Football Match Result Database, v0.90

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1 Mission Statement

The purpose of the Football Match Result Database is to maintain the data needed to support football research activities that are conducted for the benefit of the football analytics community.

2 Mission Objectives

The Football Match Result Database will support the following:

- Maintain complete information on event details.
- Maintain complete information on match details.
- Maintain complete information on players.
- Keep track of club managers.
- Keep track of match referees.

3 Business Rules

The following business rules shall be enforced on the Football Match Result Database:

- Starting player lists shall consist of exactly 11 players of which exactly one player is designated as the goalkeeper.
- Maximum substitution rules are enforced during a match.
- If a goalkeeper is expelled from a match, a new goalkeeper must be designated by either switching the positions of a field player or substituting a field player for a goalkeeper.

4 Database Specifications

The following sections describe the table-, field-, and relationship-level specifications of the Football Match Result Database. These specifications include the table names, descriptions, and member fields and their descriptions and types. The primary and foreign keys of each table will be identified and the characteristics between related tables will be defined from the perspective of the primary table.

4.1 Events table (tblEvents)

tblEvents Primary Key	High level information on the football match and its participants. The information in this table is required in order to track all matches played in a football competition as well as the teams, players, managers, and referees who participated in them.			
Foreign Key	eventID Related Table Deletion Rule Participation Participation			
			\mathbf{Type}	Degree
competitionID	tblCompetitions	_	Optional	(0,N)
roundID	tblRounds	_	Optional	(0,N)
venueID	tblVenues	_	Optional	(0,N)
evtHomeTeamID	tblTeams	_	Optional	(0,N)
evtHomeMgrID	tblManagers	_	Optional	(0,N)
evtAwayTeamID	tblTeams	_	Optional	(0,N)
evtAwayMgrID	tblManagers	_	Optional	(0,N)
refereeID	tblReferees	_	Optional	(0,N)
_	tblEnvironments	Restrict	Mandatory	(1,1)
_	tblLineups	Restrict	Mandatory	(1,1)

4.1.1 eventID field

Specification Type	Unique		
Shared By	tblEnvironments, tblLineups		
Description	A unique number used to identify		
	matches in a football competition.		
Data Type	Numeric		
Character Support	Numbers		
Length	7		
Decimal Places	0		
Input Mask	######		
Display Format	0000000		
Key Type	Primary		
Key Structure	Simple		
Uniqueness	Unique		
Null Support	No Nulls		
Values Entered By	System		
Required Value	Yes		
Default Value	_		
Range of Values	1000000-9999999		
Edit Rule	Enter Now, Edits Not Allowed		
Comparisons Allowed	Equal To, Not Equal To		
Operations Allowed	_		

4.1.2 evtDate field

Specification Type	Unique		
Shared By	_		
Description	The date on which the football		
	match occurred.		
Data Type	DateTime		
Character Support	Numbers		
Length	7		
Decimal Places	0		
Input Mask	YYYY-MM-DD		
Display Format	Day Month Year		
Key Type	Non-key		
Key Structure	_		
Uniqueness	Non-unique		
Null Support	No Nulls		
Values Entered By	red By User		
Required Value	Yes		
Default Value	_		
Range of Values	_		
Edit Rule	Enter Now, Edits Allowed		
Comparisons Allowed	Equal, Not Equal, Greater Than,		
	Less Than		
Operations Allowed	Subtraction		

${\bf 4.1.3}\quad {\bf competition ID\ field}$

Specification Type	Replica		
Parent Table	tblCompetitions		
Source Specification	competitionID in tblCompetitions		
	table		
Description	The identification number of the		
	football competition		
Data Type	Numeric		
Character Support	Numbers		
Length	3		
Decimal Places	0		
Input Mask	###		
Display Format	000		
Key Type	Foreign		
Key Structure	Simple		
Uniqueness	Non-unique		
Null Support	No Nulls		
Values Entered By	User		
Required Value	Yes		
Default Value	_		
Range of Values	Any existing competitionID value		
	in tblCompetitions		
Edit Rule	Enter Now, Edits Allowed		
Comparisons Allowed	Equal, Not Equal		
Operations Allowed			

4.1.4 roundID field

Specification Type	Replica		
Parent Table	tblRounds		
Source Specification	roundID in tblRounds table		
Description	The identification number of		
	matchday or phase of football		
	competition		
Data Type	Numeric		
Character Support	Numbers		
Length	3		
Decimal Places	0		
Input Mask	###		
Display Format	000		
Key Type	Foreign		
Key Structure	Simple		
Uniqueness	Non-unique		
Null Support	No Nulls		
Values Entered By	User		
Required Value	Yes		
Default Value	_		
Range of Values	Any existing roundID value in		
	tblRounds		
Edit Rule	Enter Now, Edits Allowed		
Comparisons Allowed	Equal, Not Equal		
Operations Allowed	Subtraction		

4.1.5 venueID field

Specification Type	Replica		
Parent Table	tblVenues		
Source Specification	venueID in tblVenues table		
Description	The identification number of the		
	venue used in the football match		
Data Type	Numeric		
Character Support	Numbers		
Length	4		
Decimal Places	0		
Input Mask	####		
Display Format	0000		
Key Type	Foreign		
Key Structure	Simple		
Uniqueness	Non-unique		
Null Support	No Nulls		
Values Entered By	User		
Required Value	Yes		
Default Value	_		
Range of Values	Any existing venueID value in		
	tblVenues		
Edit Rule	Enter Now, Edits Allowed		
Comparisons Allowed	Equal, Not Equal		
Operations Allowed	_		

4.1.6 evtHomeTeamID field

Specification Type	Replica		
Parent Table	tblTeams		
Source Specification	teamID in tblTeams table		
Description	The identification number of the		
	designated home team		
	participating in the football match		
Data Type	Numeric		
Character Support	Numbers		
Length	5		
Decimal Places	0		
Input Mask	#####		
Display Format	00000		
Key Type	Foreign		
Key Structure	Simple		
Uniqueness	Non-unique		
Null Support	No Nulls		
Values Entered By	User		
Required Value	Yes		
Default Value	_		
Range of Values	Any existing teamID value in		
	tblTeams distinct from value of		
	evtAwayTeamID		
Edit Rule	Enter Now, Edits Allowed		
Comparisons Allowed	Equal, Not Equal		
Operations Allowed	_		

