

DBMS project

Infohub : NGO database

GROUP ID :- T108

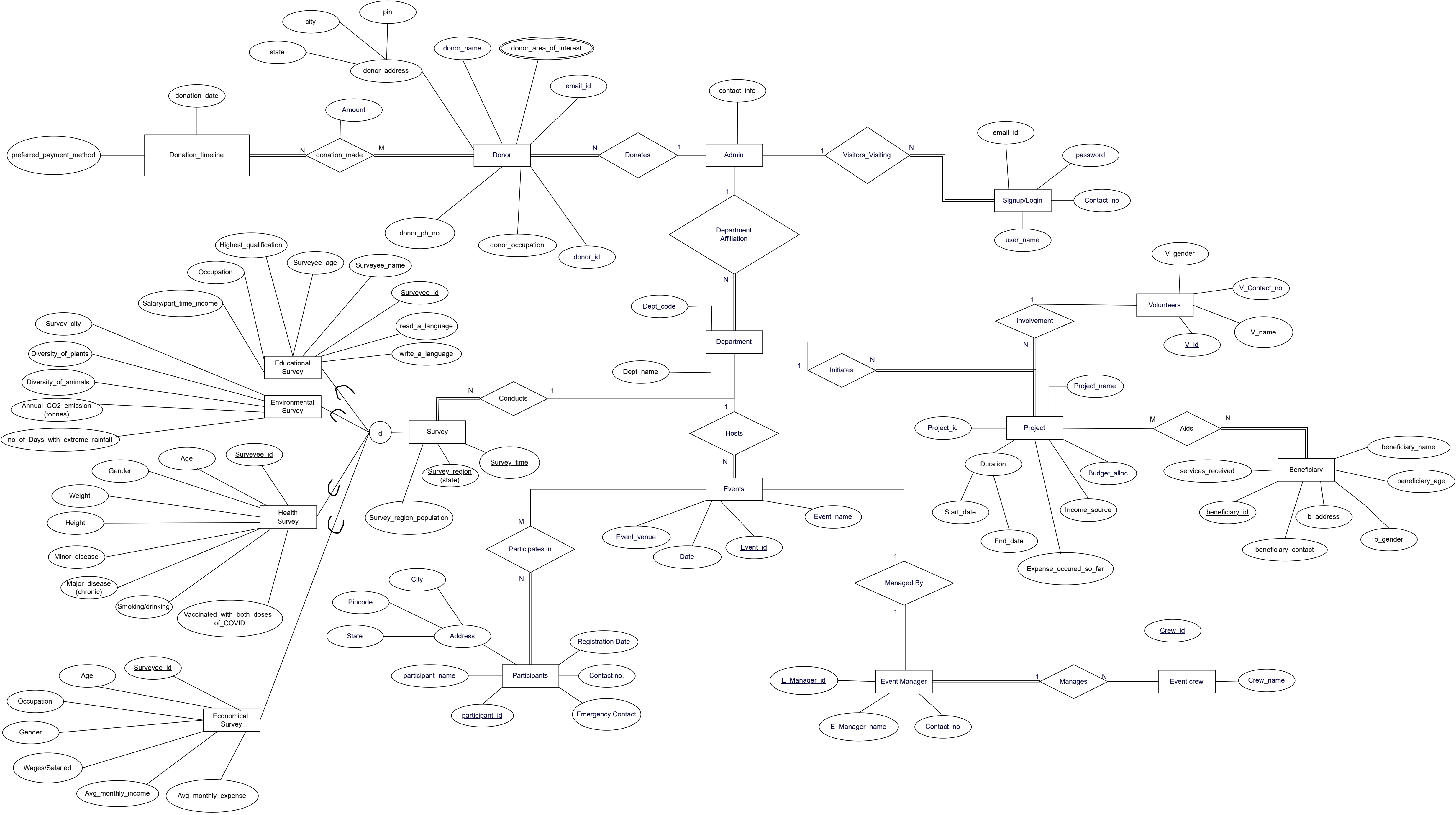
GROUP MEMBERS

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volunteers		
FK	Project_id	varchar(10)
PK	V_id	varchar(10)
	V_name	varchar(50)
	V_gender	varchar(2)
	contact_info	decimal(10,0)

