Explanation & Group 2 Report

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This Report Shall Include Sections As Follow:

- Entity & Relation Analysis
- The Cardinality Analysis
- Datatype Analysis
- Member Contribution

▼ Entity & Relation Analysis

- **Relations**
  - belong_to (University–School)
  - belong_to (School–Faculty)
  - belong_to (School–Center)
  - affiliation_org (Affiliation–Organization_Unit)
  - affiliation_partner (Affiliation–Partner)
  - affiliation_contact (Affiliation–Contact_Point)
  - involve (Agreement–Affiliation)
  - agreement_status (Agreement–Agreement_status_history)
  - has (Collaboration_Event–Feedback)
  - rating (Feedback–Organization_Unit)
  - contribution_event (Contribution–Collaboration_Event)
  - contribution_partner (Contribution–Partner)
  - invoice_event (Invoice–Collaboration_Event)
  - payment_invoice (Payment–Invoice)

- **Entities**
  - Organization_Unit
  - University
  - School
  - Faculty
  - Center
  - Partner
  - Organization
  - Affiliation
  - Contact_Point
  - Agreement
  - Agreement_status_history
  - Collaboration_Event
  - Contribution
  - Invoice
  - Payment
  - Feedback

  The Annotation:

  Weak-Entity

⇒ Given that:

All affiliations must come from an Partner & Organization Unit

All Affiliation have to have at-least 1 contact-point (all partner have 1 contact-point)

All Agreement Status have to be mapped to an Agreement

All Schools belong to the University

All Faculties belong to the School

Each Feedback must belong to an Organization Unit,

An Collaboration Event can have a feedback

Each Invoice must be mapped to a Collaboration Event

Each Payment must be mapped to a Payment

An Organization Unit can provide at-least a feedback

▼ The Cardinality Analysis

- Partner : Affiliation - 1: M (1 partner involve in Multiple affiliation, but each Affiliation contain only 1 partner) - total participation: Affiliation (this is weak-entity)
- Organization_Unit : Affiliation - 1 : M (Similar to Partner : Affiliation) - total participation: Affiliation (this is weak-entity)
- Faculty : School - M : 1 - total participation: Faculty
- School : University - M : 1 - total participation: School
- Affiliation : Contact_Point - M : M
  - This assume 1 contact point can be shared by multiple affiliations ↔ 1 contact-point can be shared by multiple partners - not violate the requirement that **Each partner can have one or more contact points**

- And 1 Affiliation can support more than 1 contact-point (as the requirement)
- Agreement : Affiliation - M : 1
  - Each agreement shall be mapped to an affiliation
  - An affiliation can involved more than 1 agreement
- Agreement : Agreement_status_history - 1: M
  - An Agreement Under multiple change → multiple records (M)
  - A change on status have to be long to ones aggreement that under the change (1)
- Contribution : Partner - M: 1
  - 1 partner allow to make ≥1 contribution, but an contribution belong to 1 partner only - not dual-contribution case in here
  - All contribution must belong to an partner - total participation
- Contribution : Collaboration_Event - M : 1
  - 1 Event can have multiple contribution (as sponsor)
- Feedback : Collaboration_Event - M : 1
- Feedback : Organization_Unit - M : 1
  - 1 Org_Unit allow to have multiple feedback or not
  - A feedback must come from an Organization Unit - total participation
- Collaboration_Event : Invoice - 1: M
  - An event shall have multiple invoice of service-fee / participation_fees : M
  - all invoice must be belong to an event : 1
  - Invoice depended on Event - total-participation & weak-entity
- Invoice : Payment - 1 : M
  - 1 invoice can be paid through multiple payment
  - All payment have to belong to an Invoice
- Collaboration_Event : Partner - M : M
  - 1 Collab Event can have multiple partner
  - 1 partner can attend multiple event
  - Still satisfy that 1 event can have exactly 1 primary_partner with constrain

