American International University-Bangladesh

Faculty of Science & Technology (CSE)

Introduction to Database

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Section: F, Group: 08

Football Ground Management System

Supervised by

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Table of contents

INTRODUCTION

In the world of sports, managing football grounds efficiently is essential to provide a great experience for both players and fans. A Football Ground Management System is a software tool designed to help stadiums and organizations oversee various aspects of their operations, such as scheduling matches, selling tickets, managing staff, and ensuring the safety and enjoyment of spectators.

This system streamlines processes and improves communication between different stakeholders involved in running a football ground. By digitizing tasks like ticket sales, audience management, and match scheduling, the system enhances efficiency and reduces the likelihood of errors or oversights.

Overall, the Football Ground Management System plays a vital role in ensuring that football stadiums run smoothly, allowing everyone involved to focus on what matters most: enjoying the beautiful game of football.

CASE STUDY

In the Football Stadium Management System all the necessary information will be stored in a database. From the database we can access and manage the necessary information to manage a football ground. For a football ground management system there must be a stadium which can be identified by its name. stadium will also have stadium ID, location, capacity, owner and contact information. A stadium can have many audiences who can be identified by their serial number. The audience will also have name, seat number, age and contact information stored in the database. To manage a stadium there must be at least one admin. Admin information will be stored in the database as administration. Admin will have an unique ID, and also have a name, position, address, contact info and joining date. For a stadium there will be at least one admin. An admin can hire many stuffs all the information of the staff will be stored staff information. Staff can be identified by their ID. The database will also store stuff name, hire date, status, salary and contact information. Staff can sell zero to many tickets. Tickets can be identified by their serial number. the database will also store sit number, status, price, purchase date, match name and time information on of a ticket. An audience must buy a ticket to watch a game. The database will also store the information of the teams every team who can be identified by their team ID the database will also store team name, country, coach and home stadium. Every team will have many players. Players can be identified by their international ranking. The players will also have name, jersey number, nationality, position, date of birth and team name. A team must play a match. A match will have a match number which is unique. It will also have a name, tournament, date and time stored in the database.

ENTITY – RELATIONSHIP DIAGRAM
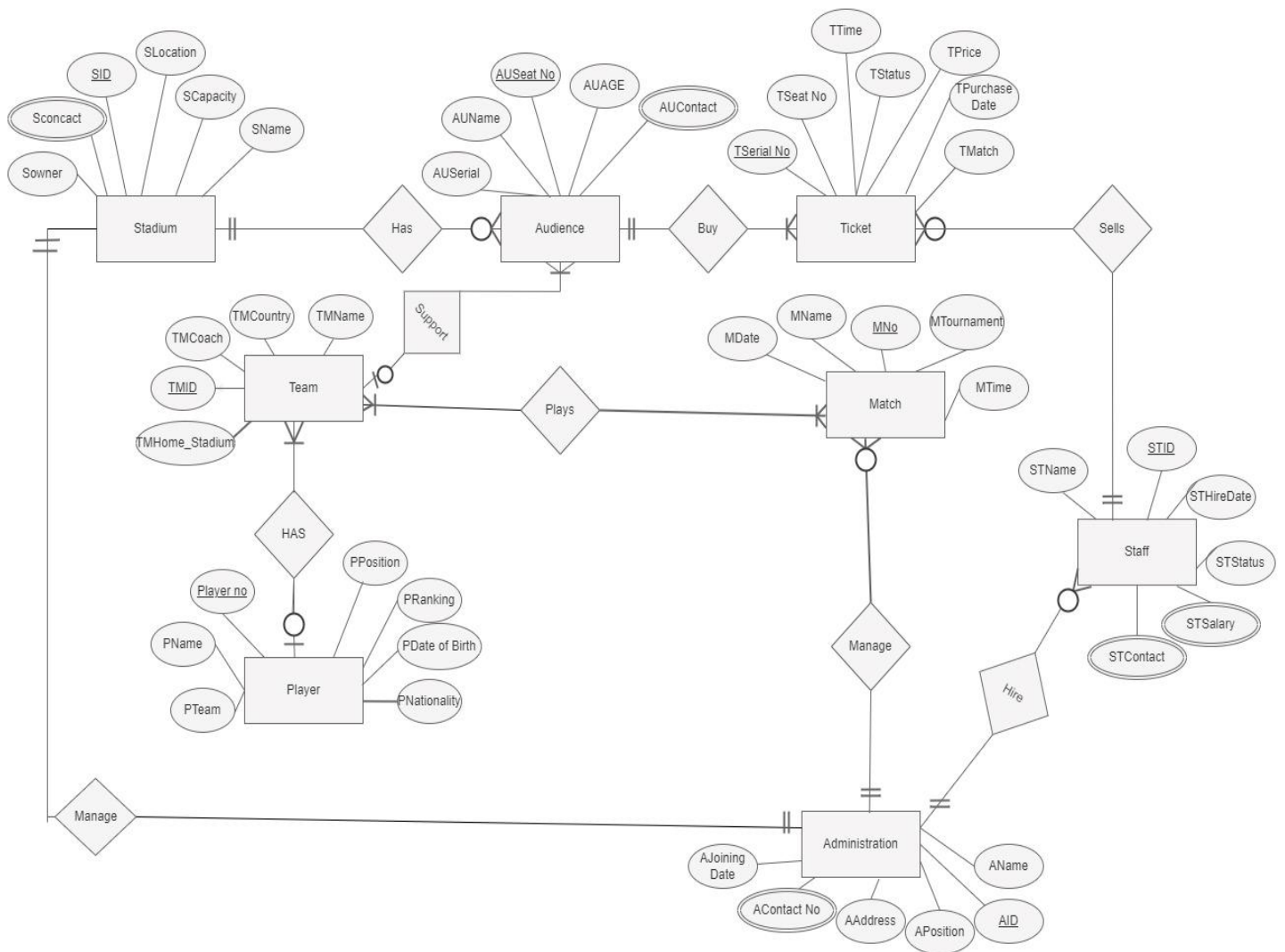
NORMALIZATION