${\bf 4.1.7} \quad {\bf evtHomeMgrID} \ {\bf field}$

Specification Type	Replica	
Parent Table	tblManagers	
Source Specification	managerID in tblManagers table	
Description	The identification number of the	
	manager of the designated home	
	team participating in the football	
	match	
Data Type	Numeric	
Character Support	Numbers	
Length	4	
Decimal Places 0		
Input Mask	####	
Display Format	0000	
Key Type	Foreign	
Key Structure	Simple	
Uniqueness	Non-unique	
Null Support No Nulls		
Values Entered By	User	
Required Value	Yes	
Default Value	_	
Range of Values	Any existing managerID value in	
	tblManagers distinct from value of	
	evtAwayMgrID	
Edit Rule	Enter Now, Edits Allowed	
Comparisons Allowed	Equal, Not Equal	
Operations Allowed	_	

4.1.8 evtAwayTeamID field

Specification Type	Replica		
Parent Table	tblTeams		
Source Specification	teamID in tblTeams table		
Description	The identification number of one		
	of the designated away team		
	participating in the football match		
Data Type	Numeric		
Character Support	Numbers		
Length	5		
Decimal Places	0		
Input Mask	#####		
Display Format	00000		
Key Type	Foreign		
Key Structure	Simple		
Uniqueness	Non-unique		
Null Support	No Nulls		
Values Entered By	User		
Required Value	Yes		
Default Value			
Range of Values	Any existing teamID value in		
	tblTeams distinct from value of		
	evtHomeTeamID		
Edit Rule	Enter Now, Edits Allowed		
Comparisons Allowed	Equal, Not Equal		
Operations Allowed	_		

4.1.9 evtAwayMgrID field

Specification Type	Replica		
Parent Table	tblManagers		
Source Specification	managerID in tblManagers table		
Description	The identification number of the		
	manager of the designated away		
	team participating in the football		
	match		
Data Type	Numeric		
Character Support	Numbers		
Length	4		
Decimal Places	0		
Input Mask	####		
Display Format	0000		
Key Type	Foreign		
Key Structure	Simple		
Uniqueness	Non-unique		
Null Support	No Nulls		
Values Entered By	User		
Required Value	Yes		
Default Value	_		
Range of Values	Any existing managerID value in		
	tblManagers distinct from value of		
	evtHomeMgrID		
Edit Rule	Enter Now, Edits Allowed		
Comparisons Allowed	Equal, Not Equal		
Operations Allowed	_		

4.1.10 refereeID field

Specification Type	Replica		
Parent Table	tblReferees		
Source Specification	refereeID in tblReferees table		
Description	The identification number of the		
	referee officiating the football		
	match		
Data Type	Numeric		
Character Support	Numbers		
Length	4		
Decimal Places	0		
Input Mask	####		
Display Format	0000		
Key Type	Foreign		
Key Structure	Simple		
Uniqueness	Non-unique		
Null Support	No Nulls		
Values Entered By	User		
Required Value	Yes		
Default Value	_		
Range of Values	Any existing refereeID value in		
	tblReferees		
Edit Rule	Enter Now, Edits Allowed		
Comparisons Allowed	Equal, Not Equal		
Operations Allowed	_		

4.2 Competitions lookup table (tblCompetitions)

tblCompetitions	This table contains the names of the football competitions, and			
	this information is used to track all matches played under a certain			
	competition.			
Primary Key	competitionID			
Foreign Key	Related Table Deletion Rule Participation Participation			
	Type Degree			
_	tblEvents	Restrict	Mandatory	(1,1)

4.2.1 compID field

Specification Type	Unique
Shared By	tblEvents
Description	A unique number used to
	differentiate football competitions.
Data Type	Numeric
Character Support	Numbers
Length	3
Decimal Places	0
Input Mask	###
Display Format	000
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	N/A
Range of Values	100-999
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal To, Not Equal To
Operations Allowed	_

4.2.2 compName field

Specification Type	Unique
Shared By	_
Description	The name of the football
	competition.
Data Type	Character
Character Support	Letters, Numbers
Length	100
Decimal Places	
Input Mask	_
Display Format	Each description should start with
	a capital letter.
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	_
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.3 Competition Phase lookup table (tblRounds)

tblRounds	This table contains the names of the rounds of the football			
	competition, and allows for tracking of matches and performances			
	in a single round or multiple rounds. This table can be expanded			
	for knockout or hybrid league/knockout competitions.			
Primary Key	roundID			
Foreign Key	Related Table Deletion Rule Participation Participation			
			Type	Degree
	tblRounds	Restrict	Mandatory	(1,1)

4.3.1 roundID field

Specification Type	Unique
Shared By	tblEvents
Description	A unique number used to identify
	the matchday or phase of the
	football competition.
Data Type	Numeric
Character Support	Numbers
Length	2
Decimal Places	0
Input Mask	##
Display Format	00
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	N/A
Range of Values	10-99
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.3.2 roundDesc field

Specification Type	Unique
Shared By	_
Description	The matchday number or phase of
	the football competition.
Data Type	Character
Character Support	Letters, Numbers
Length	20
Decimal Places	_
Input Mask	_
Display Format	Each description should start with
	a number or capital letter.
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	_
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	_
Operations Allowed	_

$4.4 \quad \text{Teams lookup table (tblTeams)}$

tblTeams	This table contains the names of the clubs that participate in a			
	football competition.			
Primary Key	teamID			
Foreign Key	Related Table	Deletion Rule	Participation	Participation
			Type	Degree
_	tblEvents	Restrict	Mandatory	(1,1)
_	tblGoals	Restrict	Mandatory	(1,1)

