

Data Management

by Rutendo Gore

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Rutendo Gore

P150317

Data Management

Beverly Holland

Data Management Design

Introduction

The swimming club named shark attack which is located in central Swansea, which offers swimming lessons and training for adults and children who live locally. The swimming club is now becoming more popular and as a result of this they want to improve their reputation. A system that allows them to record swimming pupils and their parents details for those swimming pupils who are under the age of 18. A large database of swimming coaches that match with the appropriate level classes. Since they use several pools for their teaching and training and they would like to record who will be completing and which category they are in.

A financial requirement for the running of the club, invoice the students/swimmers every term. Recording when swimming coaches are working and there is a fee for competitors entering any tournament therefore this will need to be calculated and recorded and appropriate invoices sent to the swimmers who wish to complete.

Swimmers Database Requirements

The database is to have a proper system in place that allows them to record the swimmers and their parents and to be able to produce invoices as a small fee has to be paid for the competitions.

A large database that has all the coaches available which days and times.

Improving a good reputation of the swimming club, by raising their profile by holding tournaments so that more people can participate.

Swimming coaches' timetable

Swimming coach	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Helen Maxwell	10am -2pm Beginners	8am-6pm Beginners	8am-4pm Beginners	D/O	D/O	8am-4pm Beginners	D/O

Amber Roxendale	11am-3pm Intermediate	8am-4pm Intermediate	11am-3pm Intermediate	8am-6pm Intermediate	9am-7pm Intermediate	D/O	11am -6pm Intermediate
Max Timers	D/O	D/O	8am-6pm Expert	12pm-4pm Expert	10am-5pm Expert	12pm – 8pm Expert	D/O
Robert Yates	D/O	11am -6pm Expert	8am -6pm Expert	11am-3pm Expert	11am-8am Expert	D/O	11am-6pm Expert
Luke Walters	9am-4pm Pro	D/O	11am-3pm Pro	D/O	12am-4 Pro	D/O	12am-4pm Pro
Zac Eberts	8am-6pm Pro	11am-3pm Pro	D/O	D/O	D/O	8am-6pm Pro	10am-3pm Pro

In this table that has been designed is a timetable for each of the swimming coaches, not every category has swimming lessons every day. Two swimming coaches teach one swimming category between them as you can clearly see from the table. I chose to design the coaches swimming timetable in a simple way as they are not switching from class to class as they do not have all the knowledge to teach in the various levels.

Swimming classes are as follows

- ❖ Beginners swimming classes are taught by Helen Maxwell
- ❖ Intermediate classes are taught by Amber Rosendale
- ❖ Expert swimming classes are taught by Max Timers and Robert Yates
- ❖ Pro swimming classes are taught by Luke Walters and Zac Erberts

Swimming categories

Level 1 and 2 Beginner

Level 3 and 4 Intermediate

Level 4 and level 5 Expert

Level 6 and level 7 Pro

Determinacy diagram

This table simply shows the diagram in table format, I have created two data determinacy diagrams for one swimmer and the attributes that relate to the swimming student.

Swimmer ID	Swimmer name	Swimming class	Swimming coach
120399	Ruth Jones	Beginner	Helen Maxwell
120398	Hannah James	Intermediate	Amber Roxendale
120320	Zack Feathes	Expert	Max Timers
120321	Mark Downshire	Pro	Luke Walters

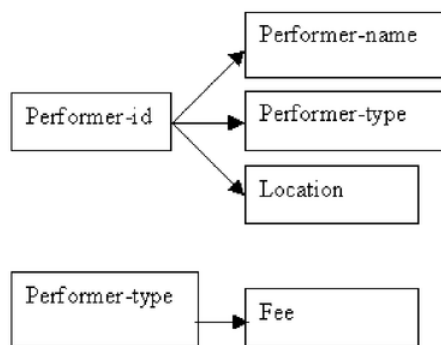
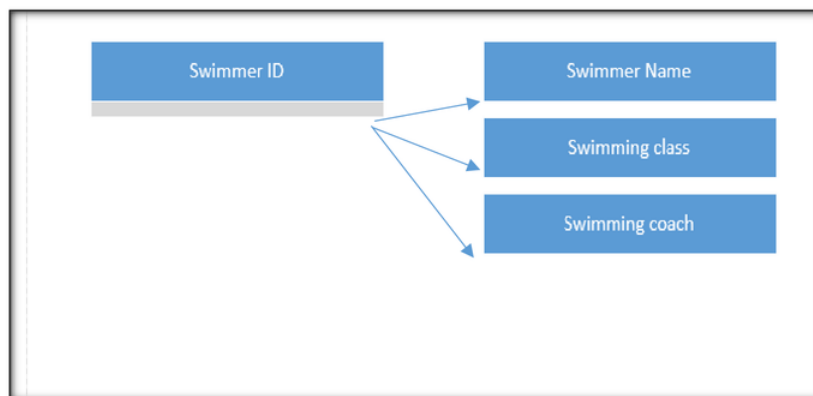


