

Lab 9 & 10: Database Management System

Normalization and Schema Refinement

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Functional Dependencies:

match(mid, team_id1, team_id2, m_status, stadium_id, result)

$\text{mid} \rightarrow \{\text{team_id1}, \text{team_id2}, \text{m_status}, \text{stadium_id}, \text{result}\}$

match relation is in **BCNF** form since the attributes to the left of all function dependencies are **Candidate keys** i.e. **mid**.

match_examine(m_id, um_id)

Match_examine relation is in **BCNF** form since the attributes to the left of all function dependencies are **Candidate key** i.e. {m_id, um_id}.

match_stock(m_id, eq_id, q_used)

$\{\text{m_id}, \text{eq_id}\} \rightarrow \text{q_used}$

Match_stock relation is in **BCNF** form since the attributes to the left of all function dependencies are **Candidate key** i.e. {m_id, eq_id}.

Player(pid, pname, jersey_no, p_rating, isbatsman, isbowler, isallrounder, iswicketkeeper, match_played, innings_played, wickets, bat_run, total_six, total_four, fifty, hundred, team_id, highest_score, ball_run, balls)

$\text{pid} \rightarrow \{\text{pname}, \text{jersey_no}, \text{p_rating}, \text{isbatsman}, \text{isbowler}, \text{isallrounder}, \text{iswicketkeeper}, \text{match_played}, \text{innings_played}, \text{wickets}, \text{bat_run}, \text{total_six}, \text{total_four}, \text{fifty}, \text{hundred}, \text{team_id}, \text{highest_score}, \text{ball_run}, \text{balls}\}$

player relation is in **BCNF** form since the attributes to the left of all function dependencies are **Candidate key** i.e. pid.

schedule (s_id,s_date,s_time,mid)

$s_id \rightarrow \{s_date,s_time,s_mid\}$

schedule relation is in **BCNF** form since the attributes to the left of all function dependencies are **Candidate key** i.e. s_id.

scoreboard(striker,non_striker,bowler,innings,wickets,total_run,batsman_run,extra_run,over,
ball , match_id)

$\{match_id,innings,over,ball\} \rightarrow \{striker,non_striker,bowler,wickets,total_run,batsman_run,extra_run\}$

scoreboard relation is in **BCNF** form since the attributes to the left of all function dependencies are **Candidate key** i.e. {match_id,innings,over,ball}.

stadium (std_id,name,city,country,capacity,area)

$std_id \rightarrow \{name,city,country,capacity,area\}$

stadium relation is in **BCNF** form since the attributes to the left of all function dependencies are **Candidate key** i.e. std_id.

Here city won't determine the country as two or more country can have the city with the same name .

stock (eq_id,eq_name,eq_qty)

$eq_id \rightarrow \{eq_name,eq_qty\}$

stock relation is in **BCNF** form since the attributes to the left of all function dependencies are **Candidate key** i.e. eq_id.

team (team_id,team_name,team_country,team_captain,team_coach)

$\text{team_id} \rightarrow \{ \text{team_name}, \text{team_country}, \text{team_captain}, \text{team_coach} \}$

team relation is in **BCNF** form since the attributes to the left of all function dependencies are **Candidate key** i.e. team_id.

umpire(u_id,u_name,u_exp,u_dob,country)

$\text{u_id} \rightarrow \{ \text{u_name}, \text{u_exp}, \text{u_dob}, \text{u_country} \}$

umpire relation is in **BCNF** form since the attributes to the left of all function dependencies are **Candidate key** i.e. u_id.

weather (w_date,w_forecast,mid)

$\text{w_date} \rightarrow \{ \text{w_forecast}, \text{mid} \}$

weather relation is in **BCNF** form since the attributes to the left of all function dependencies are **Candidate key** i.e. w_date..