4.4.1 teamID field

Specification Type	Unique
Shared By	tblEvents, tblVenues, tblPlayers,
	tblLineups, tblGoals
Description	A unique number used to identify
	football clubs.
Data Type	Numeric
Character Support	Numbers
Length	5
Decimal Places	0
Input Mask	#####
Display Format	00000
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	N/A
Range of Values	10000-99999
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.4.2 tmName field

Specification Type	Unique
Shared By	_
Description	The name of the football club or
	team.
Data Type	Character
Character Support	Letters, Numbers
Length	50
Decimal Places	_
Input Mask	_
Display Format	Each description should start with
	a capital letter.
Key Type	Non-key
Key Type Key Structure	Non-key —
	Non-key — Non-unique
Key Structure	_
Key Structure Uniqueness	Non-unique
Key Structure Uniqueness Null Support	Non-unique No Nulls
Key Structure Uniqueness Null Support Values Entered By	Non-unique No Nulls User
Key Structure Uniqueness Null Support Values Entered By Required Value	Non-unique No Nulls User
Key Structure Uniqueness Null Support Values Entered By Required Value Default Value	Non-unique No Nulls User
Key Structure Uniqueness Null Support Values Entered By Required Value Default Value Range of Values	Non-unique No Nulls User Yes —

4.5 Venue lookup table (tblVenues)

tblEvents	Contains the stadiums that are used in the football competition, and the clubs that predominately reside there. This table is used to perform performance studies against different venues or neutral			
	sites.			
Primary Key	venueID			
Foreign Key	Related Table Deletion Rule Participation Participation			
	Type Degree			
teamID	tblTeams	Deny	Mandatory	(0,N)
_	tblEvents	Deny	Mandatory	(1,1)

4.5.1 venueID field

Specification Type	Unique
Shared By	tblEvents, tblTeams
Description	A unique number used to identify
	venues used in football
	competitions.
Data Type	Numeric
Character Support	Numbers
Length	4
Decimal Places	0
Input Mask	####
Display Format	0000
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	N/A
Range of Values	1000-9999
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.5.2 teamID field

Specification Type	Replica
Parent Table	tblTeams
Source Specification	teamID in tblTeams table
Description	The identification number of the
	team which plays the majority of
	its matches at the venue
Data Type	Numeric
Character Support	Numbers
Length	5
Decimal Places	0
Input Mask	#####
Display Format	00000
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	Nulls Allowed
Values Entered By	User
Required Value	No
Default Value	_
Range of Values	Any existing teamID value in
	tblTeams, or NULL
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.5.3 venName field

Specification Type	Unique
Shared By	_
Description	The name of the football venue
	used in the football competition.
Data Type	Character
Character Support	Letters, Numbers
Length	40
Decimal Places	_
Input Mask	_
Display Format	Each description should start with
	a capital letter.
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	_
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	_
Operations Allowed	_

4.6 Environments table

tblEnvironments	Records the ambient conditions under which the football match took place. This table is used to track match performance relative			
	to weather and other natural conditions.			
Primary Key	enviroID			
Foreign Key	Related Table	Deletion Rule	Participation	Participation
			Type	Degree
			- J P C	2 082 00
eventID	tblEvents	Restrict	Optional	(1,1)
eventID envKickoffWxID	tblEvents tblWeather	Restrict —	V -	
		Restrict — —	Optional	(1,1)

4.6.1 enviroID field

Specification Type	Unique
Shared By	tblEvents
Description	A unique number used to tie
	environmental conditions to the
	matches in which they are played.
Data Type	Numeric
Character Support	Numbers
Length	7
Decimal Places	0
Input Mask	######
Display Format	0000000
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	N/A
Range of Values	1000000-9999999
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal To, Not Equal To
Operations Allowed	_

4.6.2 eventID field

Specification Type	Replica
Parent Table	tblEvents
Source Specification	eventID in tblEvents table
Description	The identification number of the
	football match
Data Type	Numeric
Character Support	Numbers
Length	7
Decimal Places	0
Input Mask	######
Display Format	0000000
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	Any existing eventID value in
	${ m tbl}{ m Events}$
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.6.3 envKickoffTime

Specification Type	Unique
Shared By	_
Description	The time at which the football
	match kicked off.
Data Type	DateTime
Character Support	Numbers
Length	4
Decimal Places	0
Input Mask	HH:MM
Display Format	HH:MM
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	_
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal, Greater Than,
	Less Than
Operations Allowed	_

4.6.4 envTemperature

Specification Type	Unique
Shared By	_
Description	The ambient temperature at
	kickoff, in degrees Celsius.
Data Type	Numeric
Character Support	Numbers
Length	2
Decimal Places	1
Input Mask	##.#
Display Format	20.0°C
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	20.0
Range of Values	-15.0 - 40.0
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal, Greater Than,
	Less Than
Operations Allowed	_

${\bf 4.6.5}\quad {\bf envAltitude\ field}$

Specification Type	Unique
Shared By	_
Description	The altitude above mean sea level
	at which the football match
	occurred, in meters.
Data Type	Numeric
Character Support	Numbers
Length	4
Decimal Places	0
Input Mask	####
Display Format	0000 m
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	_
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal, Greater Than,
	Less Than
Operations Allowed	_

4.6.6 envKickoffWxID field

Specification Type	Replica
Parent Table	tblWeather
Source Specification	weatherID in tblWeather table
Description	The identification number for the
	type of weather condition at kickoff
Data Type	Numeric
Character Support	Numbers
Length	2
Decimal Places	0
Input Mask	##
Display Format	00
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	Any existing weatherID value in
	tblWeather
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.6.7 envHalftimeWxID field

