Database Assignment 2017: Hurling Blitz Ireland Database

Application Express Workspace: IE_A932_SQL_S15

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3. Introduction

Hurling Blitz Ireland (HBI) provides weekly hurling blitzes at their complex during the summer months (May – August).

The idea of this assignment is to design and create a functional database, which will store all necessary data required by HBI.

The following document will lay out the conceptual model of the business/database, including a business description, EER model, normalised tables and table mapping. These will act as a plan from which the database will then be created from on SQL.

4. Business Description

Hurling Blitz Ireland (HBI) provides weekly hurling blitzes at their complex during the summer months (May – August).

Each blitz consists of 8 teams, split up into 6 groups of four. Each team will play the other 3 teams in their group once (in the group stage) of the competition. When the group stage is complete, the top team (team with most points and best score difference) in each group (6 teams) and the 2 best runners up will go through to play in the quarter-finals. From there the winners advance to the semi-finals and then the final.

HBI want to store the personal details on each player and team involved in the blitz. A record will be kept on players' and teams' stats throughout the tournament, including fixtures played, results and scores.

An individual award will be given to the player who scores the most throughout the tournament, so a record will need to be kept of each individuals scores.

Organisers want to be able to check fixture scores for individual fixtures for each stage.

4.1 Programming rules

Teams positions in each group are based on their results against each other. These positions will need to be programmed.

Fixtures in quarter-final, semi-final and final stages are dependent on the outcomes of the previous stages.

A players' total scores for a fixture and the tournament will require programming to calculate the totals.

A teams' total score for the tournament will require programming to calculate.

A teams' total score in a fixture will increase when a players' score is recorded.

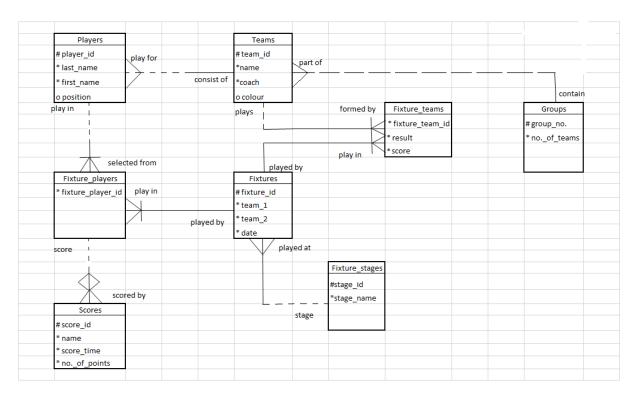# 5. Enhanced Entity Relationship Model (EER)

5.1 Entity Relationships

The business has identified several entities that play a key role in the development of the database. These include players, teams, fixtures, fixture players, fixture teams, scores, fixture stages and groups.

Relationships between these entities are described below:

- Each **player** may play for one **team**.
- Each **team** must consist of one or more **players**.

- Each **player** may be used as one or more **fixture_players**.
- Each **fixture_player** must be selected from one **team**.

- Each **fixture_player** may score one or more **scores**.
- Each **score** must be scored by one **fixture_player**.

- Each **fixture** must be played by one or more **fixture_players**.
- Each **fixture_player** must play in one **fixture**.

- Each **fixture** must be played by one or more **fixture_teams**.
- Each **fixture_team** must play in one **fixture**.

- Each **team** may play one or more **fixture_team**.
- Each **fixture_team** must be formed by one **team**.

- Each **team** may be part of one **group**.
- Each **group** must contain one or more **teams**.

- Each **fixture** must be played at one **fixture_stage**.
- Each **fixture_stage** may stage one or more **games**.

5.2 ER Diagram

*note: Entity names have been given a preceding 'h_' (e.g. **h_players**) in Oracle to group them together for easier navigation in object browser.

