

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY



CS 387 :
DATABASE AND INFORMATION SYSTEMS

Project: Querifier

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1 Objective

To create an interface for students to submit queries and verify the submitted queries with the desired result as per the query provided by the instructor.

The crux of the problem is in determining whether or not a pair of queries will produce identical result sets for ALL the data sets and not just a particular data set. This will require running the queries on a set of test data sets and comparing the results. Thus, generation of these test data sets is very important which will ensure the correctness of the queries.

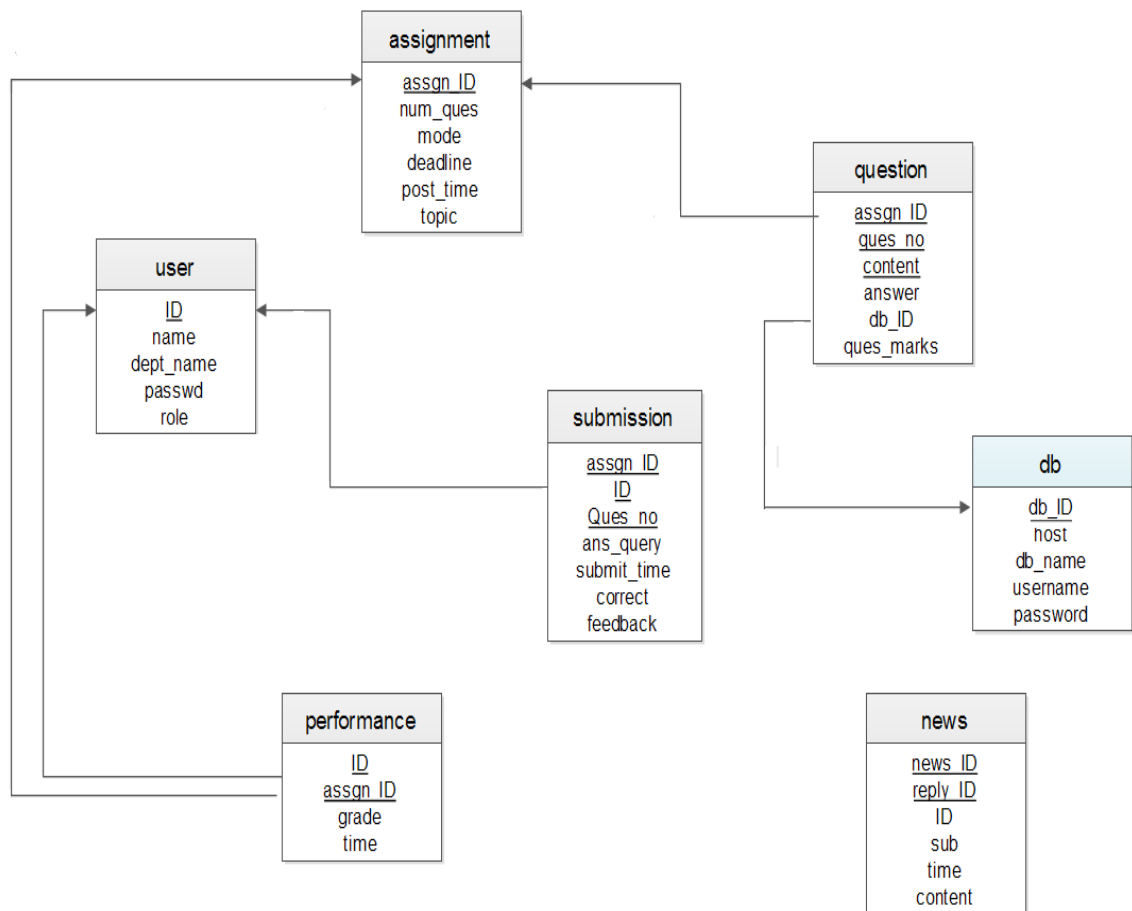
2 Functionality

The program determines if the query submitted is correct using the aforementioned approach. The grading will be done once this verification is done and also the data set on which the query failed is determined. Two modes are offered : learning and grading. In learning mode, the query will be checked immediately on submission and feedback will be given. The instructor can manually change the grades later.

