**Project Proposal: *IntelliQuorum***

**(*Social Network for Researchers and Students)***

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***(Group 2)***

**A. Overview:**

This idea is similar to ResearchGate or Quora. There are many students, scientists, and researchers doing research in various fields. In research it very important to study the related research and seek guidance from the experts in that field. There are many articles; publications researchers have to refer to. Also it can be helpful if a researcher can directly connect to the author of the actual paper and have some useful discussion. Also there are students across the world who solve some interesting problems. By connecting to various students across the world student can know the better approach for solving the same problem. Students have interests in various topics and they wish to know what are new advancements, research currently going on, currently on their field of interest.

Student studying in particular field can also find job opportunity matching to his interests. So idea of the project is to develop a database for such people and maintain collaborations, discussions, job profiles, individual interests of people.

**B. Entities**:

User: Researcher/ Company Personal, Publications, References, Projects, University, Department, Country, Companies, Jobs, Topics, Subtopics, Questions, Answer Thread

**C. Tasks:**

1. Follow Topics /Subtopics of Interest

(Entities: Topics, Subtopics, and User)

2. Ask a question related to a Sub-topic

(Entities: Topics, Subtopics, and User)

3. Answer a question

(Entities: Topics, Subtopics, User)

4. Follow any person to a network /Follow experts in topics of interest

(Entities: User, Topic, and Subtopic)

5. Request a full text for a publication

(Entities: Researcher, Publication, User)

6. Add a publication

(Entities: Researcher, Publication, Topic, and Subtopic)

7. View publications related to particular topic

(Entities: Topics, Subtopics, Publications, and Researchers)

8. View research projects related to publications

(Entities: Publication, Projects, Researcher, User)

9. View publications by Institution/Country/Topic/Subtopic/Author

(Entities: University, Country, Topic, Subtopic, User, and Researcher)

10. Search a job related to Topics/Subtopic

(Entities: Topic, Subtopic, Company, User, Company Personal)

**D. Target Users:**

Researchers, Scientists, Professors, Students, Companies

**E. Relationships:**

Starting with the relations between users, would first describe generalization which is:

**1. Generalization:**

The database has the user table, which specifies the common attributes for all users. Basically the use of the database can be roughly divided in two parts.

1. The part related to knowledgebase, which involves researchers, publications, projects, etc.

2. The part related to jobs.

So users can be categorized in two types: Researchers and Company personnel. Basically these two rough categories can be seen as different user roles. So when a particular company wants to hire, the person responsible for this task can log in as 'Company Personnel' and post the available jobs.

When a person wants to perform tasks related to knowledgebase, he can log on as 'Researcher'.

**User**

**Researcher Company Personnel**

As the role changes the user has altogether different sets of functionalities and relations.

**2. User-ProfileStats (Many–to-Many)**

Every user is associated with a table which records the statistics about his profile. One profile can be visited by many users and one user can visit multiple profiles. Hence, this is many to many relation.

**3. Researcher\_has\_followers (Many–to-Many)**

One researcher can follow multiple researchers and many other researchers can follow researcher. The researcher himself is a follower and follower is also a researcher. Hence this is many to many self relationship. This is not mandatory relation because it is not necessary for a researcher to have followers.

**4. Topics –Subtopics: (One-to-Many)**

Topics represent the various major areas like Computer Science, Pharmaceuticals, Law, Material Science, and Engineering etc.

Subtopics are some streams under the topics. For example: Artificial Intelligence, Programming Languages, Systems can be the subtopics under Computer Science. Hence one topic can have many subtopics. This is made an identifying relationship as subtopic is identified by topics. So wherever subtopic is referenced topic will eventually come. Hence the relationship is made identifying.

**5. Publications-Publications (Many-to-Many)**

(For references which are ***other publications***)

One publication can reference many other publications and one publication can be cited in many publications. Hence this is used as Many to Many relationship.

This is mainly to find references to other publications and find out how many citations a particular publication has. This can also be used as a parameter to determine the score of the researcher.