Specification Type	Replica
Parent Table	tblWeather
Source Specification	weatherID in tblWeather table
Description	The identification number for the
	type of weather condition at
	halftime
Data Type	Numeric
Character Support	Numbers
Length	2
Decimal Places	0
Input Mask	##
Display Format	00
Key Type	Foreign
Key Type Key Structure	Foreign Simple
Key Structure	Simple
Key Structure Uniqueness	Simple Non-unique
Key Structure Uniqueness Null Support	Simple Non-unique No Nulls
Key Structure Uniqueness Null Support Values Entered By	Simple Non-unique No Nulls User
Key Structure Uniqueness Null Support Values Entered By Required Value	Simple Non-unique No Nulls User
Key Structure Uniqueness Null Support Values Entered By Required Value Default Value	Simple Non-unique No Nulls User Yes —
Key Structure Uniqueness Null Support Values Entered By Required Value Default Value	Simple Non-unique No Nulls User Yes — Any existing weatherID value in
Key Structure Uniqueness Null Support Values Entered By Required Value Default Value Range of Values	Simple Non-unique No Nulls User Yes — Any existing weatherID value in tblWeather

4.6.8 envFulltimeWxID field

Specification Type	Replica
Parent Table	tblWeather
Source Specification	weatherID in tblWeather table
Description	The identification number for the
	type of weather condition at
	fulltime
Data Type	Numeric
Character Support	Numbers
Length	2
Decimal Places	0
Input Mask	##
Display Format	00
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	Any existing weatherID value in
	tblWeather
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	

4.7 Weather conditions lookup table (tblWeather)

tblWeather	Contains a list of weather conditions during a football match.			
Primary Key		weatherID		
Foreign Key	Related Table	Deletion Rule	Participation	Participation
			Type	Degree
_	tblEnvironments	Restrict	Mandatory	(1,1)

4.7.1 weatherID field

Specification Type	Unique
Shared By	tblEnvironments
Description	A unique number used to identify
	specific weather conditions.
Data Type	Numeric
Character Support	Numbers
Length	2
Decimal Places	0
Input Mask	##
Display Format	00
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	_
Range of Values	10-99
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal To, Not Equal To
Operations Allowed	_

4.7.2 wxConditionDesc field

Specification Type	Unique
Shared By	_
Description	The description of the
	predominate weather condition
	during the football match.
Data Type	Character
Character Support	Letters
Length	40
Decimal Places	_
Input Mask	_
Display Format	Each description should start with
	a capital letter.
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	_
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	_
Operations Allowed	_

4.8 Players table (tblPlayers)

tblPlayers	Contains the list of players who participate in the football competition, allowing for the tracking of player participation and			
	performance in the club and the competition.			
Primary Key	playerID			
Foreign Key	Related Table	Deletion Rule	Participation	Participation
			Type	Degree
countryID	tblCountries	_	Optional	(0,N)
	tblLineups	Restrict	Mandatory	(1,1)

4.8.1 playerID field

Unique
tblLineups
A unique number used to identify
players in a football competition.
Numeric
Numbers
6
0
#####
000000
Primary
Simple
Unique
No Nulls
System
Yes
N/A
100000-999999
Enter Now, Edits Not Allowed
Equal To, Not Equal To
_

4.8.2 countryID field

Specification Type	Replica
Parent Table	tblCountries
Source Specification	countryID in tblCountries table
Description	The identification number of the
	nationality of the player
Data Type	Numeric
Character Support	Numbers
Length	3
Decimal Places	0
Input Mask	###
Display Format	000
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	Any existing countryID value in
	tblCountries
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.8.3 plyrFirstName field

Specification Type	Unique
Shared By	_
Description	The player's first name.
Data Type	Character
Character Support	Letters
Length	20
Decimal Places	_
Input Mask	_
Display Format	Each description should start with
	a capital letter.
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	_
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	_
Operations Allowed	_

4.8.4 plyrLastName field

Specification Type	Unique
Shared By	_
Description	The player's last name.
Data Type	Character
Character Support	Letters
Length	30
Decimal Places	_
Input Mask	_
Display Format	Each description should start with
	a capital letter.
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	_
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	_
Operations Allowed	_

4.9 Managers table (tblManagers)

tblManagers	Contains the list of managers who participate in the football competition, allowing for the tracking of managerial changes at the			
	club during a competition.			
Primary Key	managerID			
Foreign Key	Related Table	Deletion Rule	Participation	Participation
			Type	Degree
countryID	tblCountries	_	Optional	(0,N)
_	tblEvents	Restrict	Mandatory	(1,1)

4.9.1 managerID field

Specification Type	Unique
Shared By	tblEvents
Description	A unique number used to identify
	managers in a football
	competition.
Data Type	Numeric
Character Support	Numbers
Length	4
Decimal Places	0
Input Mask	####
Display Format	0000
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	N/A
Range of Values	1000-9999
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal To, Not Equal To
Operations Allowed	_

4.9.2 countryID field

See specification in section 4.8.2.

4.9.3 mgrFirstName field

Specification is identical to that defined in section 4.8.3.

4.9.4 mgrLastName field

Specification is identical to that defined in section 4.8.4.

4.10 Referees table (tblReferees)

${ m tbl}{ m Referees}$	Contains the list of match referees who participate in the football			
	competition, allo	competition, allowing for the tracking of their participation and		
	performance in the competition.			
Primary Key	refereeID			
Foreign Key	Related Table	Deletion Rule	Participation	Participation
			Type	Degree
countryID	tblCountries	_	Optional	(0,N)
	tblEvents	Restrict	Mandatory	(1,1)

4.10.1 refereeID field

Specification Type	Unique
Shared By	tblEvents
Description	A unique number used to identify
	match referees in a football
	competition.
Data Type	Numeric
Character Support	Numbers
Length	4
Decimal Places	0
Input Mask	####
Display Format	0000
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	N/A
Range of Values	1000-9999
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal To, Not Equal To
Operations Allowed	_

4.10.2 countryID field

See specification in section 4.8.2.

4.10.3 refFirstName field

Specification is identical to that defined in section 4.8.3.

4.10.4 refLastName field

Specification is identical to that defined in section 4.8.4.

