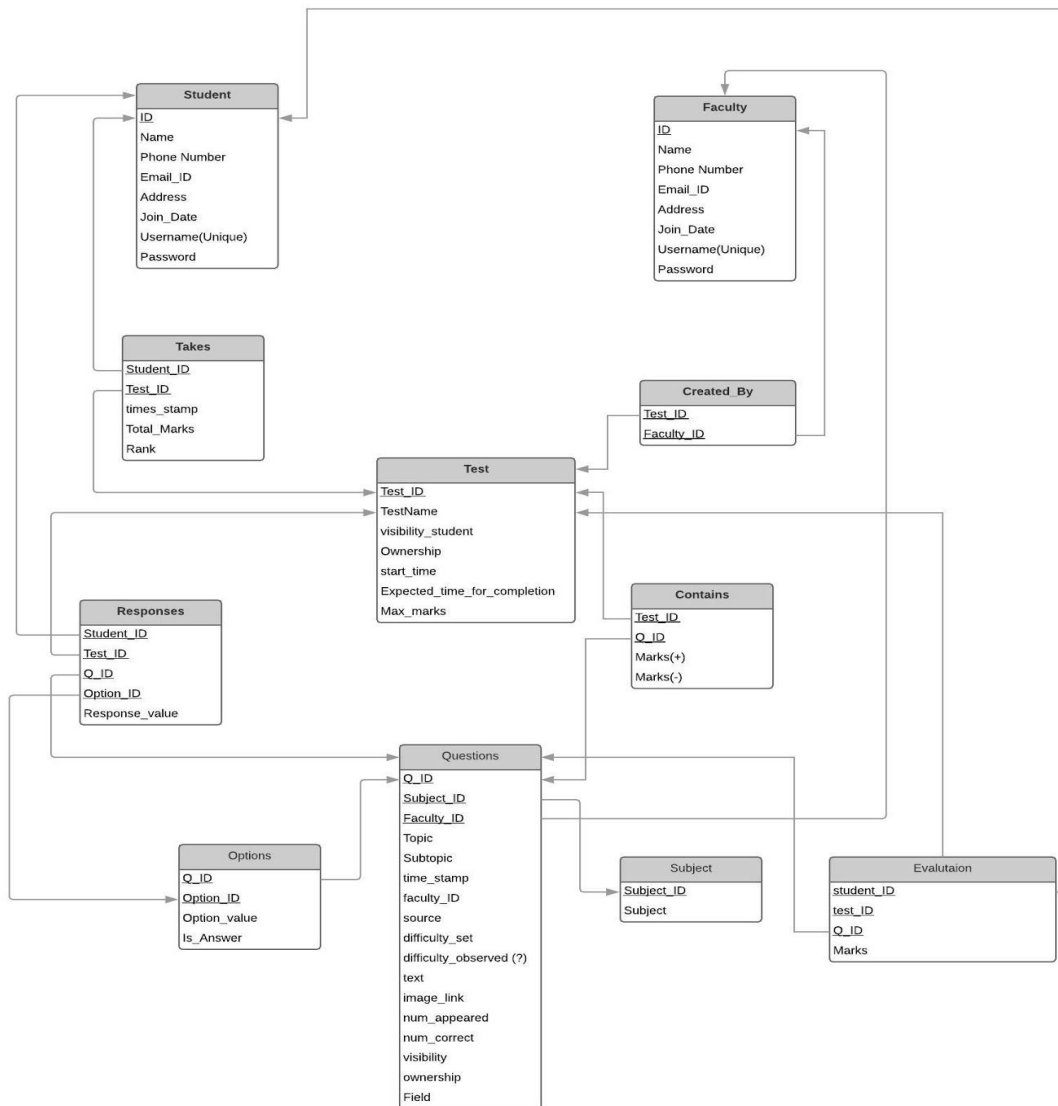
         1. Q_ID (part of primary key)

         2. Subject (part of primary key)

   b. Editor, contributor, hidden and reader privileges.

   c. Question bank hierarchy formulation/ implementation.

   d. ER diagram summarizes it

ER-Diagram

Database design

Student
- ID
- Name
- Phone Number
- Email_ID
- Address
- Join_Date
- Username(Unique)
- Password

Faculty
- ID
- Name
- Phone Number
- Email_ID
- Address
- Join_Date
- Username(Unique)
- Password

Takes
- Student_ID
- Test_ID
- times_stamp
- Total_Marks
- Rank

Created_By
- Test_ID
- Faculty_ID

Test
- Test_ID
- TestName
- visibility_student
- Ownership
- start_time
- Expected_time_for_completion
- Max_marks

Responses
- Student_ID
- Test_ID
- Q_ID
- Option_ID
- Response_value

Contains
- Test_ID
- Q_ID
- Marks(+)
- Marks(-)

Questions
- Q_ID
- Subject_ID
- Faculty_ID
- Topic
- Subtopic
- time_stamp
- faculty_ID
- source
- difficulty_set
- difficulty_observed (?)
- text
- image_link
- num_appeared
- num_correct
- visibility
- ownership
- Field

Options
- Q_ID
- Option_ID
- Option_value
- Is_Answer

Subject
- Subject_ID
- Subject

Evalutaion
- student_ID
- test_ID
- Q_ID
- Marks

Extensions (only if time permits or other)

I. ## Extension 1 (Batches)
- Here we analyse the performance to allocate batches and scholarships.

II. ## Extension 2 (Authority management)

Here we plan to implement authority management tasks such as

- Reading material distribution
- Sem Wise/ batch wise syllabus completion
- Maintenance of online library
- Scholarship and salary given out
- Fees paid by students

III. ## Extension 3 (Feedback system)

We implement feedback system using ticket raising format for various issues or grievances student face and also about the faculty who is teaching

IV. ## Extension 4 (small tweaks)
- In class quizzes
- House points to incentivize students (prize = top 5 students go to ghats trip , where we can use the trek app)
- Faculty availability