Aids		
PK,FK1	beneficiary_id	varchar(10)
PK,FK2	project_id	varchar(10)

Beneficiary		
PK	b_id	varchar(10)
	b_name	varchar(50)
	b_gender	char(1)
	cont_no	decimal(10,0)
	beneficiary_age	int
	b_addrs_state	varchar(40)
	b_addrs_city	varchar(40)
	b_addrs_pin	int
	rcvd_services	varchar(40)

Project		
PK	Project_id	varchar(10)
	P_name	varchar(50)
	budget_allocated	decimal(10,2)
	expense_occured_so_far	int
	income_source	varchar(100)
	start_time	date
	end_time	date
FK	dept_code	varchar(3)

Economical_survey		
PK,FK1	surveyee_id	char(10)
	age	int
	gender	varchar(20)
	occupation	varchar(40)
	average_monthly_income	int
	avg_monthly_expenses	int
	wages/salaried	varchar(30)

Economical_survey_info		
PK	surveyee_id	char(10)
PK,FK1	survey_region	varchar(40)
PK,FK2	survey_time	date

Educational_survey		
PK,FK1	surveyee_id	char(10)
	Occupation	varchar(40)
	Salary/part_time_income	int
	Highest_qualification	varchar(100)
	read_a_language	varchar(10)
	write_a_language	varchar(10)

Educational_survey_info		
PK	surveyee_id	char(10)
PK,FK1	survey_region	varchar(40)
PK,FK2	survey_time	date

Environmental_survey		
PK,FK1	survey_city	varchar
	diversity_of_plants	int
	diversities_of_animals	int
	Annual_CO2_emission	int
	no_of_days_with_extreme_rainfall	int

environmental_survey_info		
PK	survey_city	varchar(40)
PK,FK1	survey_region	varchar(40)
PK,FK2	survey_time	date

survey		
PK	survey_region	varchar(40)
PK	survey_time	timestamp
PK,FK1	Survey_region_population	int
	depart_code	varchar(3)

health_survey_info		
PK,FK1	survey_region	varchar(40)
PK,FK2	survey_time	date
PK	surveyee_id	char(10)

Health_survey		
PK,FK1	surveyee_id	char(10)
	Age	int
	Gender	char(1)
	Weight	int
	Height	int
	Major_disease(chronic)	varchar(80)
	Minor_disease	varchar(80)
	Smoking/Drinking	varchar(40)
	Vaccinated_with_both_doses_of_covid	varchar(40)

Admin		
PK	contact_info	decimal(8,0)

Department		
PK	dept_code	varchar(3)
	dept_name	varchar(50)
FK	NGO_contact_info	decimal(8,0)

Events		
FK	department_code	varchar(3)
PK	e_id	varchar(10)
	e_name	varchar(50)
	venue	varchar(100)
	e_date	date

Participants		
PK	participant_id	varchar(10)
	par_name	varchar(50)
	address_state	varchar(50)
	address_city	varchar(50)
	address_pin	decimal(6,0)
	registration_date	date
	contact_no	decimal(10,0)
	emergency_contact_no	decimal(10,0)

Participates_in		
PK,FK1	p_event_id	varchar(10)
PK,FK5	part_id	varchar(10)

event_mgr		
PK	m_id	varchar(10)
	m_name	varchar(50)
	contact_num	decimal(10,0)
FK	event_id	varchar(10)

Event_crew		
PK	crew_id	varchar(10)
FK	manager_id	varchar(10)
	crew_name	varchar(50)

Signup/Login		
PK	email_id	varchar(100)
	password	varchar(50)
FK	NGO_contact_info	decimal(8,0)
	usr_contact_no	decimal(10,0)
	usr_name	varchar(30)

Donors		
PK	donor_id	int
	donor_name	varchar(50)
	email_id	varchar(100)
FK	donor_contact_details	decimal(10,0)
	NGO_contact_details	decimal(8,0)
	donor_addrs_state	varchar(50)
	donor_addrs_city	varchar(50)
	donor_addrs_pin	Int
	donor_occupation	varchar(30)

Donor_interest		
PK,FK1	donor_id	int
PK	pref_interests	varchar(50)