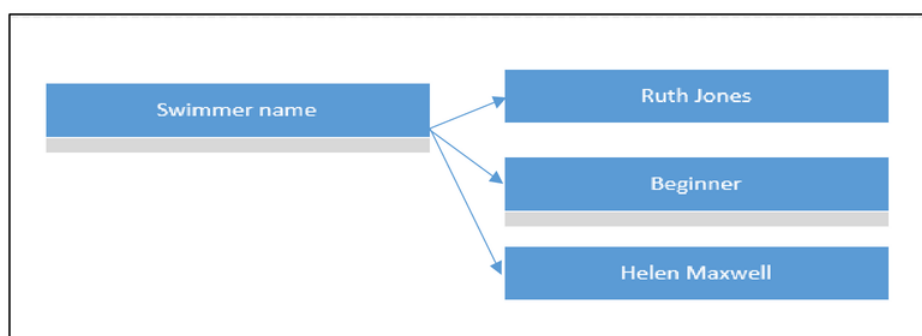
Figure 9.1

[1]

The picture above is a data determinacy diagram



This determinacy diagram that was created in Visio shows that there is a swimmer ID which is linked to each attribute, the swimmer ID allows the swimmer name to be identified as every swimmer has a unique Swimmer ID from the swimmer ID they can be identified to which swimming class they belong to and who their swimming coach is. Once several diagrams have been made you will be able to see more information relating to the diagram. The swimmer ID is the Primary key in the table.



This is also a determinacy diagram that shows the attributes relating to the swimmer name, the swimming class they belong too and the swimming coach. The diagram has attributes name relating to the swimmer name as you can see from the diagram.

Swimmer and Parents details

Swimmer name	Date of Birth	Swimming class	Swimmers Parents	Swimming coach	Contact Number
Ruth Jones	18/03/2000	Beginner	Neil and Sandra Jones	Helen Maxwell	01791234567
Hannah James	12/04/1999	Intermediate	James and Cassidy	Amber Roxendale	01791234568
Zack Feathes	12/06/2002	Expert	Rachel and Moses	Max Timers	01791234569
Mark Downshire	17/08/2004	Pro	Nigel and Hannah	Luke Walters	01791234561

Swimming coach's availability

Swimming coach	Availability	Days Off
Helen Maxwell	Mon,Tue,Wed,Sat	Thu ,Fri Sun
Amber Roxendale	Mon,Tue,Wed,Thu, Fri	Sat
Max Timers	Wed,thu,fri,sat	Mon , Tue
Robert yates	Tue,wed,thu,fri,sun	Mon,Sat
Luke Walters	mon	Tue ,Thu,Sat
Zac Erberts	Mon,tues,sat,sun	Wed,

This table shows the days that swimming coaches are working and the days that they have off , they will be paid accordingly from the days that they are working.

Field Name	Data type	Field Length	Constraint	Description
Client_id	Int	10	Primary key	Client id, Auto generated
Client_name	Varchar	20	Not null	Name of client
Password	Varchar2	30	Not null	Login Password for client
Contact_no	Int	15	Not null	Landline or mobile number
Email_id	Varchar2	30	Not null	Any email id
Max_Users	Int	10	Not null	Maximum number of users
Current_users	Int	10	Not null	Currently present user

[2]

Data Dictionary

A data dictionary has been used so that the data is easy to understand by suing the correct data types.

[3]

Field Name	Data type	Field size	Description	Example
Swimmer ID	Int	10	The number which uniquely identifies the swimmer	120389
Coach ID	Int	10	The number which uniquely identifies the coach	154891
First Name	Text	15	Name of the person	Rose
Last Name	Text	15	Last name of person	Smith
DOB	Int	6	The day they were born	29/03/1990

Data types

Varchar – Variable Character

Int- Integer a number

Text – Plain text

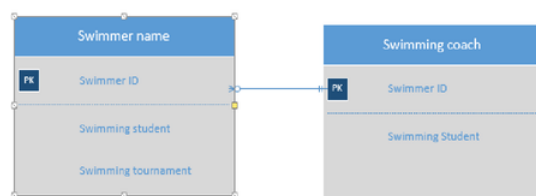
Entity Relationship Diagram

An entity relationship diagram to show the different relationships between the entities. In an entity relationship diagram there are different relationships. There can be a one to one relationship which means they only have one record either side. There is a one to many relationship where the key table for example a one teacher can have many students that is an example of a one to many relationship. There is also a many to many relationship where each individual record can be related to a number of records. [4]

In the swimming club there are different relationships

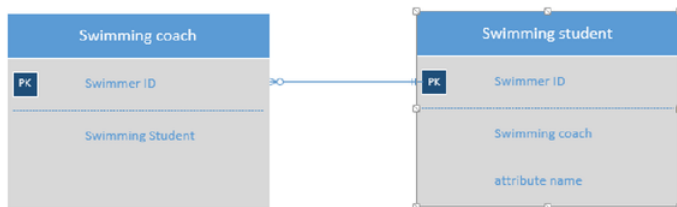
Swimmer to Swimming coach this relationship is a one to one relationship as one student can only have one swimming coach in the appropriate swimming class which would be beginner , this relationship could also be a one to many as in the table that has been created their a two swimming coaches for one class. Here is a diagram of a one to one relationship. This diagram can be linked as there is a primary key which is the swimmer ID.

