Problem Set: 6

CSE 2106

The database is centered on a programming contest and includes tables such as Users, Contests, Problems, Submissions, and Languages.

**Table Structure**

1. **Users**:
   * user\_id: INT (Primary Key)
   * username: VARCHAR(100)
   * email: VARCHAR(100)
   * registration\_date: DATE
   * rating: INT
2. **Contests**:
   * contest\_id: INT (Primary Key)
   * contest\_name: VARCHAR(100)
   * start\_date: DATE
   * end\_date: DATE
3. **Problems**:
   * problem\_id: INT (Primary Key)
   * problem\_name: VARCHAR(100)
   * difficulty: VARCHAR(20)
   * contest\_id: INT (Foreign Key referencing Contests)
4. **Submissions**:
   * submission\_id: INT (Primary Key)
   * user\_id: INT (Foreign Key referencing Users)
   * problem\_id: INT (Foreign Key referencing Problems)
   * submission\_time: TIMESTAMP
   * verdict: VARCHAR(20)
5. **Languages**:
   * language\_id: INT (Primary Key)
   * language\_name: VARCHAR(50)
6. **Submission\_Languages**:
   * submission\_id: INT (Foreign Key referencing Submissions)
   * language\_id: INT (Foreign Key referencing Languages)

**Problem Set**

**Problem 1:**

**Title**: Find All Users Who Have Not Made Any Submissions

* Write a query to list all users who haven’t made any submission yet

**Problem 2:**

**Title**: Get Average Rating of All Users

* Write a query to find the average rating of all users in the system

**Problem 3:**

**Title**: Identify Users Who Submitted in Multiple Contests

* Write a query to list users who have made submissions in more than one contest.

**Problem 4:**

**Title**: List All Programming Languages Used in Submission

* Write a query to list all the distinct programming languages that have been used in any submission.

**Problem 5:**

**Title**: Find problems with submissions made by a Specific User

* Write a query to list all the problems that have been solved by a user with username ‘Mr. X’

**Problem 6:**

**Title**: Get Contest Name Where No Submissions have been made

* Write a query to list contest where no submissions have been made by any user.

**Problem 7:**

**Title**: Contest with the Maximum Number of Problems

* Write a query to find the contest that has the maximum number of problems associated with it.

**Problem 8:**

**Title**: Find All Users Who Solved at Least One Problem in Their First Contest

* Write a query to find users who made a submission in their first contest and received a verdict of 'Accepted'.

**Problem 9:**

**Title**: Find the total number of problems solved by each user

* Write a query to find the total number of problems solved by each user (problems with the verdict ‘Accepted’).

**Problem 10:**

**Title**: Top 5 Users Who Solved the Most Difficult Problems

* Write a query to identify the top 5 users who have solved the most problems with difficulty marked as 'hard'.