4.11 Country lookup table (tblCountries)

tblCountries	Contains the list of countries represented by personnel who participate in a football competition.			
Primary Key	countryID			
Foreign Key	Related Table	Deletion Rule	Participation	Participation
			Type	Degree
_	tblPlayers	Restrict	Type Mandatory	(1,1)
	tblPlayers tblManagers	Restrict Restrict	V 1	9

4.11.1 countryID field

Specification Type	Unique
Shared By	tblPlayers, tblManagers,
	tblReferees
Description	A unique number used to identify
	the country of personnel.
Data Type	Numeric
Character Support	Numbers
Length	3
Decimal Places	0
Input Mask	###
Display Format	000
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	N/A
Range of Values	100-999
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal To, Not Equal To
Operations Allowed	_

4.11.2 ctyName field

Specification Type	Unique
Shared By	_
Description	Country name.
Data Type	Character
Character Support	Letters
Length	40
Decimal Places	_
Input Mask	_
Display Format	Each description should start with
	a capital letter.
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	_
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	_
Operations Allowed	_

4.12 Lineup table (tblLineups)

tblLineups	This table contain	This table contains the players who participate in matches of the		
	football competition, whether they are starting players or on the			
	substitutes' list.	The information is n	necessary to track th	ie level of
	par	ticipation of players	over a season.	
Primary Key		lineupID		
Foreign Key	Related Table	Deletion Rule	Participation	Participation
			Type	Degree
eventID	tblEvents	_	Optional	(22,36)
teamID	tblTeams	_	Optional	(1,N)
playerID	tblPlayers	_	Optional	(1,N)
positionID	tblPositions		Optional	(1,N)
	tblGoals	Restrict	Mandatory	(1,1)
_	tblPenalties	Restrict	Mandatory	(1,1)
	tblOffenses	Restrict	Mandatory	(1,1)
_	tblSubs	Restrict	Mandatory	(1,1)
_	tblSwitchPositions	Restrict	Mandatory	(1,1)

4.12.1 lineupID field

Specification Type	Unique
Shared By	tblGoals, tblPenalties, tblOffenses,
	tblSubstitutions
Description	A unique number used to identify
	players who participate in football
	matches.
Data Type	Numeric
Character Support	Numbers
Length	7
Decimal Places	0
Input Mask	######
Display Format	0000000
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	_
Range of Values	1000000-9999999
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal To, Not Equal To
Operations Allowed	_

4.12.2 eventID field

See specification in section 4.6.2.

4.12.3 teamID field

See specification in section 4.5.2.

4.12.4 playerID field

Specification Type	Replica
Parent Table	tblLineups
Source Specification	playerID in tblLineups table
Description	The identification number of the
	player who participates in the
	lineup.
Data Type	Numeric
Character Support	Numbers
Length	6
Decimal Places	0
Input Mask	#####
Display Format	000000
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	Any existing playerID value in
	tblPlayers
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.12.5 positionID field

Specification Type	Replica
Parent Table	tblPositions
Source Specification	positionID in tblPositions table
Description	The identification number of the
	football positions
Data Type	Numeric
Character Support	Numbers
Length	2
Decimal Places	0
Input Mask	##
Display Format	00
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	Any existing positionID value in
	tblPositions
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.12.6 lpStarting field

Specification Type	Unique
Shared By	_
Description	A flag to designate starting players
	in the match lineup.
Data Type	Numeric
Character Support	Numbers
Length	1
Decimal Places	0
Input Mask	#
Display Format	0
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	0
Range of Values	0-1
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal To, Not Equal To
Operations Allowed	_

4.13 Positions lookup table (tblPositions)

tblPositions	This table contains information on the field positions (including goalkeeper) and their flanks they occupy on the field. The			
		information is used to track the tactical organization of the lineup		
	during a match.			
Primary Key	positionID			
Foreign Key	Related Table	Deletion Rule	Participation	Participation
			Type	Degree
posFieldID	tblFieldNames	_	Optional	(1,3)
posFlankID	tblFlankNames	_	Optional	(1,3)
_	tblLineups	Restrict	Mandatory	(1,1)

4.13.1 positionID field

Specification Type	Unique
Shared By	tblLineups
Description	A unique number used to identify
_	football positions.
Data Type	Numeric
Character Support	Numbers
Length	2
Decimal Places	0
Input Mask	##
Display Format	00
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	_
Range of Values	10-40
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal To, Not Equal To
Operations Allowed	_

4.13.2 posFieldID field

Specification Type	Replica
Parent Table	tblFieldNames
Source Specification	posFieldID in tblFieldNames table
Description	The identification number of the
	football positions
Data Type	Numeric
Character Support	Numbers
Length	1
Decimal Places	0
Input Mask	#
Display Format	0
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	Any existing posFieldID value in
	${ m tblFieldNames}$
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.13.3 posFlankID field

Specification Type	Replica
Parent Table	tblFlankNames
Source Specification	posFlankID in tblFlankNames
	table
Description	The identification number of the
	football positions
Data Type	Numeric
Character Support	Numbers
Length	1
Decimal Places	0
Input Mask	#
Display Format	0
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	Any existing posFlankID value in
	${ m tblFlankNames}$
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.14 Field position name table (tblFieldNames)

tblFieldNames	This table contains a list of the basic field positions.			
Primary Key	posFieldID			
Foreign Key	Related Table	Deletion Rule	Participation	Participation
			Type	Degree
_	tblPositions	Restrict	Mandatory	(1,1)

4.14.1 posFieldID field

Specification Type	Unique
Shared By	tblLineups
Description	A unique number used to identify
	football positions.
Data Type	Numeric
Character Support	Numbers
Length	1
Decimal Places	0
Input Mask	#
Display Format	0
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	_
Range of Values	1-9
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal To, Not Equal To
Operations Allowed	_

4.14.2 posFieldName field

Specification Type	Unique
Shared By	_
Description	The description of the generic field
	position.
Data Type	Character
Character Support	Letters
Length	15
Decimal Places	_
Input Mask	_
Display Format	Each description should start with
	a capital letter.
Key Type	Non-key
Key Structure	
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	_
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	_
Operations Allowed	_