Sells (<u>STID</u>, STName, STHireDate, STStatus, STsalary, STcontact, <u>TSerial No</u>, TSeat_No, TTime, TStatus, TTPrice, TPurchase_Dale, TMatch)

1NF: STSalary, STcontact are multivalued attributes

2NF: <u>STID</u>, STName, STHireDate, STStatus, STSalary, STcontact
<u>TSerial No</u>, TSeat No, TTime, TStatus, TPrice, TPurchase_Date, TMatch, STID

3NF: <u>STID</u>, STName , STHireDate, STStatus, STSalary, STcontact
<u>TSerial No</u>, TSeat No, TTime, TStatus, TPrice, TPurchase_Date, TMatch, STID

No transitive dependency

Table:

<u>STID</u>, STName, STHireDate, STStatus, STSalary, STcontact
<u>TSerial No</u>, TSeat No, TTime, TStatus, TPrice, TPurchase_Date, TMatch, STID

HIRE (<u>AID</u>, AName, APosition, AAddress, Acontact_No, AJoining Date,
<u>STID</u>, STName, STHireDate, STStatus, STSalary, STcontact)

1NF: Acontact_No, STContact, STSalary are multivalued attributes

2NF: <u>AID</u>, AName, APosition, AAddress, Acontact_No, AJoining Date
<u>STID</u>, STName, STHireDate, STStatus, STSalary, STcontact, AID

3NF: <u>AID</u>, AName, APosition, AAddress, Acontact_No, AJoining Date
<u>STID</u>, STName, STHireDate, STStatus, STSalary, STcontact, AID

No transitive dependency

Table:
<u>AID</u>, AName, APosition, AAddress, Acontact_No, AJoining Date
<u>STID</u>, STName, STHireDate, STStatus, STSalary, STcontact, AID

HAS (<u>Player no</u>, PName, PTeam, PPosition, PRanking, PDate_of_birth, PNationality, <u>TMID</u>, TMCoach, TMHome_Stadium, TMCountry, TMName)

1NF: NO multivalued attribute

2NF: <u>Player_no</u>, PName, PTeam, PPosition, PRanking, PDate_of_birth, PNationality
<u>TMID</u>, TMCoach, TMHome_Stadium, TMCountry, TMName, Player_no