Donation_timeline		
PK,FK1	donor_id	int
PK	donation_date	timestamp
	pref_payment_method	varchar(50)

donation_made		
PK,FK1	donor_id	int
PK	donation_date	date
	d_Amount	int

Normalisation

1) Donor

- $R\{ \text{donor_id}, \text{donor_name}, \text{donor_occupation}, \text{donor_phone_no}, \text{donation_date}, \text{donor_state}, \text{donor_city}, \text{donor_pin}, \text{donor_area_of_interest}, \text{email_id}, \text{NGO_phone_number} \}$
- Minimal FD set :
 - $\text{donor_id} \rightarrow \text{donor_name}$
 - $\text{donor_id} \rightarrow \text{email_id}$
 - $\text{donor_id} \rightarrow \text{donor_occupation}$
 - $\text{donor_id} \rightarrow \text{donor_phone_no}$
 - $\text{donor_id} \rightarrow \text{donor_state}$
 - $\text{donor_id} \rightarrow \text{donor_city}$
 - $\text{donor_id} \rightarrow \text{donor_pin}$
 - $\text{donor_id} \rightarrow \text{donor_area_of_interest}$
 - $\text{donor_id} \rightarrow \text{NGO_phone_number}$
- $\text{donor_id}^+ \rightarrow \{ \text{donor_id}, \text{donor_name}, \text{donor_occupation}, \text{donor_phone_no}, \text{donation_date}, \text{donor_state}, \text{donor_city}, \text{donor_pin}, \text{donor_area_of_interest}, \text{email_id}, \text{NGO_phone_number} \}$

Thus donor_id is the key.

- Since the left side of every functional dependency is super key, the relation is in **BCNF**.

2) Donation_timeline

- $R\{ \text{donor_id}, \text{donation_date}, \text{preferred_payment_method}, \text{donation_amount} \}$
- Minimal FD set :
 - $\{ \text{donor_id}, \text{donation_date} \} \rightarrow \text{donation_amount}$
 - $\{ \text{donor_id}, \text{donation_date} \} \rightarrow \text{preferred_payment_method}$
- $\{ \text{donor_id}, \text{donation_date} \}^+ \rightarrow \{ \text{donor_id}, \text{donation_date}, \text{preferred_payment_method}, \text{donation_amount} \}$

Thus { donor_id, donation_date } is the key.

- Since the left side of all functional dependencies is super key, the relation is in **BCNF**.

3) Signup / Login

- $R\{ \text{user_name}, \text{email_id}, \text{password}, \text{contact_no} \}$
- Minimal FD set :
 - $\text{User_name} \rightarrow \text{email_id}$
 - $\text{User_name} \rightarrow \text{password}$
 - $\text{User_name} \rightarrow \text{Contact_no}$

- $\text{User_name}^+ \rightarrow \{\text{user_name}, \text{email_id}, \text{password}, \text{contact_no}\}$

Thus user_name is the key.

- Since the left side of all functional dependencies is super key, the relation is in **BCNF**.

4) Department

- $R \{\text{Dept_code}, \text{Dept_name}, \text{NGO_contact_info}\}$
- Minimal FD set :
 - $\text{Dept_code} \rightarrow \text{Dept_name}$
 - $\text{Dept_code} \rightarrow \text{NGO_contact_info}$
- $\text{Dept_code}^+ \rightarrow \{\text{Dept_code}, \text{Dept_name}, \text{NGO_contact_info}\}$

Thus Dept_code is the key.

- Since the left side of the sole functional dependency is super key, the relation is in **BCNF**.

5) Project

- $R \{\text{Project_id}, \text{Project_name}, \text{Budget_allocated}, \text{income_source}, \text{expense_occured_so_far}, \text{start_date}, \text{end_date}, \text{dept_code}\}$
- Minimal FD set :
 - $\text{Project_id} \rightarrow \text{Project_name}$
 - $\text{Project_id} \rightarrow \text{Budget_allocated}$
 - $\text{Project_id} \rightarrow \text{income_source}$
 - $\text{Project_id} \rightarrow \text{expense_occured_so_far}$
 - $\text{Project_id} \rightarrow \text{start_date}$
 - $\text{Project_id} \rightarrow \text{end_date}$
 - $\text{Project_id} \rightarrow \text{dept_code}$
- $\text{Project_id}^+ \rightarrow \{\text{Project_id}, \text{Project_name}, \text{Budget_allocated}, \text{income_source}\}$

Thus Project_id is the key.