4.15 Flank name table (tblFlankNames)

tblFlankNames	This table contains a list of the basic flanks on the field.			
Primary Key	posFlankID			
Foreign Key	Related Table	Deletion Rule	Participation Type	Participation Degree
			Туре	Degree
	tblPositions	Restrict	Mandatory	(1,1)

${\bf 4.15.1 \quad posFlankID \; field}$

Specification Type	Unique
	-
Shared By	tblLineups
Description	A unique number used to identify
	flank areas.
Data Type	Numeric
Character Support	Numbers
Length	1
Decimal Places	0
Input Mask	#
Display Format	0
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	_
Range of Values	1-3
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal To, Not Equal To
Operations Allowed	_

4.15.2 posFlankName field

Specification Type	Unique
Shared By	_
Description	The description of the flank area
	on the field.
Data Type	Character
Character Support	Letters
Length	6
Decimal Places	_
Input Mask	_
Display Format	Each description should start with
	a capital letter.
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	Nulls Allowed
Values Entered By	User
Required Value	No
Default Value	_
Range of Values	_
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	_
Operations Allowed	_

4.16 Goals table (tblGoals)

tblGoals	This table contains information on the goals that were scored			
	during a match, excluding penalties. The information in this table			
	is used to track match scorelines, scoring records of players in a			
	match, and the ty	pes of goals scored.		
Primary Key	goalID			
Foreign Key	Related Table	Deletion Rule	Participation	Participation
			Type	Degree
teamID	tblTeams	_	Optional	(0,N)
lineupID	tblLineups	_	Optional	(0,N)
gtsTypeID	tblGoalStrikes	_	Optional	(0,N)
gtfTypeID	tblGoalEvents	_	Optional	(0,N)

4.16.1 goalID field

Specification Type	Unique
Shared By	_
Description	A unique number used to identify
	goals scored in a football match.
Data Type	Numeric
Character Support	Numbers
Length	6
Decimal Places	0
Input Mask	#####
Display Format	000000
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	_
Range of Values	100000-999999
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

$\bf 4.16.2 \quad team ID \ field$

Specification Type	Replica
Parent Table	tblTeams
Source Specification	teamID in tblTeams table
Description	The identification number of one
	of the teams credited with the goal
	scored in the football match
Data Type	Numeric
Character Support	Numbers
Length	5
Decimal Places	0
Input Mask	#####
Display Format	00000
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	evtAwayTeamID or
	${\rm evtHomeTeamID}$
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.16.3 lineupID field

Specification Type	Replica
Parent Table	tblLineups
Source Specification	lineupID in tblLineups table
Description	The identification number of player
	participations in match lineups
Data Type	Numeric
Character Support	Numbers
Length	7
Decimal Places	0
Input Mask	######
Display Format	0000000
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	Any existing lineupID value in
	tblLineups
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.16.4 gtsTypeID field

Specification Type	Replica
Parent Table	tblGoalStrikes
Source Specification	gtsTypeID in tblGoalStrikes table
Description	The identification number of body
	parts used to score goals from
	open play.
Data Type	Numeric
Character Support	Numbers
Length	1
Decimal Places	0
Input Mask	#
Display Format	0
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	Any existing gtsTypeID value in
	tblGoalStrikes
Edit Rule	Enter Now, Edits Allowed
C · A11 1	
Comparisons Allowed	Equal, Not Equal

4.16.5 gteTypeID field

Specification Type	Replica
Parent Table	tblGoalEvents
Source Specification	gteTypeID in tblGoalEvents table
Description	The identification number of field
	events from which goals were
	scored.
Data Type	Numeric
Character Support	Numbers
Length	1
Decimal Places	0
Input Mask	#
Display Format	0
Key Type	Foreign
Key Type Key Structure	Foreign Simple
	~
Key Structure	Simple
Key Structure Uniqueness	Simple Non-unique
Key Structure Uniqueness Null Support	Simple Non-unique No Nulls
Key Structure Uniqueness Null Support Values Entered By	Simple Non-unique No Nulls User
Key Structure Uniqueness Null Support Values Entered By Required Value	Simple Non-unique No Nulls User
Key Structure Uniqueness Null Support Values Entered By Required Value Default Value Range of Values	Simple Non-unique No Nulls User Yes —
Key Structure Uniqueness Null Support Values Entered By Required Value Default Value	Simple Non-unique No Nulls User Yes — Any existing gteTypeID value in
Key Structure Uniqueness Null Support Values Entered By Required Value Default Value Range of Values	Simple Non-unique No Nulls User Yes — Any existing gteTypeID value in tblGoalEvents

4.16.6 glsTime field

Specification Type	Unique
Shared By	_
Description	The match time at which the goal
	was scored.
Data Type	Numeric
Character Support	Numbers
Length	2
Decimal Places	2
Input Mask	##.##
Display Format	00.00
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	0.00 - 90.15
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal To, Not Equal To
Operations Allowed	Subtraction

4.17 Goal strike lookup table (tblGoalStrikes)

tblGoalStrikes	This table contains a list of the body parts used to score goals from			
	open play.			
Primary Key	$\operatorname{gtsTypeID}$			
Foreign Key	Related Table Deletion Rule Participation Participation			
			Type	Degree
_	tblGoals	Restrict	Mandatory	(1,1)

4.17.1 gtsTypeID field

Specification Type	Unique	
Shared By	tblGoals	
Description	A unique number that identifies	
2 ccci ipitoti	the body part used to score open	
	play goals.	
Data Type	Numeric	
Character Support	Numbers	
Length	1	
Decimal Places	0	
Input Mask	#	
Display Format	0	
Key Type	Primary	
Key Structure	Simple	
Uniqueness	Unique	
Null Support	No Nulls	
Values Entered By	System	
Required Value	Yes	
Default Value	_	
Range of Values	1-9	
Edit Rule	Enter Now, Edits Not Allowed	
Comparisons Allowed	Equal, Not Equal	
Operations Allowed	_	