**6. Researcher-Publications (Many-to-Many)**

Any publication can have one or more authors and one author can have many publications. Hence this is Many-to-Many relationship. The relationship also has some more fields one to indicate if the author is first or primary author of the paper or if he is working as an advisor.

**7. Publications-References (One–to-Many)**

(For references which **are other references than publications** like book, journal, and videos). These are read only references and since they are books/videos they do not have references to publications. Hence this was thought to be as an One-to-Many relationship.

**8. Projects -Publications (One-to-Many)**

Publications may be based on some projects hence one project can have many publications. Also this is an non-identifying relationship as it need not be always based on some project.

**9. Researcher-Question (One-to-Many)**

A Researcher (student/scientist) can post many question relevant to the topic. Hence this is One-Many relationship. It is not mandatory to post topic hence it is made optional.

**10. Question-AnswerThread (One-to-Many)**

One question can have Many answers. Hence this is One-to Many relationship. For every answer it will have corresponding questionid.

**11. AnswerThread-AnswerThread (One-to-Many)**

One answer can have many following answers. Hence this is a self-referencing table with parentanswerid giving the previous answer answer.

**12. Companies-Topics (Many-to-Many)**

One company can work on multiple topics and for a topic there could be many companies hence this is Many-to-Many relationship.

**13. Projects - Publications (one to many):**

With assumption that publication is associated with one project, many publications or research papers can be associated with a project. Hence project to publications is one to many relation.

**14. University - Department (one to many) :**

One University can have multiple departments. Hence this is one to many relation. Theoretically it is possible that university does not have any department, but the department has to associated with University. Hence this relation is non mandatory from department side but mandatory from University side.

**15. Department - project (many-many):**

One department can have multiple projects under them and one project can also be coordinated by multiple departments. Hence it is many to many relation.

**16. Company - project (many-many):**

Project can also be associated with a company. Hence, one company can have many projects and one project can also be done in collaboration by multiple companies. Hence it is many to many relationship.

**17. Jobs with Companies-Topics (Many-Many)**

For a particular company and topic there would be many jobs and also for a job there would be many Companies-Topics hence this is relationship between relationship of (Companies-Topics) and Jobs.

**18. Publication-PublicationStats (one - many)**

Each Publication is associated with publication statistics table which records the number of times the publication has referred, who has referred it, when it has been referred and who all wants full text of the publication. One publication can have many entries in this table, hence it is one to many relation.

**Other Look up tables and their relationships:**

Researcher on his profile has his personal web page links those can be many links for a researcher. Hence there is one-Many relationship between those.

Also Journals, Departments, Research Community, Country act as look up tables.

**F. Potential Applications based on this system:**

1.      Add new user.

2.      Add new publication.

3.      Add new university, department.

4.      Collect the statistics (update corresponding tables): When a user visits the profile of other user, when user visits the publication.

5.      Start new discussion thread. (Ask question, Start new discussion on a topic)

6.      Participate in existing discussion. (Respond to question, Express your thought/opinion)

7.      Find out/track all research papers published by people associated with a particular University.

8.      Find out/track all research projects going on in a particular University.

9.      Find out/track all research papers published by people associated with a particular Company.

10.   Find out/track all research projects going on in a particular Company.

11.   Job seeking application for people.

12.   Job seeking under the particular area of expertise.

13.   Job posting application for companies whenever there are open positions.

14.   Discussion forum - It will help people to share their thoughts, knowledge. People can ask questions/doubts and interested expertise in that area can give them proper guidance.

15.   Find the publications related to particular subject.

16.   Find the publications by particular researcher.

17.   Request the researcher for the entire version of research paper. Or person can send his resume and request researcher to join research group.

18.   Follow the subject of interest or follow the particular researcher so that follower is constantly updated.

19.   This database will act as repository/library to keep all information about research papers.

20.   How many times the research paper has been downloaded.

21.   How many times a particular researcher's profile has been visited.

22.   Statistics about the followers.