**Relational Model**

* Users (user\_id, username, name, email, encrypted\_password, datOfBirth, country, aboutMe, ranking, institution, admin, occupation)i

Candidate Keys: user\_id, username, email

* Problems(problem\_id, title, timeLimit, sourceLimit, dateAdded, problem\_statement, user\_id, solution\_file, test\_file)

Candidate Keys: problem\_id, title

* Contests(contest\_id, contestName, startDateTime, endDateTime, user\_id)

Candidate Keys: contest\_id, (contestName, startDateTime)

* Participants(user\_id, contest\_id)

Candidate Keys: (user\_id, contest\_id)

* Problem\_in\_contests(problem\_id, contest\_id)

Candidate Keys: (problem\_id, contest\_id)

* Submissions(submission\_id, languageUsed, dateTimeOfSubmission, timeTaken, memoryUsed, submissionFile, status, user\_id, problem\_id, contest\_id)

Candidate Keys: submission\_id, (user\_id, dateTimeOfSubmission)