4.17.2 gtsDesc field

Specification Type	Unique
Shared By	_
Description	The description of the body part
	used to score open play goals.
Data Type	Character
Character Support	Letters
Length	15
Decimal Places	_
Input Mask	_
Display Format	Each description should start with
	a capital letter.
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	_
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	_
Operations Allowed	_

4.18 Goal field event lookup table (tblGoalEvents)

tblGoalEvents	This table contains a list of the types of plays from which open			
	play goals are scored.			
Primary Key	$\operatorname{gteTypeID}$			
Foreign Key	Related Table Deletion Rule Participation Participation			
	Type Degree			
_	tblGoals	Restrict	Mandatory	(1,1)

4.18.1 gteTypeID field

Specification Type	Unique
Shared By	tblGoals
Description	A unique number used to identify
	match events that produced goals.
Data Type	Numeric
Character Support	Numbers
Length	1
Decimal Places	0
Input Mask	#
Display Format	0
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	_
Range of Values	1-9
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.18.2 gteDesc field

Specification Type	Unique
Shared By	_
Description	The description of the match event
	that led to a goal in open play.
Data Type	Character
Character Support	Letters
Length	20
Decimal Places	_
Input Mask	_
Display Format	Each description should start with
	a capital letter.
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	_
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	_
Operations Allowed	_

4.19 Penalties table (tblPenalties)

tblPenalties	This table lists the penalties given during a football competition.			
	The information stored here will be used to track fouls that			
	resulted in penalties, the referees who awarded them, and the			
	performance of per	nalty kick takers and	d goalkeepers.	
Primary Key	penaltyID			
Foreign Key	Related Table Deletion Rule Participation Participation			
			\mathbf{Type}	Degree
lineupID	tblLineups	_	Optional	(0,N)
lineupID foulID	tblLineups tblFouls		Optional Optional	(0,N) (0,N)

4.19.1 penaltyID field

Specification Type	Unique
Shared By	_
Description	A unique number used to identify
	penalties that occur during a
	football match.
Data Type	Numeric
Character Support	Numbers
Length	5
Decimal Places	0
Input Mask	#####
Display Format	00000
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	_
Range of Values	10000-99999
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.19.2 lineupID field

See specification in section 4.16.3.

4.19.3 foulID field

Specification Type	Replica
Parent Table	tblFouls
Source Specification	foulID in tblFouls table
Description	The identification number of the
	types of fouls that result in
	bookings or penalties.
Data Type	Numeric
Character Support	Numbers
Length	2
Decimal Places	0
Input Mask	##
Display Format	00
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	Any existing foulID value in
	tblFouls
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

${\bf 4.19.4}\quad {\bf penOutcomeID\ field}$

Specification Type	Replica
Parent Table	tblPenOutcomes
Source Specification	penOutcomeID in tblPenOutcomes
	table
Description	The identification number of
	penalty kick outcomes.
Data Type	Numeric
Character Support	Numbers
Length	1
Decimal Places	0
Input Mask	#
Display Format	0
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	Any existing penOutcomeID value
	in tblPenOutcomes
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.19.5 penTime field

Specification Type	Unique
Shared By	_
Description	The match time at which the
	penalty was given.
Data Type	Numeric
Character Support	Numbers
Length	2
Decimal Places	2
Input Mask	##.##
Display Format	00.00
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	0.00 - 90.15
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal To, Not Equal To
Operations Allowed	Subtraction

4.20 Penalty outcome lookup table (tblPenOutcomes)

tblPenOutcomes	This table lists the possible penalty outcomes during a football			
	match.			
Primary Key	penOutcomeID			
Foreign Key	Related Table Deletion Rule Participation Participation			
	Type Degree			
_	tblPenalties	Restrict	Mandatory	(1,1)

${\bf 4.20.1 \quad penOutcomeID \; field}$

Specification Type	Unique
	Onique
Shared By	_
Description	A unique number used to identify
	caution card types.
Data Type	Numeric
Character Support	Numbers
Length	1
Decimal Places	0
Input Mask	#
Display Format	0
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	_
Range of Values	1-9
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.20.2 poDesc field

Specification Type	Unique
Shared By	_
Description	The description of the penalty kick
	outcome.
Data Type	Character
Character Support	Letters
Length	12
Decimal Places	_
Input Mask	_
Display Format	Each description should start with
	a capital letter.
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	_
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	_
Operations Allowed	_

4.21 Offenses table (tblOffenses)

tblOffenses	This table lists the cautions and expulsions given out during a football match. The information stored here will allow the tracking of disciplinary records of players and the performance of referees during a football competition.			
Primary Key	offenseID			
Foreign Key	Related Table	Deletion Rule	Participation	Participation
			\mathbf{Type}	Degree
lineupID	tblLineups	_	Optional	(0,N)
foulID	tblFouls	_	Optional	(0,N)
cardID	tblPenOutcomes	_	Optional	(0,N)

${\bf 4.21.1} \quad {\bf offense ID} \ {\bf field}$

Specification Type	Unique
Shared By	_
Description	A unique number used to identify
	bookings that occur during a
	football match.
Data Type	Numeric
Character Support	Numbers
Length	6
Decimal Places	0
Input Mask	#####
Display Format	000000
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	_
Range of Values	100000-999999
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.21.2 lineupID field

See specification in section 4.16.3.

4.21.3 foulID field

See specification in section 4.16.3.