6. Normalised Tables

Players

player_id	team_id	first_name	last_name	position
52	101	Billy	Mason	forward
14	149	John	Peabody	midfielder
4	56	Derek	Langton	forward
104	236	Timmy	Tubridy	goalkeeper
111	426	Sean	Walsh	defender
87	149	Barty	McCarthy	Null

Fixture_players

fixture_player_id	player_id	fixture_id
132	52	12
145	14	426
751	4	426
23	104	12
11	111	296

Fixtures

fixture_id	stage_id	team_1	team_2	fixture_date
12	1	Slieverue	Tullogher	07/11/2017
296	1	Mullinavat	Mooncoin	07/11/2017
426	1	Glenmore	Kilmacow	07/11/2017
75	2	Slieverue	Glenmore	07/12/2017
839	3	Slieverue	Mullinavat	07/12/2017
19	1	Slieverue	Kilmacow	07/12/2017

Fixture_teams

fixture_team_id	team_id	fixture_id	result	score
652	101	12	w	2.14
123	149	426	w	1.11
14	56	426	l	0.12
36	426	296	w	3.07
101	101	839	w	2.16

Teams

team_id	group_no	name	coach	colour
101	1	Slieverue	Jimmy Jones	black and amber
149	3	Glenmore	Sally Fields	green and gold
56	3	Kilmacow	Eoin Biggins	Null
236	1	Tullogher	Paul Potts	Null
426	6	Mullinavat	Gimby Polstop	black and white
75	6	Mooncoin	Iggle Fliggle	green and white

Fixture_stages

stage_id	stage_name
1	group stage
2	quarter finals
3	semi finals
4	final

Scores

score_id	player_id	fixture_id	scorer_name	time	no._of_points
23	52	12	Mason	12.36	1
129	52	12	Mason	15.15	3
63	14	426	Peabody	Null	1
428	4	19	Langton	21.21	3
191	104	12	Tubridy	5.18	1

groups

group_id	no._of_teams
1	4
2	4
3	4
4	4
5	4
6	4

7. Table Mapping

Players

Col name	key type	optionality	data type	size	description
player_id	pk	#	NUMBER	(3)	unique player id
team_id	fk	*	NUMBER	(3)	id from team table
first_name		*	VARCHAR	(30)	player first name
last_name		*	VARCHAR	(30)	player surname
position		o	VARCHAR	(30)	player's position

Fixture_players

Col name	key type	optionality	data type	size	description
fixture_player_id	pk	#	NUMBER	(3)	unique fixture player id
player_id	fk	*	NUMBER	(3)	id from player table
fixture_id	fk	*	NUMBER	(3)	id from fixture table

Fixtures

Col name	key type	optionality	data type	size	description
fixture_id	pk	#	NUMBER	(3)	unique fixture id
stage_id	fk	*	NUMBER	(3)	id from fixture stage table
team_1		*	VARCHAR	(30)	team 1 name
team_2		*	VARCHAR	(30)	team 2 name
fixture_date		o	DATE	(30)	date of fixture

Fixture_teams

Col name	key type	optionality	data type	size	description
fixture_teams_id	pk	#	NUMBER	(3)	unique fixture teams id
team_id	fk	*	NUMBER	(3)	id from team table
fixture_id	fk	*	NUMBER	(3)	id from fixtures table
result		*	CHAR	(1)	team's result from fixture
score		*	VARCHAR	(5)	team's final score in fixture

Teams

Col name	key type	optionality	data type	size	description
team_id	pk	#	NUMBER	(3)	unique team id
group_no.	fk	*	NUMBER	(3)	id from groups table
name		*	VARCHAR	(30)	team name
coach		*	VARCHAR	(30)	team coach
colour		o	VARCHAR	(30)	team colour

Fixture_stages

Col name	key type	optionality	data type	size	description
stage_id	pk	#	NUMBER	(3)	unique stage id
stage_name		*	VARCHAR	(20)	name of tournament stage

Scores

Col name	key type	optionality	data type	size	description
score_id	pk	#	NUMBER	(5)	unique score id
player_id	fk	*	NUMBER	(3)	id from players table
fixture_id	fk	*	NUMBER	(3)	id from fixtures table
scorer_name		*	VARCHAR	(30)	name of scorer
score_time		o	NUMBER	(4,2)	time of score
no._of_points		*	NUMBER	(1)	no of points scored (1 (point) or 3(goal))

Groups

Col name	key type	optionality	data type	size	description
group_no.	pk	#	NUMBER	(1)	unique group number
no._of_teams		*	NUMBER	(1)	number of teams in group