

System Description

The aim of this system is to keep information of all the cricket players and clubs of Bangladesh. There are many cricket clubs in Bangladesh. A club has many players. A player registers to a club for a certain period of time with a start date and end date and signs a contract with the club. In the **contract** a total fee and a schedule of payment is mentioned. In the payment schedule, there is a payment id which is unique for a schedule of the player. Other information for the payment is schedule date, amount and actual payment date. The sum of the total payment of the schedule cannot be more or less than the fee mentioned in the contract. A player's **profile** must be stored in the database as follows

Name, father's name, mother's name, educational qualifications (degree name, department/ institute, Board/ University, Year), previous clubs where he played for (club id, start date, end date, total runs, total wickets), international events (event id, location, performance details etc. (Here student can add attributes of importance to describe the performance details of the player.) To enroll to any club, the player needs to fill up a **registration** for as per Attachment 1. After submission of the registration form, if the club decides to hire the player for the club, a contract is signed as per Attachment 2. A new **club** is registered after submission of information as per Attachment 3.

Bangladesh Cricket Control Board (BCCB) organizes different types of events. **An event** has an event id, location, start date, end date. In an event, there are many matches in different times in different venues. Many matches can be organized in a venue in different times but a match must be organized in a single venue. Every match has a match id, date, team-batting-first, team-bowling-first. You have to keep the performance of every player of every match according to the form as per Attachment 4.

The club forms **teams** to participate to different events organized by BCCB in different times. Among the players, a team leader is selected. Different teams of the

club can have different team leader. A team has a team id, date of formation and team leader. A team must be form with a maximum of 15 players. A player can play many teams in different times. A team is formed for exactly one event. In the event, a team participates in many matches.

➤ Task 1:

You have to design the ERD for the above requirements, transform the ERD into relational schema and write DDL to create all required tables to support the requirements above and store all information including the attachments into the database.

➤ Task 2:

You have to provide all the lists as per Attachment 6.

➤ Task 3:

You have to implement the following integrity constraints for your system.

1. A player cannot enroll into two clubs simultaneously.
2. A team cannot be formed more than 15 players.
3. In the payment schedule, the sum of the total payment of the schedule cannot be more or less than the fee mentioned in the contract.
4. Age of a player cannot be more than 35 years.
5. A match cannot be held in between more than two teams.

Player Registration Form

First Name: _____ Middle Name _____ Last Name _____

Father' s Name _____ Mother' s Name _____

Present Address

House No. _____ Location _____ Village/Street _____

Thana _____ District _____ Post code _____

Permanent Address

House No. _____ Location _____ Village/Street _____

Thana _____ District _____ Post code _____

Date of Birth _____ (DD-MM-YYYY)

Previous History

Club Name	From	To	Total Runs	Total Wickets	Team leader (Y/N)

Best Performance

Club Name	Opponent club name	Event Id	Match Id	Runs	Wickets

Educational Qualifications

Name of degree	Institute/Department	Board/University	Year	Result

Membership

- ☐ ICCB
- ☐ BCCB
- ☐ ACCB
- ☐ Others

If others, Name of the organization _____

Signature of the Player: _____

Date: _____

Contract Form

Club Id _____ Club Name _____

First Party

Name of the Player

First Name: _____ Middle Name _____ Last Name _____

Player Id _____

Second Party

Authorized Person

First Name: _____ Middle Name _____ Last Name _____

Designation _____

Contract Period

Start Date _____ (DD-MM-YYYY) End Date _____ (DD-MM-YYYY)

Contract Amount _____

Payment Schedule

Serial Number	Due date	Payment date	Amount

Contract witness 1: _____

Contract witness 2: _____

Club Registration Form

Name of the club _____

Date of Establishment _____ (DD/MM/YYYY)

Address

House No. _____ Location _____ Village/Street _____

Thana _____ District _____ Post code _____

Name of the President _____

Players Performance in Match Form

Player will choose from the following. Multiple options can be chosen.

- ☐ Batting
- ☐ Bowling
- ☐ Fielding

If Batting is chosen>>>

Match id _____ Venue Id _____ Date of the Match _____ (DDMMYYYY)

Player id _____

Batting Strike-Rate	Batting Aggregate	% of Total Team Runs Scored	Boundary Strike-Rate	Activity rate

- **Batting Strike-Rate** – runs scored divided by balls faced, adjusted to ensure incremental gain for the highest strike-rates
- **Batting Aggregate** – based on batting average across all innings
- **% of Total Team Runs Scored** – runs scored by the batter as a % of the total runs scored in all games in which he played; contributes to normalising the effect of the pitch or conditions.
- **Boundary Strike-Rate** – the percentage of balls faced hit for 4 or 6
- **Activity rate** – the percentage of balls faced where at least one run is scored

If Bowling is chosen>>>

Match id _____ Venue Id _____ Date of the Match _____ (DDMMYYYY)

Player id _____

Economy Rate	Indexed Economy Rate	Bowling Aggregate	Wickets as a % of possible maximum	% sixes conceded	Dot Ball %

- Economy Rate – runs conceded divided by overs bowled. This is also split by the stage of the innings (Powerplay, Middle Overs and Death Overs) to allow for varied expected values.
- Indexed Economy Rate – measures a player' s economy rate vs the average economy rate in matches played (again dependent on the stages of match in which the overs are bowled). A better economy rate than average scores positive points, a worse economy rate than average will score negative points. Contributes to normalising the effect of the conditions.
- Bowling Aggregate – based on wickets taken vs balls bowled and runs conceded
- Wickets as a % of possible maximum – wickets taken as a percentage of the total possible in all matches bowled (i.e. matches bowled x 10 wickets)
- % sixes conceded – the percentage of balls bowled which are hit for six (negative metric)
- Dot Ball % – the percentage of balls bowled where no run is scored

If Fielding is chosen>>>

Match id _____ Venue Id _____ Date of the Match _____ (DDMMYYYY)

Player id _____

Fielding Dismissals per Match	Byes conceded

- Fielding Dismissals per Match – successful Catches, Run Outs and Stumpings all contribute to a player' s points
- Byes conceded – Wicket Keepers only; measured vs the overall average

IF MULTIPLE RADIO BUTTONS ARE SELECTED, MULTIPLE FORMS WILL APPEAR