

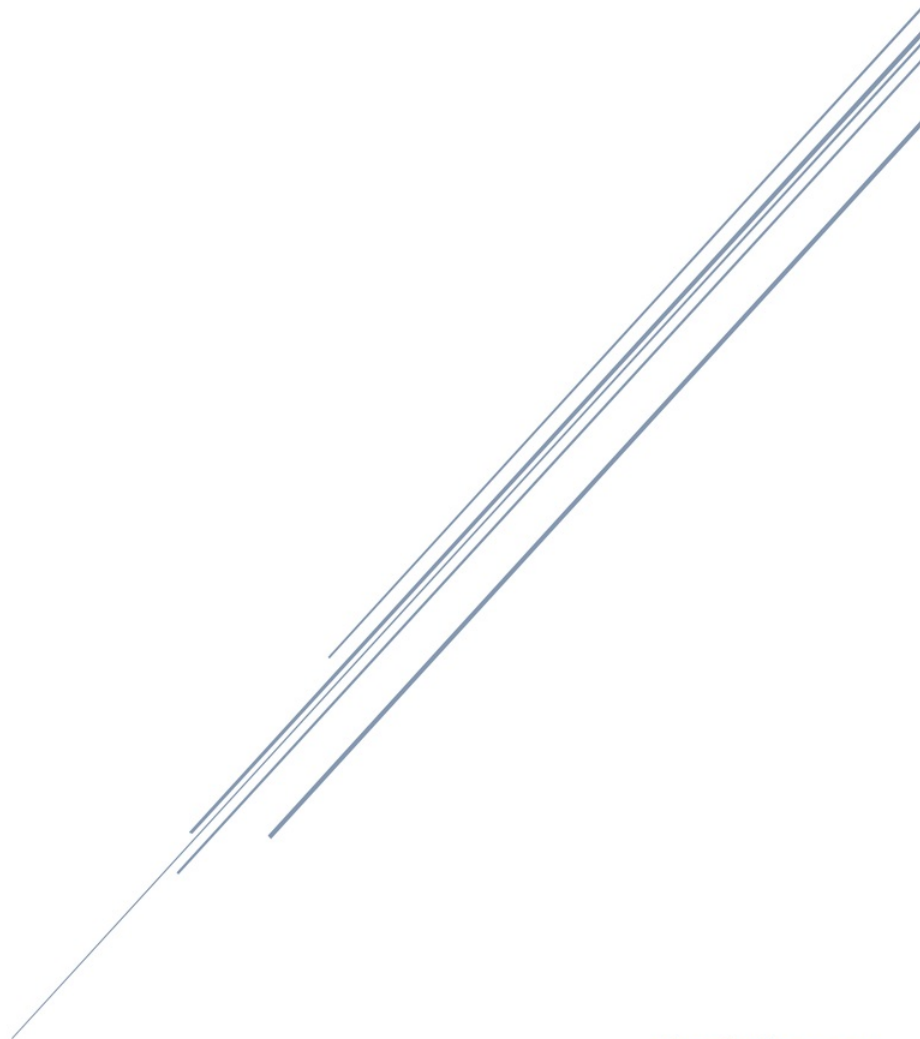
visio assignment

by Lloyd Daniel Thomas

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DATABASE MANAGEMENT

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Introduction

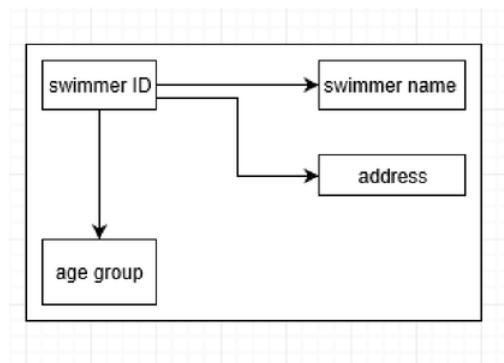
In this report, the objective of these diagrams is to design a database, for a group of lesuer center that is based around the county of Swansea. The databases will be created first by creating determinant database diagrams, that will be used as a wireframe for the database that will be built later on with erd's as a result of this The database will include various entities that will be used later to create a working interface for the leisure centers

Draw.io is the software that was used as a starting point to create a basic ERD, that will be used as a wireframe to build upon this is useful to start off with but can sometimes be more complex than using visio.

