

## Assignment – 2

### Task – 1

Entity Name	Attributes	Relationships	Cardinality Ratios	Participation Constraints	Entity type
Conference	conference_id (PK) conference_name year location track_id (FK) proceeding_id (FK)	Conference organizes tracks Conference publishes proceedings	1:N 1:1	Total – Total Total – Total	NA
Track	track_id (PK) track_type conference_id (FK) paper_id (FK) session_id (FK)	Conference organizes Tracks Track includes Research Papers Track contains Sessions	1:N 1:N 1:N	Total – Total Total – Total Total – Total	NA
Session	session_id (PK) session_chair date time location track_id (FK) paper_id (FK) participant (FK)	Track contains Sessions Session hosts Research Papers Session chairs Participant	1:N 1:N 1:1	Total – Total Total – Total Total – Partial	NA
Participant	participant_id (PK) participant_name participant_email participant_type - (researchers/reviewers/session_chair) participant_role - (authoring paper/reviewing papers/chairing sessions) paper_id (FK) session_id (FK) conference_id (FK) attend_conference - (virtual/physical/na)	Participant Reviews Research Papers Participant Chairs Sessions Participant Attends Conference	1:N 1:1 1:N	Total – Partial Total – Partial Total – Partial	NA
Research Paper	paper_id paper_title paper_submission_date feedback ratings paper_version paper_status track_id (FK) participant_id (FK) review_id (FK)	Research Paper associates Tracks Participants submits Research Paper Research Paper reviews Paper review Research Paper includes proceedings Research Paper go through multiple revisions	N:1 M:N M:N 1:1 1:N	Total – Total Partial – Total Total – Partial Total – Total To	NA

	proceeding_id (FK)				
Paper Review	review_id ratings feedback review_date number_of_revisions review_id (FK)	Paper review reviews Research Paper	M:N	Total – Partial	NA
Proceeding	proceeding_id (PK) proceeding_name editors number_of_papers paper_id (FK)	Research Paper includes proceedings	1:1	Total - Total	NA
Citation	citation_id citation_date citation_type paper_id (FK) participant (FK)	Participant cites Research Papers Research Paper taken Citation	M:N M:N	Partial – Partial – Partial – Partial	NA

## Task – 2

Conference organizes tracks:

Cardinality Ratios: One conference can organize multiple tracks, each track is associated with only one conference

Participation Constraints: Every conference must organize at least one track, each track must be associated with a conference

Conference publishes proceedings:

Cardinality Ratios: Each conference publishes one proceedings document that contains the accepted papers for that specific conference, each proceedings document is associated with only one conference

Participation Constraints: Every conference must publish proceedings, every proceeding must be linked to one and only one conference

Track includes Research Papers:

Cardinality Ratios: One Track can have many Research Papers submitted to it, each Research Paper is assigned to one specific Track

Participation Constraints: Every track must include at least one research paper, each research paper must be associated with one and only one track

Track contains Sessions:

Cardinality Ratios: One Track can contain many Sessions, each Session belongs to only one Track

Participation Constraints: Every track must contain at least one session, each session must be associated with one and only one track

Session hosts Research Papers:

Cardinality Ratios: A Session chair can host multiple Research Papers: During a session, multiple research papers might be presented

Participation Constraints: Every session must host at least one research paper, each research paper must be presented in one and only one session

Participant Chairs Sessions:

Cardinality Ratios: One Session can have only one Session Chair, one Participant can chair only one Session at a time

Participation Constraints: Every session must have a chair, not every participant must be a chair in a session

Participant Reviews Research Papers:

Cardinality Ratios: A single Research Paper can be reviewed by multiple Participants, a single Participant can review multiple Research Papers

Participation Constraints: Every research paper must have at least one review from a participant, not every participant must review papers; some may only author or chair sessions

Participant Attends Conference:

Cardinality Ratios: A Participant can attend multiple Conferences, A Conference can have multiple Participants attending

Participation Constraints: Every participant must attend at least one session, either virtually or physically, not every session must be attended by every participant; attendance is optional

Research Paper associates Tracks:

Cardinality Ratios: One Track can have multiple Research Papers, One Research Paper is associated with exactly one Track

Participation Constraints: Every track must have at least one associated research paper, each research paper must be associated with one and only one track

Participants submits Research Paper:

Cardinality Ratios: One Participant can submit multiple Research Papers, each Research Paper must have at least one Participant

Participation Constraints: Not every participant must submit a research paper, every research paper must be submitted by at least one participant

Research Paper reviews Paper review:

Cardinality Ratios: A single Research Paper can undergo multiple reviews, a single Paper Review is associated with one specific Research Paper, but each reviewer can review multiple papers

Participation Constraints: Every research paper must have at least one review, not every reviewer must review papers

Research Paper includes proceedings:

Cardinality Ratios: A single proceeding is published for each conference and can include multiple research papers, each research paper is included in one and only one proceeding after it has been accepted

Participation Constraints: Every proceeding must include at least one accepted paper, each accepted paper must be included in one proceeding

Paper review reviews Research Paper:

