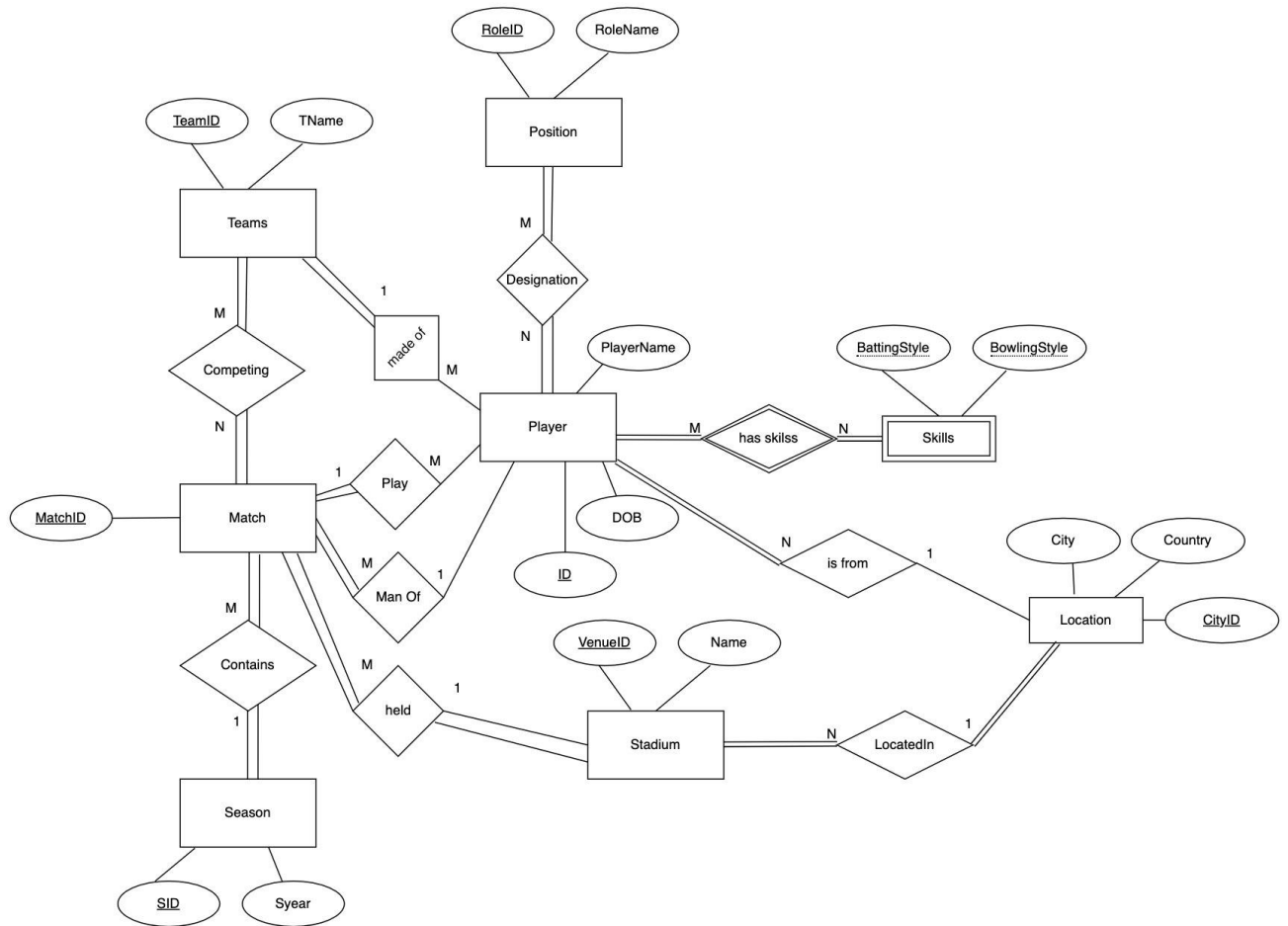University of Manitoba

COMP 3380

Database Concepts and Usage

Part 1.2

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Group Number: 26

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ER DIAGRAM

RELATIONAL MODEL

Pre-Merge:

- Player(<u>ID</u>, Name, DoB)
- Teams(<u>TeamID</u>, TName)
- Match(<u>MatchID</u>)
- Season(<u>SID</u>, Syear)
- Position(<u>RoleID,</u> RoleName)
- Stadium(<u>VenueID</u>, VName)
- Skills(<u>ID, BattingStyle, BowlingStyle</u>) where Foreign Key ID reference Player on Delete Cascade
- Location(<u>CityID</u>, City, Country)

