Requirement Document

Project Phase 1

Team 1 Data-Analyst

Introduction

Description of Mini-world

Online Judges are used

Database Requirements

Entities

All Entities

- User
    1. user id - Primary Key
    2. Name - composite key
        - First Name
        - Middle Name
        - Last Name
    3. Date of Birth
    4. Primary Email ID
    5. Secondary Email IDs - multivalued attribute
    6. Institute
    7. Join Date(datetime)
    8. Age - Derived Attribute
- Question
    1. Question ID - Primary Key
    2. Title
    3. Question text
    4. Score
    5. Allowed Languages
- Contest
    1. Contest ID - Primary Key
    2. Contest Name
    3. Creation Date
    4. Starts at Time
    5. Ends at Time
    6. Minimum Score allowed

7. Maximum Score allowed
- Test Case
    1. Test case ID - Primary Key
    2. Input
    3. Expected Output
    4. Subtask ID
    5. Score
- Submission
    1. Submission ID - Primary Key
    2. Submission Time
    3. Code
    4. Language
- Result
    1. result value
    2. evaluation date
- Administrator User
    1. Category

Weak Entities

- Submission - Depends on User and Question. Cannot exist until both exist
- Testcase - Depends on Question. Cannot exist until a question exists corresponding to it.
- Results In - Depends on Solution and its testcase. Cannot exist until both exist

Relationships

- User - Contest (Creates)
- User - Contest (Participates in)
- User - Question (Forms)
- User - Question - Submission (Solves)
- Contest - Question (Has)
- Question - Testcase (Has)
- Solution - Testcase - Result (Results in)

n>3 Relationship

- **Solves** Relationship is a Tertiary Relation
- **Results In** Relationship is a Tertiary Relation

Subclass

- Entity Administrator User is a Subclass of entity User.

Functional Requirements

- Signup/Login for User
- Login for admin
- User can add a problem
- User can delete a problem created by himself
- User can add a contest
- User can delete a contest created by himself
- Admin user can delete a problem or a contest
- User review

- Rating may increase or decrease based upon performance
- Contest will have different divisions
- Problems will have several testcases for corresponding subtasks for partial marking
- User can update his user information like name, dob, institute
- user can submit code for evaluation
- User can see their progress over time