There are a few advantages as well as disadvantages to creating an ERD with visio, though there are advantages to be had as well. One of the advantages is the software is simple to use and will allow a user to create their ERD, in no time at all, but the only problem with this is that there can be a little bit of hassle if a user is trying to change the attributes on an entity, as this will select the entier entity not just the attribute,

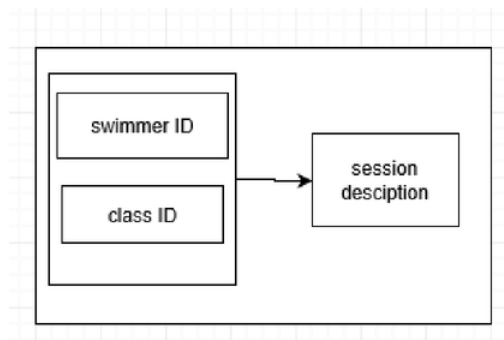
The second advantage is the page will expand to make it easier for the user to see what they are building, as well as make sure that the work they are doing has enough room and will not be clustered. Whereas if there where more entities on the page and the page could not expand then that would cause some problems with the relationships as each of the lines would start to overlap and would start to make it look very clustered. This would be another disadvantage to the visio software, the software has a useful feature that can deal with the cluster, if the page has to many lines then a user could change the color of some of the relationship to make them stand out from the originals. As this would help the consumer differentiate between the entities that are connected, and it will catch their eyes. The only problem with the relationships that visio has is that they can sometimes not go in straight lines, and this will make the table less appealing to professional buyers or board meetings or it can just be an annoyance to people with OCD or who like order and regime.

determinant database diagram[1]

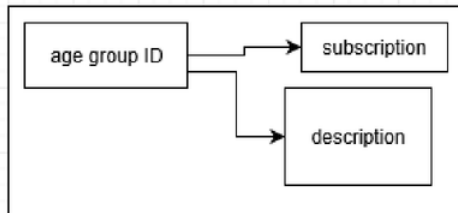


Swimmers id

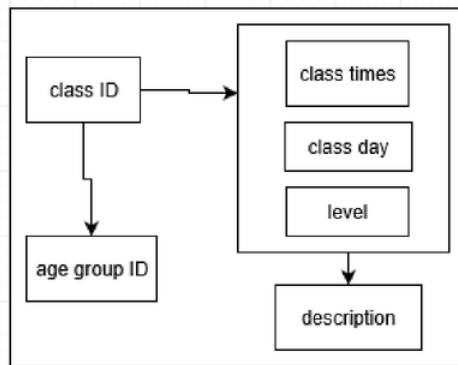
This is used as a way for a lesuier center to store a users data in one easy place such as if they click on the user's id the swimmer's name, address and their age group will be pulled from a server that is where the user's data is stored



This is used to identification group sessions that will include both swimmers and will also show when the time and date of the sessions are using the class Identification.



The age group will be the ones that will be paying the subscription as the age will depend on who is the bill payer and who is the recipient.



Class ID is used as a way to break the swimmers into groups that will have their own lessons as there groups of a similar level will all be practicing and taught a lesson at specific times of days and on individual days of the week with a description to help the swimmers understand a little about the lesson. [1]

Entity Relationship Diagram

There are a few different subjects that are talked about such as:

Class

The class which shows a class ID will show what classes there are as well as their identification number and their written description of the class there is.

Level ID is used to keep track of different people's levels and how much progress they have made towards their next level.

Level.

Date & time.

Level

Level ID is used to keep track of different people's levels and how much progress they have made towards their next level.

Training description of the training.

Class ID will show what classes there are as well as their identification number and their written description of the class there is.

Student

Student ID this will be used to keep track of each students individual identification and make it easier to contact them

Name ID this will list each of the student's names in the classes and link them with there student ID

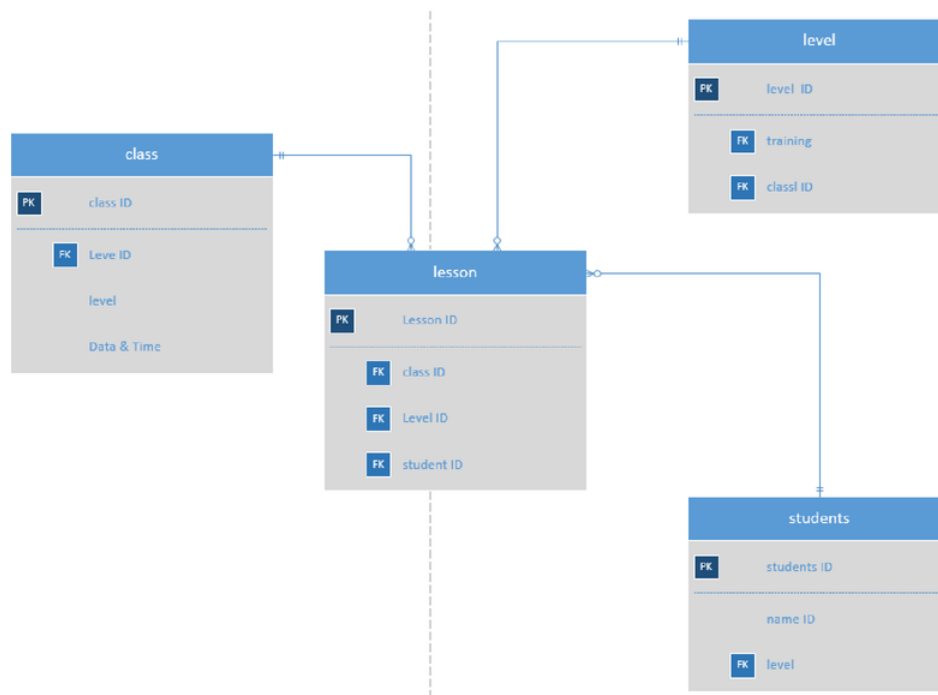
Level.