▼ **Datatype Analysis**

Below is the **tabular (data dictionary) format**.

partner

Attribute	Data Type	Description
partner_id	INT	Primary identifier for each partner
partner_name	VARCHAR(150)	Official name of the partner (person or organization)
partner_type	VARCHAR(30)	Distinguishes partner as person or organization
partner_status	ENUM('prospect','active','inactive')	Lifecycle status of the partner
partner_website	VARCHAR(255)	Optional website or profile link
sector	VARCHAR(30)	Sector classification (e.g., academia, industry)
arrangement_frequency	INT	Frequency indicator of collaborations

organization

Attribute	Data Type	Description
partner_id	INT	Primary key and foreign key linking organization to partner
organization_taxcode	VARCHAR(10)	Legal tax identifier or placeholder - DEFAULT = 'unknown'

organization_unit

Attribute	Data Type	Description
unit_id	INT	Primary identifier for any organizational unit
unit_name	VARCHAR(100)	Official name of the unit
unit_scope	VARCHAR(50)	Scope level (university, school, faculty, center)
status	ENUM('prospect','active','inactive')	Operational status
established_date	DATE	Date the unit was established

university

Attribute	Data Type	Description
university_id	INT	Primary key and foreign key to organization_unit
legal_name	VARCHAR(150)	Registered legal name of the university
country	VARCHAR(50)	Country of operation
city	VARCHAR(50)	City location
president_name	VARCHAR(100)	Current president of the university

school

Attribute	Data Type	Description
school_id	INT	Primary key and foreign key to organization_unit
academic_focus	VARCHAR(100)	Main academic focus area
dean_name	VARCHAR(100)	Dean of the school
student_count	INT	Total enrolled students
faculty_count	INT	Total faculty members
university_id	INT	Foreign key linking school to university

faculty

Attribute	Data Type	Description
faculty_id	INT	Primary key and foreign key to organization_unit
faculty_code	VARCHAR(10)	Internal faculty code
head_of_faculty	VARCHAR(150)	Faculty head name
discipline	VARCHAR(150)	Academic discipline
tenure_staff_count	INT	Number of tenured staff
research_staff_count	INT	Number of research staff
school_id	INT	Foreign key linking faculty to school

center

Attribute	Data Type	Description
center_id	INT	Primary key and foreign key to organization_unit
center_type	ENUM('research','innovation','service')	Functional type of center
num_fund_received	DECIMAL(12,2)	Total funding received
director_name	VARCHAR(150)	Director of the center

affiliation

Attribute	Data Type	Description
affiliation_no	INT	Ordinal number of affiliation per partner (nth affiliation of the partner_id)
partner_id	INT	Foreign key linking affiliation to partner
unit_id	INT	Foreign key linking affiliation to organization unit
affiliation_start_date	DATE	Start date of affiliation - NOT NULL
affiliation_end_date	DATE	End date if affiliation is terminated - NULLABLE - only if affiliation_status = ACTIVE
affiliation_status	ENUM('ACTIVE','ENDED')	Current affiliation state - NOT NULL - DEFAULT = '"ACTIVE"
affiliation_remark	VARCHAR(255)	Optional notes

agreement

Attribute	Data Type	Description
agreement_id	INT	Unique identifier for agreement
agreement_title	VARCHAR(200)	Descriptive title of agreement
agreement_type	VARCHAR(30)	Type or category of agreement
agreement_start_date	DATE	Effective start date
agreement_end_date	DATE	Expiry or termination date
agreement_file_link	VARCHAR(255)	Document reference link
affiliation_no	INT	Foreign key component linking to affiliation
partner_id	INT	Foreign key component linking to affiliation
unit_id	INT	Foreign key component linking to affiliation

agreement_status_history

Attribute	Data Type	Description
status_seq_no	INT	Sequence number of status change
agreement_id	INT	Foreign key linking to agreement
previous_status	ENUM	Prior agreement status
current_status	ENUM	New agreement status
status_change_time	DATE	Date of status change
status_change_note	VARCHAR(255)	Explanation of change

