

Script:

```
CREATE TABLE Contests (  
    ContestID INT PRIMARY KEY AUTO_INCREMENT,  
    Name VARCHAR(255) NOT NULL,  
    Date DATE NOT NULL,  
    Division ENUM('Div.1', 'Div.2') NOT NULL,  
    Participants INT  
);
```

```
create table ProblemSets (  
    ProblemSetID INT PRIMARY KEY AUTO_INCREMENT,  
    Name VARCHAR(255) NOT NULL,  
    Time_limit INT NOT NULL,  
    Memory_limit INT NOT NULL  
);
```

```
create table Users (  
    UserID INT PRIMARY KEY AUTO_INCREMENT,  
    ScreenName VARCHAR(255) UNIQUE NOT NULL,  
    City VARCHAR(255),  
    Country VARCHAR(255),  
    Organization VARCHAR(255),  
    num_friends INT,  
    num_contributions INT,  
    Reg_duration INT,  
    ProblemsSolved INT,  
    DaysInRow INT  
);
```

```
CREATE TABLE Contest_ProblemSets (  
    ContestID INT,  
    ProblemSetID INT,  
    PRIMARY KEY (ContestID, ProblemSetID),  
    FOREIGN KEY (ContestID) REFERENCES Contests(ContestID),  
    FOREIGN KEY (ProblemSetID) REFERENCES ProblemSets(ProblemSetID)  
);
```

```
CREATE TABLE ContestStandings (  
    ContestID INT,  
    UserID INT,  
    Ranking INT, -- could not use "Rank"  
    Score INT,
```

```

    PRIMARY KEY (ContestID, UserID),
    FOREIGN KEY (ContestID) REFERENCES Contests(ContestID),
    FOREIGN KEY (UserID) REFERENCES Users(UserID)
);

CREATE TABLE Writers (
    WriterID INT PRIMARY KEY AUTO_INCREMENT,
    Name VARCHAR(255) NOT NULL
);

CREATE TABLE Tags (
    TagID INT PRIMARY KEY AUTO_INCREMENT,
    TagName VARCHAR(255) NOT NULL
);

CREATE TABLE ProblemSet_Tags (
    ProblemSetID INT,
    TagID INT,
    PRIMARY KEY (ProblemSetID, TagID),
    FOREIGN KEY (ProblemSetID) REFERENCES ProblemSets(ProblemSetID),
    FOREIGN KEY (TagID) REFERENCES Tags(TagID)
);

CREATE TABLE ContestWriters (
    ContestID INT,
    WriterID INT,
    PRIMARY KEY (ContestID, WriterID),
    FOREIGN KEY (ContestID) REFERENCES Contests(ContestID),
    FOREIGN KEY (WriterID) REFERENCES Writers(WriterID)
);

CREATE TABLE Attempts(
    AttemptID INT PRIMARY KEY AUTO_INCREMENT,
    UserID INT,
    ProblemSetID INT,
    Verdict ENUM('Accepted', 'Wrong Answer', 'Runtime Error', 'Compilation Error', 'Time Limit
Exceeded', 'Memory Limit Exceeded') NOT NULL, -- still trying to figure out all verdicts
    Date_Time DATETIME NOT NULL,
    Language VARCHAR(255) NOT NULL,
    Duration INT,
    MemoryUsage INT,
    FOREIGN KEY (UserID) REFERENCES Users(UserID),
    FOREIGN KEY (ProblemSetID) REFERENCES ProblemSets(ProblemSetID)
);

```

Relational Model:

Contests(ContestID, Name, Date, Division, Participants)

ProblemSets(ProblemSetID, Name, TimeLimit, MemoryLimit)

Users(UserID, ScreenName, City, Country, Organization, num_friends, num_contributions, Reg_duration, ProblemsSolved, DaysInRow)

Contest_ProblemSets(ContestID, ProblemSetID) Foreign Keys: ContestID → Contests, ProblemSetID → ProblemSet

ContestStandings(ContestID, UserID, Ranking, Score) Foreign Keys: ContestID → Contests, UserID → Users

ProblemSet_Tags(ProblemSetID, TagID) Foreign Keys: ProblemSetID → ProblemSets, TagID → Tags

Tags(TagID, TagName)

Writers(WriterID, Name)

ContestWriters(ContestID, WriterID) Foreign Keys: ContestID → Contests, WriterID → Writers