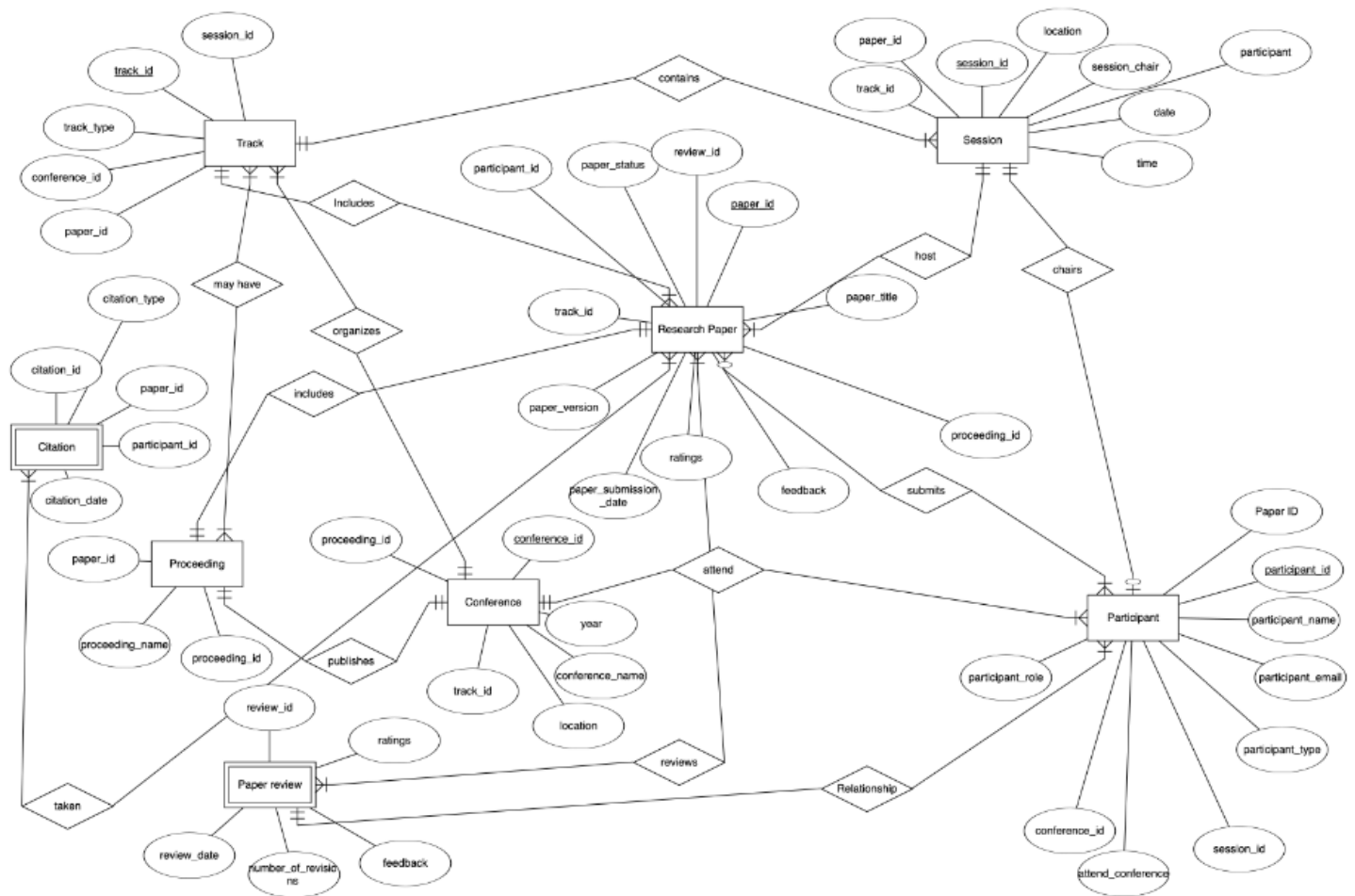
Cardinality Ratios: One Research Paper can be reviewed by multiple Paper Reviews, One Paper Review can correspond to multiple Research Papers

Participation Constraints: Every research paper must have at least one review, not every reviewer must review a paper

Weak entities:

1. Paper Review -> Paper Review depends on both the Research Paper and the Participant (reviewer)
2. Citation -> A Citation links a Participant to a Research Paper

### Task – 3



### Task – 4

How you determined the attributes and relationships:

I have analyzed the scenario of each entity and its usage in real world application and produced some attributes. Some attributes for participants like researchers/reviewers/session\_chair, I have gone through the description and had given a separate attribute which accepts all these three participants. Coming through the relationships – I went through each entity and at every statement I just analyzed to which entity it is relevant. And this is how I have established the relationship across two entities.

Any challenges you faced while defining cardinalities and participation constraints

While understanding each entity description, is bit challenging to identify the relationships across each entity, for cardinalities - Paper review reviews Research Paper – explaining about M:N relationship is challenging to understand and get quite enough perception. Participation constraints explain about the whole entity is associated with the connected entity or not – explaining about Total or Partial connectivity, describing for many to many cardinalities taken me longer time to analyze.

Any design decisions related to handling virtual attendees or session chairs

I have taken attend\_conference (which takes either virtual attendees/physical attendees/na – if participant not relevant for attending the conference), participant\_type takes - (researchers/reviewers/session\_chair) – this explains about which type of participant.

How you ensured the system supports multiple roles for participants (e.g., a participant can be both an author and a reviewer)

I have taken attribute `participant_type` - (researchers/reviewers/session\_chair), `participant_role` - (authoring paper/reviewing papers/chairing sessions), the researcher takes the role authoring paper, reviewer reviews the papers, the session chairs host the sessions. Based on the `participant_type`, `participant_role`, one field is relevant to another.