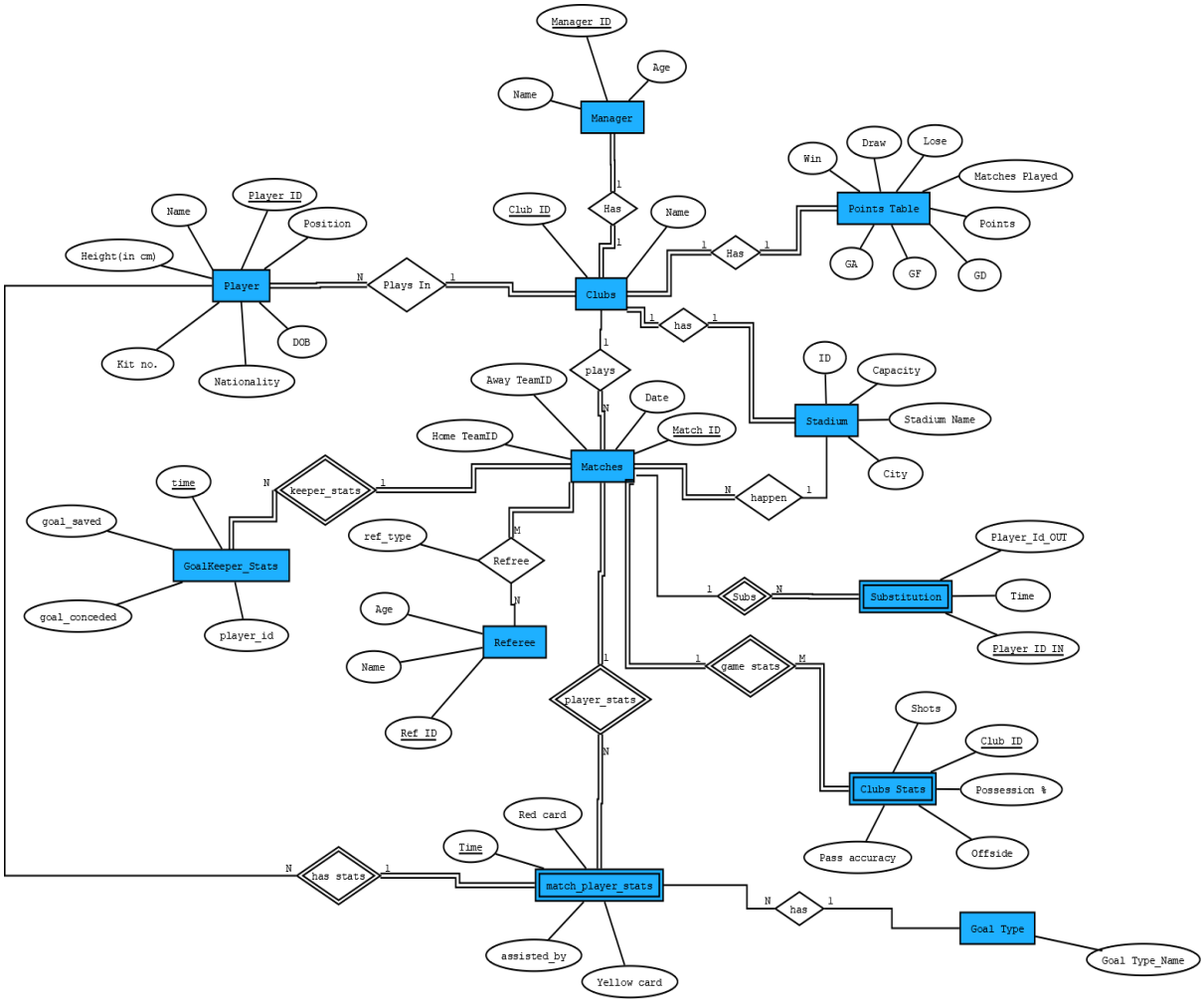
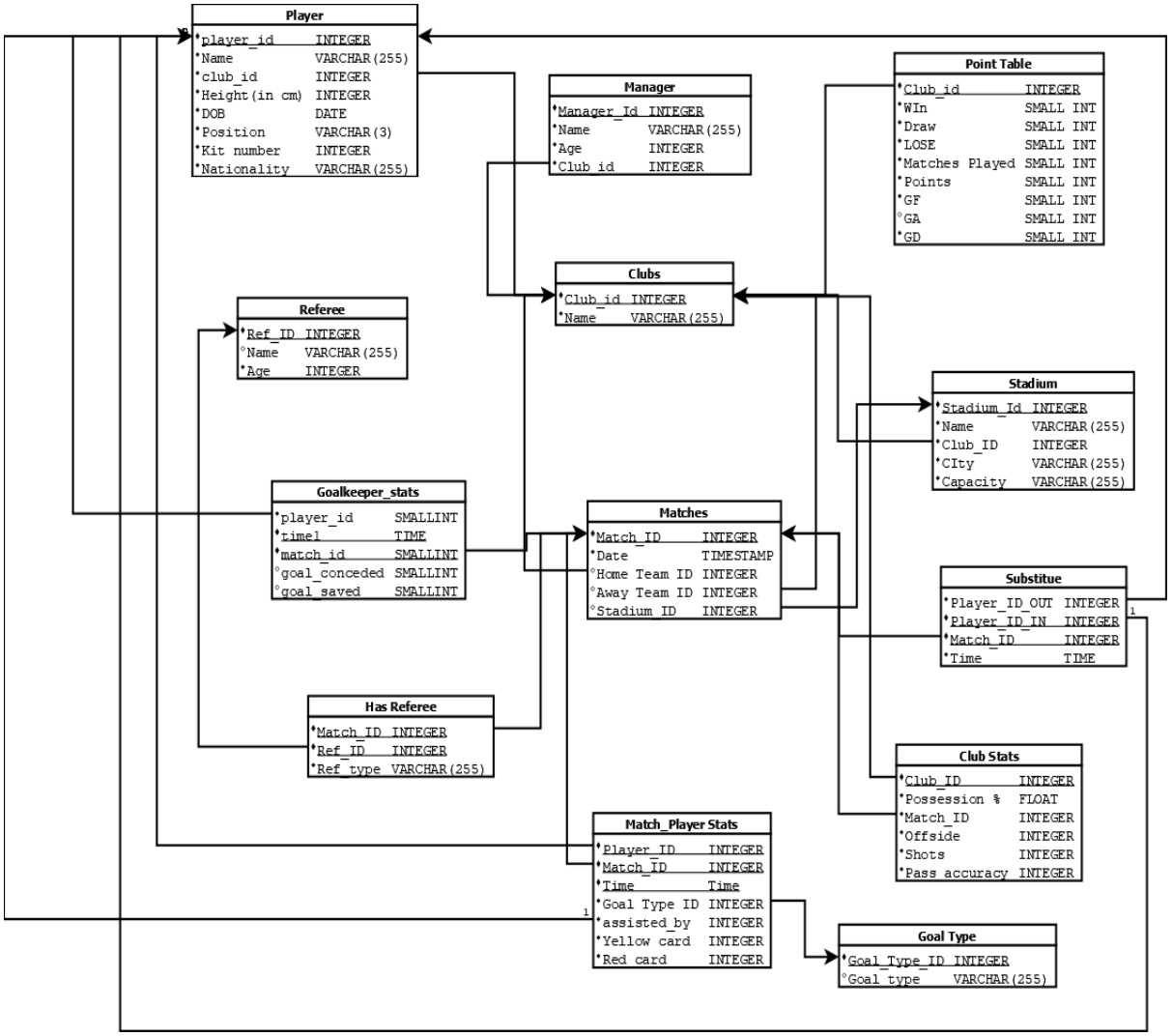
Group ID 1.03