- Competing(<u>TeamID, MatchID</u>) where Foreign Key TeamID reference Teams and Foreign Key MatchID reference Match
- Contains(<u>MatchID</u>, SID) where Foreign Key MatchID reference Match and Foreign Key SID reference Season
- Mode of(<u>ID</u>, TeamID) where Foreign Key TeamID reference Teams and Foreign Key ID reference Player
- Plays(<u>ID</u>, MatchID) where Foreign Key ID reference Player and Foreign Key MatchID reference Match
- Man of Match(<u>MatchID</u>, ID) where Foreign Key ID reference Player and Foreign Key MatchID reference Match
- held(<u>MatchID</u>, VenueID) where Foreign Key MatchID reference Match and Foreign Key VenueID reference Stadium
- Designation(<u>ID, RoleID</u>) where Foreign Key ID reference Player and Foreign Key RoleID reference Position
- Is from(<u>ID</u>, CityID) where Foreign Key ID reference Player and Foreign Key CityID reference Location
- Located in(<u>VenueID</u>, CityID)where Foreign Key VenueID reference Stadium and Foreign Key CityID reference Location

Post Merge:

- Player(<u>ID</u>, Name, DoB, TeamID, MatchID, CityID) where Foreign Key TeamID reference Teams and Foreign Key MatchID reference Match and Foreign Key CityID reference Location
- Teams(<u>TeamID</u>, TName)
- Match(<u>MatchID,</u> SID, ID, VenueID) where Foreign Key SID reference Season and Foreign Key ID reference Player and Foreign Key VenueID reference Stadium
- Season(<u>SID</u>, Syear)

- Position(<u>RoleID,</u> RoleName)
- Stadium(<u>VenueID</u>, VName, CityID) where Foreign Key CityID reference Location
- Skills(<u>ID, BattingStyle, BowlingStyle</u>) where Foreign Key ID reference Player on Delete Cascade
- Location(<u>CityID</u>, City, Country)

- Competing(<u>TeamID, MatchID</u>) where Foreign Key TeamID reference Teams and Foreign Key MatchID reference Match
- Designation(<u>ID, RoleID</u>) where Foreign Key ID reference Player and Foreign Key RoleID reference Position

NORMALIZED MODEL

- Teams (<u>TeamID</u>, TName)
  This relation is already normalized to BCNF form.

- Season (<u>SID</u>, Syear)
  This relation is already normalized to BCNF form.

- Position (<u>RoleID,</u> RoleName)
  This relation is already normalized to BCNF form.

- Competing (<u>TeamID, MatchID</u>)
  This relation is already normalized to BCNF form.

- Designation (<u>ID, RoleID</u>)
  This relation is already normalized to BCNF form.

- Location (<u>CityID,</u> City, Country)
  FD's:
  CityID -> City
  City -> CityID
  CityID -> CountryID

  Candidate key: CityID or City

  BCNF:
  Location (<u>CityID,</u> City, Country)

- Skills (<u>ID, BattingStyle, BowlingStyle</u>)
  FD's:
  ID -> BattingStyle
  ID -> BowlingStyle

  Candidate key: ID

  BCNF:
  Skills (<u>ID, BattingStyle, BowlingStyle</u>)

- Stadium (<u>VenueID</u>, VName, CityID)
  FD's:

VenueID -> CityID

VenueID -> VenueName

VenueName -> VenueID

VenueName -> CityID

Candidate key: VenueID or VenueName

BCNF:

Stadium (<u>VenueID</u>, VName, CityID)

- Match (<u>MatchID,</u> SID, ID, VenueID)
  FD's:
  MatchID -> SID
  MatchID -> VenueID

  Candidate key: (MatchID and ID)

  BCNF:
  Match (<u>MatchID</u>, SID, VenueID)

  R1(MatchID, ID)

- Player (<u>ID</u>, PlayerName, DOB, TeamID, MatchID, CityID)
  FD's:
  ID -> PlayerName
  ID -> TeamID
  PlayerName -> DOB
  MatchID -> CityID

  Candidate key: (MatchID and ID)

  BCNF:
  Player (<u>MatchID</u>, <u>ID</u>)
  TeamInfo(ID, TeamID, PlayerName)
  PlayerInfo(PlayerName, DOB)
  MatchInfo(MatchID, CityID)

FINAL NORMALIZED TABLE

Competing(<u>TeamID, MatchID</u>)
Designation (<u>ID, RoleID</u>)
Location (<u>CityID</u>, CityName, Country)
Match (<u>MatchID</u>, SID, VenueID)
MatchInfo (<u>MatchID</u>, CityID)
Player (<u>MatchID, ID</u>)
PlayerInfo (<u>PlayerName, DOB</u>)
PlayerMatch (<u>MatchID, ID</u>)
Position (<u>RoleID</u>, RoleName)
Season (<u>SID</u>, Syear)
Skills (<u>ID, BattingStyle, BowlingStyle</u>)
Stadium (<u>VenueID</u>, VName, CityID)
Team (<u>TeamID</u>, TeamName)
TeamInfo (<u>ID</u>, TeamID, PlayerName)