contact_point

Attribute	Data Type	Description
contact_id	INT	Unique identifier for contact
contact_name	VARCHAR(150)	Full name of contact person
contact_email	VARCHAR(150)	Email address
contact_phone	VARCHAR(30)	Phone number
contact_position	VARCHAR(100)	Role or position

affiliation_contact

Attribute	Data Type	Description
partner_id	INT	Foreign key to affiliation composite key
affiliation_no	INT	Foreign key to affiliation composite key
unit_id	INT	Foreign key to affiliation composite key
contact_id	INT	Foreign key to contact_point
is_primary	BOOL	Indicates main contact - DEFAULT = FALSE
priority	INT	Ordering or importance indicator (=1 - is primary) - DEFAULT = 0

collaboration_event

Attribute	Data Type	Description
event_id	INT	Unique identifier for event
event_title	VARCHAR(150)	Name of event
event_type	VARCHAR(50)	Type of collaboration activity
event_location	VARCHAR(100)	Location of event
event_start_time	DATE	Event start date
event_end_time	DATE	Event end date
participants_num	INT	Number of participants

collab_partner

Attribute	Data Type	Description
event_id	INT	Foreign key linking partner to event
partner_id	INT	Foreign key linking partner to event
is_primary	BOOL	Indicates lead partner - DEFAULT = FALSE
priority	INT	Ordering of partners (=1 is primary)

contribution

Attribute	Data Type	Description
contribution_id	INT	Unique identifier for contribution
event_id	INT (NULL)	Optional foreign key to related event
partner_id	INT	Foreign key identifying contributing partner
contribution_type	ENUM('cash','in-kind')	Nature of contribution
contribution_description	VARCHAR(255)	Description of contribution
contribution_estimated_value	DECIMAL(12,2)	Monetary estimate
contribution_date	DATE	Date contribution was made

feedback

Attribute	Data Type	Description
event_id	INT	Foreign key linking feedback to event
feedback_seq_no	INT	Sequence number per event

Attribute	Data Type	Description
unit_id	INT (NULL)	Optional foreign key to organization unit
feedback_rate	INT	Rating value constrained 1–5
feedback_comment	TEXT	Qualitative feedback
feedback_date	DATE	Date feedback submitted

invoice

Attribute	Data Type	Description
event_id	INT	Foreign key linking invoice to event
invoice_seq	INT	Invoice sequence per event
invoice_issue_date	DATE	Invoice issue date
invoice_amount	DECIMAL(12,2)	Billed amount
invoice_status	ENUM('paid','unpaid','cancelled')	Payment state

payment

Attribute	Data Type	Description
event_id	INT	Foreign key linking payment to invoice
invoice_seq	INT	Foreign key linking payment to invoice
payment_seq	INT	Sequence number of payment
payment_date	DATE	Date payment was made
payment_method	ENUM('cash','bank transfer','e-wallet')	Payment channel
payment_amount	DECIMAL(12,2)	Amount paid

▼ Member Contribution

- Team Lead: Dat Tran Tien
- Task Contributed Show as RACI chart

  C: Consulted (provide suggestion on the task)

  R: Responsible (direct perform the task)

  A:Accountable (ultimately responsible for final result & accurate completion)

  I: Informed (informed on the progress / decision)

	Dat Tran	Khanh Quoc	Duy Duc
ER-Designing & Analysis	R, A	R	C, I
ER-Diagram Drawing	A, I	R, I	C, I
Ideation on Design pattern & DDL implementation (data-type-selection)	I, A	I, C, R	R, C
Schema-Diagram Drawing	R, A, I	R, C, I	R, C, I
DDL-Coding	A, I, C	R	I, C
Data-Insertion-Script Preparation	I, A	I	R
Report Writing	A,R	I, C	I, C