3NF: <u>Player_no</u>, PName, PTeam, PPosition, PRanking, PDate_of_birth, PNationality
<u>TMID</u>, TMCoach, TMHome_Stadium, TMCountry, TMName, Player_no
 No transitive dependency

Table:
<u>Player_no</u>, PName, PTeam, PPosition, PRanking, PDate_of_birth, PNationality
<u>TMID</u>, TMCoach, TMHome_Stadium, TMCountry, TMName, Player_no

SUPPORT(<u>TMID</u>, TMName, TMCoach, TMHome_stadium, TMcountry, <u>AUSeal No</u>, AUName, AUSerial, AUAGE, AUContact)

1NF: AUContact is a multivalued attribute

2NF: <u>TMID</u>, TMName, TMCoach, TMHome_stadium, TMcountry
<u>AUSeal No</u>, AUName, AUSerial, AUAGE, AUContact, TMID

3NF: <u>TMID</u>, TMName, TMCoach, TMHome_stadium, TMcountry
<u>AUSeal No</u>, AUName, AUSerial, AUAGE, AUContact, TMID

No transitive dependency

Table:
<u>TMID</u>, TMName, TMCoach, TMHome_stadium, TMcountry
<u>AUSeal No</u>, AUName, AUSerial, AUAGE, AUContact, TMID

PLAYS (<u>TMID</u>, TMName, TMCoach, TMHome_stadium, TMcountry, <u>MNO</u>, MName, MDate, MTime, MTournament)

1NF: No multivalued attribute

2NF: <u>TMID</u>, TMName, TMCoach, TMHome_stadium, TMcountry
<u>MNO</u>, MName, MDate, MTime, MTournament
<u>MTMID</u>, TMID, MNo

3NF: <u>TMID</u>, TMName, TMCoach, TMHome_stadium, TMcountry
<u>MNO</u>, MName, MDate, MTime, MTournament
<u>MTMID</u>, TMID, MNo

 No transitive dependency

Table:

<u>TMID</u>, TMName, TMCoach, TMHome_stadium, TMcountry
<u>MNO</u>, MName, MDate, MTime, MTournament
<u>MTMID</u>, TMID, MNo

MANAGE (<u>AID</u>, AName, APosition, AAddress, AContact_No, AJoining_date, <u>MNo</u>, MName, MDate, MTournament, MTime)

1NF: AContact is a multivalued attribute.

2NF: <u>AID</u>, AName, APosition, AAddress, AContact_No, AJoining_date
<u>MNo</u>, MName, MDate, MTournament, MTime , AID

3NF: <u>AID</u>, AName, APosition, AAddress, AContact_No, AJoining_date
<u>MNo</u>, MName, MDate, MTournament, MTime , AID

No transitive dependency

TABLE:
<u>AID</u>, AName, APosition, AAddress, AContact_No, AJoining_date
<u>MNo</u>, MName, MDate, MTournament, MTime, AID

MANAGE (<u>AID</u>, AName, APosition, AAddress, AContact_No, AJoining_date, <u>SID</u>, SOwner, SName, SCapacity, SLocation, SContact)

1NF: AContact_No , SContact are multivalued attributes.

2NF: <u>AID</u>, AName, APosition, AAddress, AContact_No, AJoining_date
<u>SID</u>, SOwner, SName, SCapacity, SLocation, SContact, AID

3NF: <u>AID</u>, AName, APosition, AAddress, AContact_No, AJoining_date
<u>SID</u>, SOwner, SName, SCapacity, SLocation, SContact, AID
No transitive dependency

TABLE:
<u>AID</u>, AName, APosition, AAddress, AContact_No, AJoining_date
<u>SID</u>, SOwner, SName, SCapacity, SLocation, SContact, AID

HAS (<u>SID</u>, SOwner, SContact , SLocation ,SCapacity, SName ,
<u>AUSeat_no</u> ,AUSerial, AUName ,AUAage ,AUContact)

1F: SContact and AUContact are multivalued attributes.

