
Title: Grant Council Database MiniProject

Abstract:

Project specifications, ER diagram, and other details on the database for a research grant council.

Grant Council Database MiniProject

Database Systems 1

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Project Specifications

The given outline suggests the entities:

- Researcher{ResearcherID, FirstName, LastName, Email, Organization}
- Assignment{AssignmentID, ReviewDeadline, Progress, CompetitionID^{FK-Competition}}
- Application{ApplicationID, RequestedAmount, Status, AwardedAmount, principleInvestigator, CompetitionID^{FK-Competition}}
- Competition{CompetitionID, Title, Description, Area, AppDeadline, Status}
- Meeting{MeetingID, Date}

and relations

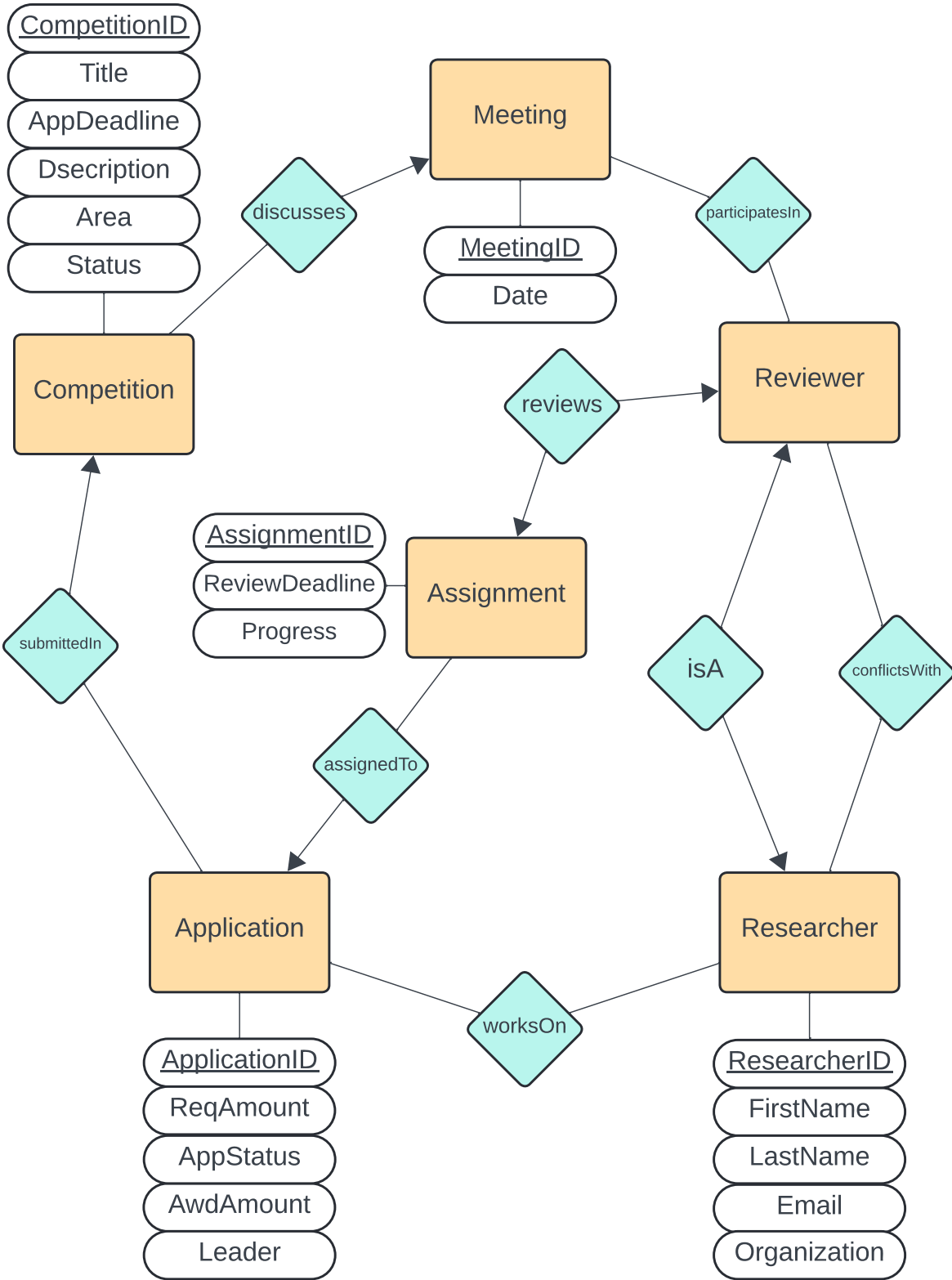
- conflictsWith{ReviewerID^{FK-Researcher}, Conflict^{FK-Researcher}}
- reviews{ReviewerID^{FK-Researcher}, AssignmentID^{FK-Assignment}}
- assignedTo{AssignmentID^{FK-Assignment}, ApplicationID^{FK-Researcher}}
- worksOn{ApplicationID^{FK-Application}, nResearcherID^{FK-Researcher}}
- participateIn{MeetingID^{FK-Meeting}, ReviewerID^{FK-Reviewer}}
- discusses{MeetingID^{FK-Meeting}, CompetitionID^{FK-Competition}}

Assumptions

It is assumed that:

- a competition and a call for grant proposals are the same entity.
- the source of the conflict of interest doesn't matter.
- competitions are open from the moment they are entered into the database.
- reviewers must be researchers (however not all researchers must be reviewers).
- the competition number is a unique identifier (renamed to CompetitionID)

E/R Diagram



Anomalies and Decomposition

The functional dependencies are:

1. $\text{ResearcherID} \rightarrow \text{FirstName}, \text{LastName}, \text{Email}, \text{Organization}$
where ResearcherID is the key for Researcher
2. $\text{ReviewerID} \rightarrow \text{ConflictID}$
where ReviewerID is the key for conflictsWith
3. $\text{ReviewerID} \rightarrow \text{AssignmentID}$
where ReviewerID is the key for reviews
4. $\text{AssignmentID} \rightarrow \text{ReviewDeadline}, \text{Progress}, \text{CompetitionID}$
where AssignmentID is the key for Assignment
5. $\text{AssignmentID} \rightarrow \text{ApplicationID}$
where AssignmentID is the key for assignedTo
6. $\text{ApplicationID} \rightarrow \text{RequestedAmt}, \text{AppStatus}, \text{AwardedAmt}, \text{principleInvestigator}, \text{CompetitionID}$
where ApplicationID is the key for Application
7. $\text{ApplicationID} \rightarrow \text{ResearcherID}$
where ApplicationID is the key for worksOn
8. $\text{CompetitionID} \rightarrow \text{Title}, \text{Deadline}, \text{Description}, \text{Area}, \text{Status}$
where CompetitionID is the key for Competition
9. $\text{MeetingID} \rightarrow \text{Date}$
where MeetingID is the key for Meeting
10. $\text{MeetingID} \rightarrow \text{ReviewerID}$
where MeetingID is the key for participateIn
11. $\text{MeetingID} \rightarrow \text{CompetitionID}$
where MeetingID is the key for discusses

Each of the functional dependencies are of the form $X \rightarrow Y$ where X is the key for a relation. There are no other functional dependencies. This means the schema is in BCNF.