1) ERD



2)Relation Schema



3 Functional Dependencies and Noramlization proof

Functional Dependencies

(match_id,player_id_in) -> time

(match_id,player_id_in) -> player_id_out

(club_id,match_id) -> possession %

(club_id,match_id) -> offsides

(club_id,match_id) -> shots

(club_id,match_id) -> pass accuracy

(club_id,match_id) -> red_card

(player_id,match_id,time) -> goal_type_id

(player_id,match_id,time) -> assisted_by

(player_id,match_id,time) -> yellow_card

(player_id,match_id,time) -> red_card

club_id -> stadium_id

stadium_id -> club_id

club_id -> manager_id

manager_id -> name

manager_id -> age

goal_type_id -> goal_type

club_id ->club_name

player_id -> club_id

player_id->name

player_id -> height

player_id -> dob

player_id -> position

player_id-> kit number

player_id -> nationality

club_id -> win

club_id -> draw

club_id -> loss

club_id -> matches_played club_id -> match points

club_id -> GF

club_id -> GA

club_id -> GD stadium_id -> name stadium_id -> city stadium_id -> capacity

match_id -> date

match_id -> home_team_id match_id -> away_team_id match_id -> ref_id

ref_id -> name

ref_id -> age

(player_id,match_id)->goal_conceded

(player_id,match_id)->goal_saved

Justification for BCNF

clubs

club_id -> club_name

Candidate-Key = {club_id}

Hence the relation is in BCNF.

manager

club_id -> manager_id

manager_id -> age

manager_id -> name

manager_id -> club_id

Candidate-Key = {club_id,manager_id}

Hence the relation is in BCNF.

player

player_id -> club_id

player_id -> name

player_id -> height player_id -> dob

player_id -> position player_id -> kit number player_id -> nationality

key = {player_id}

The relation is in BCNF

points table

club_id -> win

club_id -> draw

club_id -> loss

club_id -> matches_played club_id -> match points club_id -> GF

club_id -> GA

club_id -> GD

key = {club_id}

So the relation is in BCNF

stadium

stadium_id -> name stadium_id -> city

stadium_id -> capacity

key = {stadium_id}

Relation is in BCNF.

matches

match_id -> date

match_id -> home_team_id match_id -> away_team_id match_id -> ref_id

key = {match_id}

Relation is in BCNF.

referee

ref_id -> name

ref_id -> age

key = {ref_id}

Relation is in BCNF.

substitute

(match_id,player_id_in) -> time

(match_id,player_id_in) -> player_id_out

key = {match_id,player_id_in}

Relation is in BCNF

club_stats

(club_id,match_id) -> shots

(club_id,match_id) -> offside

(club_id,match_id) -> pass accuracy

(club_id,match_id) -> possession %

key = {club_id,match_id}

Relation is in BCNF

goalkeeper_stats

(match_id,time) -> goal_conceded

(match_id,time) -> goal_saved

key = {match_id,time}

Relation is in BCNF

goal_type

goal_type_id -> goal_type

Key = {goal_type_id}

Relation is in BCNF

Match_player_stats

(player_id,match_id,time)->goal_type_id

(player_id,match_id,time)->assisted_by

(player_id,match_id,time)->yellow_card

(player_id,match_id,time)->red_card

Key = {player_id,match_id,time}

Relation is in BCNF

has ref

(match_id,ref_id) -> ref_type

Key = {match_id,ref_id}

Relation is in BCNF