2F: <u>SID</u>, SOwner, SContact , SLocation ,SCapacity, SName
<u>AUSeat_no</u> ,AUSerial, AUName ,AUAage ,AUContact, SID

3F: <u>SID</u>, SOwner, SContact , SLocation ,SCapacity, SName
<u>AUSeat_no</u> ,AUSerial, AUName ,AUAage ,AUContact, SID

No Transitive dependency

Table:
<u>SID</u>, SOwner, SContact , SLocation ,SCapacity, SName
<u>AUSeat_no</u> ,AUSerial, AUName ,AUAage ,AUContact, SID

BUY(<u>AUSeat_no</u> ,AUSerial, AUName ,AUAage ,AUContact ,
<u>Tseat no</u> , TTime, TStatus , TPrice, TPurchase_Date, TMatch)

1F: AUContact multivalued attributes

2F: <u>AUSeat_no</u> ,AUSerial, AUName ,AUAage ,AUContact
<u>Tseat no</u> , TTime, TStatus , TPrice, TPurchase_Date, TMatch, AUSeat no

3F: <u>AUSeat_no</u> ,AUSerial, AUName ,AUAage ,AUContact
<u>Tseat no</u> , TTime, TStatus , TPrice, TPurchase_Date, TMatch, AUSeat no

No Transitive dependency

Table:
<u>AUSeat_no</u> ,AUSerial, AUName ,AUAage ,AUContact
<u>Tseat no</u> , TTime, TStatus , TPrice, TPurchase_Date, TMatch, AUSeat no

TOTAL TABLE

1. <u>STID</u>, STName, STHireDate, STStatus, STSalary, STcontact **X**
2. <u>TSerial No</u>, TSeat No, TTime, TStatus, TPrice, TPurchase_Date, TMatch, STID ✓
3. <u>AID</u>, AName, APosition, AAddress, Acontact_No, AJoining Date ✓
4. <u>STID</u>, STName, STHireDate, STStatus, STSalary, STcontact, AID ✓
5. <u>Player_no</u>, PName, PTeam, PPosition, PRanking, PDate_of_birth, PNationality ✓
6. <u>TMID</u>, TMCoach, TMHome_Stadium, TMCountry, TMName, Player_no ✓
7. <u>TMID</u>, TMName, TMCoach, TMHome_stadium, TMcountry **X**
8. <u>AUSeat No</u>, AUName, AUSerial, AUAGE, AUContact, TMID ✓
9. <u>TMID</u>, TMName, TMCoach, TMHome_stadium, TMcountry **X**
10. <u>MNO</u>, MName, MDate, MTime, MTournament **X**
11. <u>MTMID</u>, TMID, MNo ✓
12. <u>AID</u>, AName, APosition, AAddress, AContact_No, AJoining_date **X**
13. <u>MNo</u>, MName, MDate, MTournament, MTime, AID ✓
14. <u>AID</u>, AName, APosition, AAddress, AContact_No, AJoining_date **X**
15. <u>SID</u>, SOwner, SName, SCapacity, SLocation, SContact, AID ✓
16. <u>SID</u>, SOwner, SContact , SLocation ,SCapacity, SName **X**
17. <u>AUSeat_no</u> , AUSerial, AUName ,AUAage ,AUContact, SID ✓
18. <u>AUSeat_no</u> , AUSerial, AUName ,AUAage ,AUContact **X**
19. <u>Tseat no</u> , TTime, TStatus , TPrice, TPurchase_Date, TMatch, AUSeat no ✓

FINAL TABLE

1. <u>TSerial No</u>, TSeat No, TTime, TStatus, TPrice, TPurchase_Date, TMatch, STID
2. <u>AID</u>, AName, APosition, AAddress, Acontact_No, AJoining Date
3. <u>STID</u>, STName, STHireDate, STStatus, STSalary, STcontact, AID
4. <u>Player_no</u>, PName, PTeam, PPosition, PRanking, PDate_of_birth, PNationality
5. <u>TMID</u>, TMCoach, TMHome_Stadium, TMCountry, TMName, Player_no
6. <u>AUSeat No</u>, AUName, AUSerial, AUAGE, AUContact, TMID
7. <u>MTMID</u>, TMID, MNo
8. <u>MNo</u>, MName, MDate, MTournament, MTime, AID
9. <u>SID</u>, SOwner, SName, SCapacity, SLocation, SContact, AID
10. <u>AUSeat_no</u> , AUSerial, AUName ,AUAage ,AUContact, SID
11. <u>Tseat no</u> , TTime, TStatus , TPrice, TPurchase_Date, TMatch, AUSeat no