4.21.4 cardID field

Specification Type	Replica
Parent Table	tblCards
Source Specification	cardID in tblCards table
Description	The identification number of
	${\rm caution/expulsion\ cards.}$
Data Type	Numeric
Character Support	Numbers
Length	1
Decimal Places	0
Input Mask	#
Display Format	0
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	Any existing cardID value in
	$\operatorname{tblCards}$
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.21.5 ofnsTime field

Specification Type	Unique
Shared By	_
Description	The match time at which the
	booking occurred.
Data Type	Numeric
Character Support	Numbers
Length	2
Decimal Places	2
Input Mask	##.##
Display Format	00.00
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	0.00 - 90.15
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal To, Not Equal To
Operations Allowed	Subtraction

4.22 Fouls lookup table (tblFouls)

tblFouls	This table lists the fouls that result in either penalties, cautions, or			
		expulsions.		
Primary Key		foulID		
Foreign Key	Related Table Deletion Rule Participation Participation			
			Type	Degree
_	tblPenalties	Reject	Mandatory	(1,1)
_	tblOffenses	Reject	Mandatory	(1,1)

4.22.1 foulID field

Specification Type	Unique
Shared By	
Description	A unique number used to identify
Description	bookings that occur during a
	football match.
Data Type	Numeric
Character Support	Numbers
Length	2
Decimal Places	0
Input Mask	##
Display Format	00
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	_
Range of Values	10-99
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.22.2 foulDesc field

Specification Type	Unique
Shared By	_
Description	The description of the foul that
	resulted in a booking.
Data Type	Character
Character Support	Letters
Length	25
Decimal Places	_
Input Mask	_
Display Format	Each description should start with
	a capital letter.
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	_
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	_
Operations Allowed	_

4.23 Card lookup table (tblCards)

$\operatorname{tblCards}$	This table lists the type of cards that are shown during a football			
	match.			
Primary Key	cardID			
Foreign Key	Related Table	Deletion Rule	Participation	Participation
			Type	Degree
_	tblOffenses	Reject	Mandatory	(1,1)

4.23.1 cardID field

Specification Type	Unique
Shared By	_
Description	A unique number used to identify
	caution card types.
Data Type	Numeric
Character Support	Numbers
Length	1
Decimal Places	0
Input Mask	#
Display Format	0
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	_
Range of Values	1-3
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

${\bf 4.23.2}\quad {\bf cardType\ field}$

Specification Type	Unique
Shared By	_
Description	The description of the caution
	cards.
Data Type	Character
Character Support	Letters and Symbols
Length	12
Decimal Places	_
Input Mask	_
Display Format	Each description should start with
	a capital letter.
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	_
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	_
Operations Allowed	_

4.24 Substitution table (tblSubstitutions)

tblSubstitutions	This table stores the substitutions that occur during a football match. The data scored here would be used to track player participation during a football competition.			
Primary Key	subsID			
Foreign Key	Related Table	Deletion Rule	Participation	Participation
			Type	Degree
subsLineupOffID	tblLineups	Reject	Optional	(0,1)
subsLineupOnID	tblLineups	Reject	Optional	(0,1)

4.24.1 subsID field

Specification Type	Unique
Shared By	_
Description	A unique number used to identify
	substitutions that occur during a
	football match.
Data Type	Numeric
Character Support	Numbers
Length	6
Decimal Places	0
Input Mask	#####
Display Format	000000
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	_
Range of Values	100000-999999
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

${\bf 4.24.2 \quad subsLineupOffID \ field}$

Specification Type	Replica
Parent Table	tblLineups
Source Specification	lineupID in tblLineups table
Description	The identification number of player
	participations in match lineups
Data Type	Numeric
Character Support	Numbers
Length	7
Decimal Places	0
Input Mask	######
Display Format	0000000
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	Any existing lineupID value in
	tblLineups that corresponds with
	eventID
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

${\bf 4.24.3}\quad {\bf subsLineupOnID}\ {\bf field}$

Specification Type	Replica
Parent Table	tblLineups
Source Specification	lineupID in tblLineups table
Description	The identification number of player
	participations in match lineups
Data Type	Numeric
Character Support	Numbers
Length	7
Decimal Places	0
Input Mask	######
Display Format	0000000
Key Type	Foreign
Key Structure	Simple
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	Any existing lineupID value in
	tblLineups that corresponds with
	eventID
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.24.4 subsTime field

Specification Type	Unique
Shared By	_
Description	The match time at which the
	substitution was made.
Data Type	Numeric
Character Support	Numbers
Length	2
Decimal Places	2
Input Mask	##.##
Display Format	00.00
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	0.00 - 90.15
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal To, Not Equal To
Operations Allowed	Subtraction

4.25 Switch Positions table (tblSwitchPositions)

tblSwitchPositions	This table stores the instances in which field positions are switched			
	during the match,	during the match, whether required by goalkeeper expulsion or a		
	tactical change.			
Primary Key	switchID			
Foreign Key	D -1-4-1 T-1-1-	TO 1 1 TO 1	TD 11 11	- · · · · · ·
roreign Key	Related Table	Deletion Rule	Participation	Participation
Foreign Key	Related Table	Deletion Rule	Participation Type	Participation Degree
lineupID	tblLineups	Reject	-	-

4.25.1 switchID field

Specification Type	Unique
Shared By	_
Description	A unique number used to identify
	position switches that occur
	during a football match.
Data Type	Numeric
Character Support	Numbers
Length	6
Decimal Places	0
Input Mask	#####
Display Format	000000
Key Type	Primary
Key Structure	Simple
Uniqueness	Unique
Null Support	No Nulls
Values Entered By	System
Required Value	Yes
Default Value	_
Range of Values	100000-999999
Edit Rule	Enter Now, Edits Not Allowed
Comparisons Allowed	Equal, Not Equal
Operations Allowed	_

4.25.2 lineupID field

See specification in section 4.16.3.

4.25.3 switchPositionID field

See specification in section 4.13.2.

4.25.4 switchTime field

Specification Type	Unique
- , , , , , , , , , , , , , , , , , , ,	Omque
Shared By	_
Description	The match time at which the
	switch in playing positions was
	made.
Data Type	Numeric
Character Support	Numbers
Length	2
Decimal Places	2
Input Mask	##.##
Display Format	00.00
Key Type	Non-key
Key Structure	_
Uniqueness	Non-unique
Null Support	No Nulls
Values Entered By	User
Required Value	Yes
Default Value	_
Range of Values	0.00 - 90.15
Edit Rule	Enter Now, Edits Allowed
Comparisons Allowed	Equal To, Not Equal To
Operations Allowed	Subtraction