- Since the left side of all functional dependencies is super key, the relation is in **BCNF**.

6) Volunteers

- $R \{\text{V_id}, \text{V_name}, \text{V_contact_no}, \text{V_gender}, \text{project_id}\}$
- Minimal FD set :
 - $\text{V_id} \rightarrow \text{V_name}$
 - $\text{V_id} \rightarrow \text{V_contact_no}$
 - $\text{V_id} \rightarrow \text{V_gender}$
 - $\text{V_id} \rightarrow \text{project_id}$
- $\text{V_id}^+ \rightarrow \{\text{V_id}, \text{V_name}, \text{V_contact_no}, \text{V_gender}, \text{project_id}\}$

Thus V_id is the primary key.

- Since all the functional dependencies have super key on the left side, the relation is in **BCNF**.

7) Beneficiary

- R {beneficiary_id, beneficiary_name, beneficiary_age, beneficiary_phone_number, beneficiary_gender, beneficiary_state, beneficiary_city, beneficiary_pin, services_received}
- Minimal FD set :
 - beneficiary_id \rightarrow beneficiary_name
 - beneficiary_id \rightarrow beneficiary_gender
 - beneficiary_id \rightarrow beneficiary_age
 - beneficiary_id \rightarrow beneficiary_phone_number
 - beneficiary_id \rightarrow beneficiary_state
 - beneficiary_id \rightarrow beneficiary_city
 - beneficiary_id \rightarrow beneficiary_pin
 - beneficiary_id \rightarrow services_received
- beneficiary_id⁺ \rightarrow {beneficiary_id, beneficiary_name, beneficiary_age, beneficiary_phone_number, beneficiary_gender, beneficiary_state, beneficiary_city, beneficiary_pin, services_received}

Thus beneficiary_id is the primary key.

- Left side of all functional dependencies contain super key (beneficiary_id) only, so the relation is in **BCNF**.

8) Aids

- R {beneficiary_id, project_id}
- There are no functional dependencies in a table, the table is already in BCNF. BCNF requires that for every non-trivial functional dependency ($X \rightarrow Y$) in a relation, X must be a superkey. If there are no non-trivial functional dependencies, it implies that every attribute in the relation is functionally determined by the entire set of attributes (which is a superkey). Therefore, the relation is in **BCNF**.

9) Events

- R { Event_id, Venue, Event_name, Dept_code}
- Minimal FD set :
 - Event_id \rightarrow Event_name
 - Event_id \rightarrow Venue
 - Event_id \rightarrow Dept_code
- Event_id⁺ \rightarrow { Event_id, Venue, Event_name, Dept_code }

Thus Event_id is the key.

- Left side of all functional dependencies is super key, so the relation is in **BCNF**.

10) Event_manager

- $R \{ m_id, m_name, m_contact_no, event_id \}$
- Minimum FD set -
 - $m_id \rightarrow m_name$
 - $m_id \rightarrow m_contact_no$
 - $m_id \rightarrow event_id$
- $m_id^+ \rightarrow \{ m_id, m_name, m_contact_no, event_id \}$

Thus m_id is the key.

- Left side of all functional dependencies is super key, so the relation is in **BCNF**.

11) Event_crew

- $R \{ crew_id, manager_id, event_name \}$
- Minimum FD set -
 - $crew_id \rightarrow manager_id$
 - $crew_id \rightarrow event_name$
- $crew_id^+ \rightarrow \{ crew_id, manager_id, event_name \}$

Thus $crew_id$ is the key.

- Left side of all functional dependencies is super key, so the relation is in **BCNF**.

12) Participants

- $R \{ participant_id, participant_name, participant_state, participant_city, participant_pin, registration_date, contact_no, emergency_contact_no \}$
- Minimum FD set -
 - $participant_id \rightarrow participant_name$
 - $participant_id \rightarrow participant_state$
 - $participant_id \rightarrow participant_city$
 - $participant_id \rightarrow participant_pin$
 - $participant_id \rightarrow registration_date$
 - $participant_id \rightarrow contact_no$
 - $participant_id \rightarrow emergency_contact_no$
- $participant_id^+ \rightarrow \{ participant_id, participant_name, participant_state, participant_city, participant_pin, registration_date, contact_no, emergency_contact_no \}$

Thus $participant_id$ is the key.