One to one



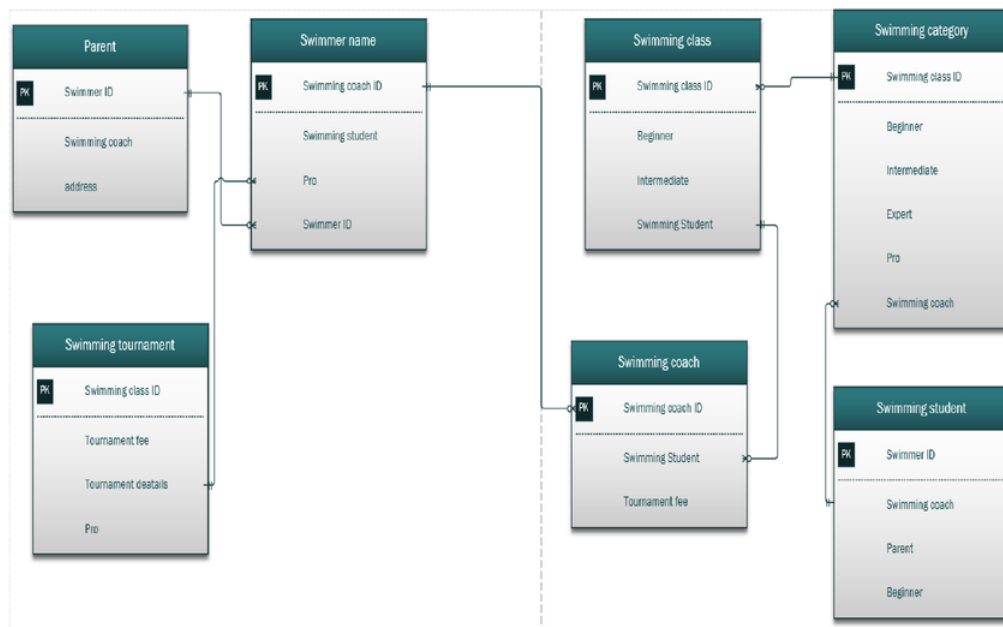
This diagram shows a one to one relationship which shows that the Swimmer has one swimming coach depending on the swimming class they are on, this relationship is excluding the various swimming classes expert and pro swimming classes.

One to Many



This diagram is a one to many diagram as a swimming coach has many swimmers, there is a Primary key that links the tables together.

Entity Relationship Diagram



This is the entity diagram that has been created for the swimming club, different attributes and entities have been added in the ERD. There are different relationships in the ERD but they all link together. There is a relationship between the swimmer and the parent, this relationship is linked by using the swimmer ID. The swimming tournament has a link as the swimming category pro is there which allows them to linking together. Swimmer name is linked too swimming coach by linking with the swimming coach ID and it is also linked to the swimming class which allows the swimming student to link this relationship is a one to many as the swimming coach has many students.

Design Methods

The principles used in the report vary. The determinacy diagrams were used to show the entity and the attribute, from one diagram you can create another diagram and there will be more information about the attributes, such as the swimmers name, swimmers, swimming coach and the level of the swimming class. Tables were used in word to clearly show the information in a suitable way, for showing the coaches availability, the swimming classes they teach. A data dictionary was added so that different data types can be identified so that it is easier to identify what type of data it is. For the final output an entity relationship diagram was created to show the relationships between different entities.

References

Bibliography

- [1] [Online]. Available: https://www.cs.uct.ac.za/mit_notes/database/htmls/chp08.html.
- [2] A. Gubicak, "A database," SQLShack, [Online]. Available: <https://www.sqlshack.com/sql-server-data-dictionary-want-create-one/>. [Accessed 22 01 2018].
- [3] L. Brandenburg, "What is data dictionary," Bridging the gap, [Online]. Available: <http://www.bridging-the-gap.com/data-dictionary/>. [Accessed 22 01 2018].
- [4] S. Harkins, "Relationship databases Defining relationships between database tables," Tech Republic, [Online]. Available: <https://www.techrepublic.com/article/relational-databases-defining-relationships-between-database-tables/>. [Accessed 22 01 2018].

Data Management

GRADEMARK REPORT

FINAL GRADE

55/100

GENERAL COMMENTS

Instructor

You start off well using data to prepare and analyse the requirements of the database. You present a timetable as an example of how the system would work. And this helps you analyse the requirements of the database.

You then present a screenshot of performance ID where did you get this from? – Does not make sense within the design of this database.

Although have presented some determinants he diagrams I do not feel you fully understand this process we would not see any test data on a determinants he diagram we only see the attribute names. You mention a data dictionary but you only show me one entry.

Some suitable entities have been presented in your ERD but you need to improve your ability to analyse data sets. You have swimming again/student are they not the same entity.

Suitable presentation but I do feel you do not fully understand the concept of data analysis.

6/10 11/20 25/45 10/20 3/5 55

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