3 Database Design

3.1 Database Schema

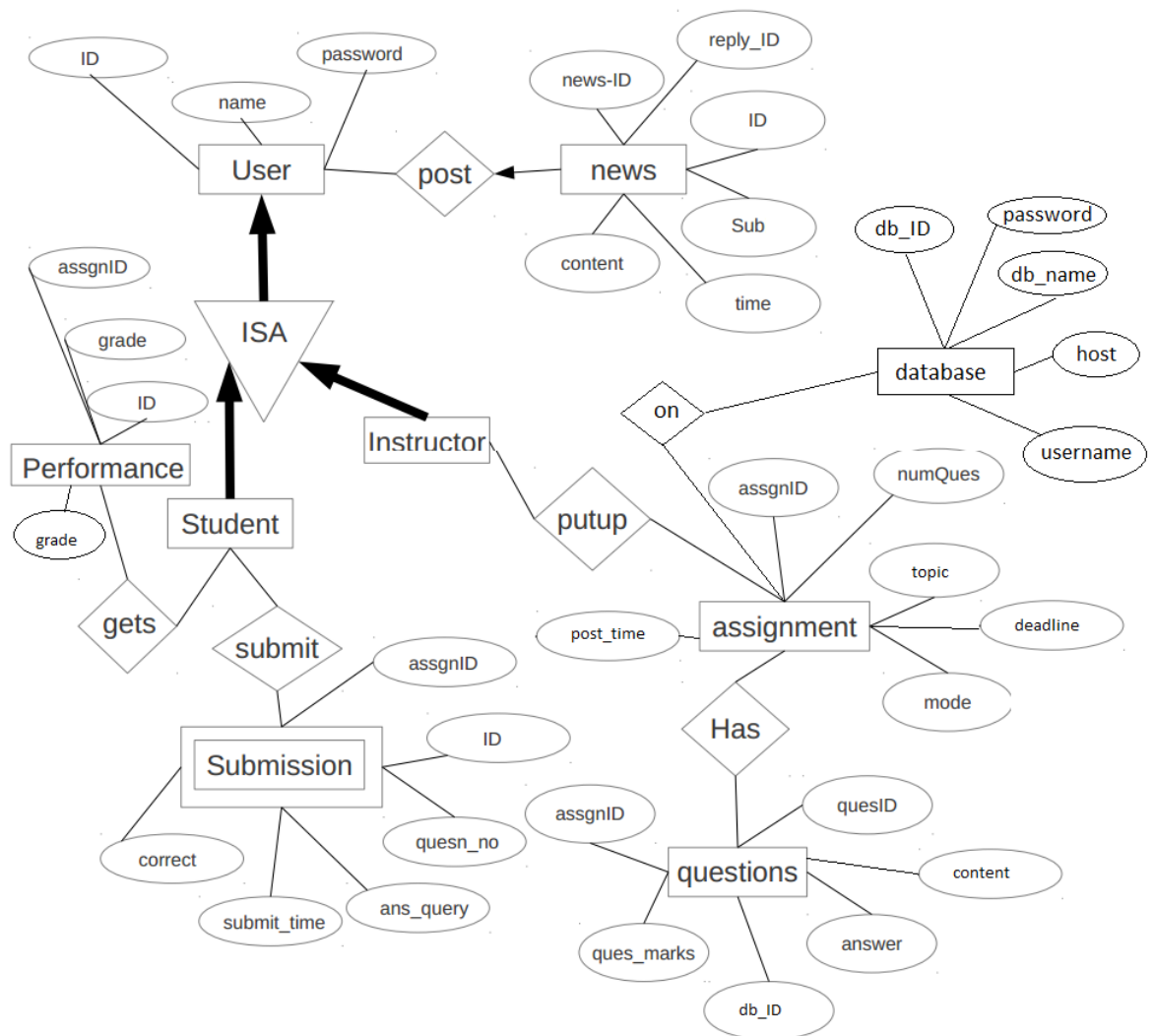
Following is the schema of the database we have used for storing various user information-



3.2 ER Model

Here is the ER diagram of corresponding to the above schema-

ENTITY-RELATIONSHIP DIAGRAM



4 Module Structure

4.1 Principle

The front end consists of 2 activity-oriented JSP pages, 1 each for student and instructor and a common login page. While taking any input, appropriate form is displayed and on successful/unsuccessful submission of inputs appropriate alerts are shown. Also the links for various options, aimed at ease of navigation are also provided. The session contains only the permanent data values required by the application in runtime.

4.2 Design Details

Front end of our project contains JSP, CSS and javascript files written separately. Different files are written for student and instructor. The back end has many servlets each for performing appropriate actions when various links/buttons are clicked. The required parameters for the working of a particular servlet are passes to javasript functions which in order pass these parameters to the servlets.

5 Session handling

The checks to verify the logged-in status of the user are performed everywhere to ensure secure SQL transactions. If the user is logged in at login page or logged out elsewhere, appropriate redirection are made.

6 Salient Features

- AJAX calls are used in order to avoid HTML traffic.
- News Forum is implemented where users can post messages and reply to the existing threads.
- Assignments are graded as soon as the instructor provides grading details.
- Updates are shown to users which include recently graded assignments, upcoming deadlines and new additions to the news forum.

7 Test Data Generation

8 References

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