- Left side of all functional dependencies is super key, so the relation is in **BCNF**.

13) Participates_in

- $R \{event_id, p_id\}$
- There are no functional dependencies in a table, the table is already in **BCNF**.

14) Survey

- $R \{survey_region, survey_time, survey_region_population, dept_code\}$
- Minimum FD set :
 - $\{survey_region, survey_time\} \rightarrow survey_region_population$
- $\{survey_region, survey_time, dept_code\}^+ \rightarrow \{survey_region, survey_time, survey_region_population, dept_code\}$

Thus $\{survey_region, survey_time, dept_code\}$ is the key.

- The relation is in **1NF** since all higher normal forms fail.

15) Economical_survey

- $R \{surveyee_id, age, gender, occupation, average_monthly_income, average_monthly_expense, wages/salaried\}$
- Minimum FD set :
 - $Surveyee_id \rightarrow age$
 - $Surveyee_id \rightarrow gender$
 - $Surveyee_id \rightarrow occupation$
 - $Surveyee_id \rightarrow average_monthly_income$
 - $Surveyee_id \rightarrow average_monthly_expense$
 - $Surveyee_id \rightarrow wages/salaried$
- $Surveyee_id^+ \rightarrow \{Surveyee_id, age, gender, occupation, average_monthly_income, average_monthly_expense, wages/salaried\}$

Thus $surveyee_id$ is the key.

- Since all functional dependencies have the key on the left side, the relation is in **BCNF**.

16) Economical_survey_info

- $R \{surveyee_id, survey_region, survey_time\}$
- There are no functional dependencies in a table, the table is already in **BCNF**.

17) Educational survey

- $R \{surveyee_id, occupation, salary/part_time_income, highest_qualification, read_a_language, write_a_language\}$

- Minimal FD set :
 - surveyee_id → occupation
 - surveyee_id → salary/part_time_income
 - surveyee_id → highest_qualification
 - surveyee_id → read_a_language
 - surveyee_id → write_a_language'
- surveyee_id* → {surveyee_id, occupation, salary/part_time_income, highest_qualification, read_a_language, write_a_language }

Thus surveyee_id is the key.

- Since the left side of all functional dependencies is the primary key, the relation is in **BCNF**.

18) Educational_survey_info

- R {surveyee_id, survey_region, survey_time}
- There are no functional dependencies in a table, the table is already in **BCNF**.

19) Environmental_survey

- R {survey_city, diversity_of_plants, diversity_of_animals, annual_CO2_emission, no_of_days_with_extreme_rainfall}
- Minimal FD set :
 - Survey_city → diversity_of_plants
 - Survey_city → diversity_of_animals
 - Survey_city → annual_CO2_emission
 - Survey_city → no_of_days_with_extreme_rainfall
- Survey_city* → {survey_city, diversity_of_plants, diversity_of_animals, annual_CO2_emission, no_of_days_with_extreme_rainfall}

Thus survey_city is the key.

- Since the left side of all functional dependencies is the key, the relation is in **BCNF**.

20) Environmental_survey_info

- R {survey_city, survey_region, survey_time}
- There are no functional dependencies in a table, the table is already in **BCNF**.

21) Health_survey

- R {surveyee_id, age, gender, weight, height, major_disease(chronic), minor_disease, smoking/drinking, vaccinated_with_both_doses_of_COVID}
- Minimal FD set :
 - Surveyee_id → age
 - Surveyee_id → gender
 - Surveyee_id → weight

- Surveyee_id → height
- Surveyee_id → major_disease(chronic)
- Surveyee_id → minor_disease
- Surveyee_id → smoking/drinking
- Surveyee_id → vaccinated_with_both_doses_of_COVID
- Surveyee_id⁺ → {surveyee_id, age, gender, weight, height, major_disease(chronic), minor_disease, smoking/drinking, vaccinated_with_both_doses_of_COVID}

Thus surveyee_id is the key.

- Since the left side of all functional dependencies is key, the relation is in **BCNF**.

22) Health_survey_info

- R {surveyee_id, survey_region, survey_time}
- There are no functional dependencies in a table, the table is already in **BCNF**.