Lesson

Class ID this will look up data in the class entity table.

Level ID this will look up data in the level entity table.

Student ID this will look up data in the student entity table.



Student

Class

- class Id –Int/String
- Level Id- Int
- Level-Int
- Date& Time-date and time

Student

- Name ID- string
- Level-Int

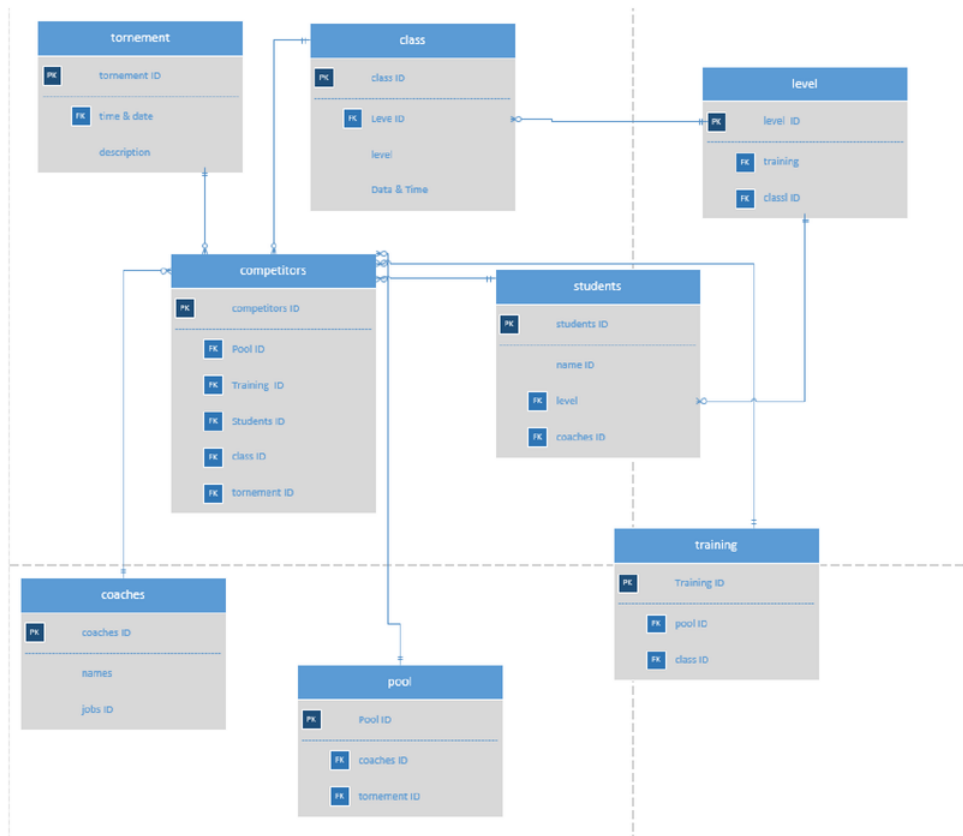
Level

- Training-description
- Class ID-int/string

Lesson has many students to one lesson

There are many lessons to one level

There is one Class to many lessons



Tournaments

Coaches	Pool	Training	Students	Levels	Class	tournaments
Names-string	Coaches ID-string/int	Pool ID-string	Student Name ID-string	Training-description	class Id – <u>Int/String</u>	Date and time – Date and time
Job ID-string/int	Tournament ID-string/int	Class ID-int/string	Level-Int	Class ID-int/string	<u>Level Id- Int</u>	Description-string
					<u>Level-Int</u>	
					<u>Date & Time-date and time</u>	

Many competitors can compete in one tournament

One coach trains many competitors

One pool can hold many competitors

Many competitors can train many times

Many students can have one level

Many classes to gain one level

Tournament

Tournament ID this will be used to identify the tournament or look up different swimmer's times.

Time & Date this will show the time and date of the tournament.

Description this will tell people where and what the tournament is about.

Ref.Class

The class which shows a class ID will show what classes there are as well as their identification number and their written description of the class there is.

Level ID is used to keep track of different people's levels and how much progress they have made towards their next level.

Level.

Date & time.

Level

Level ID is used to keep track of different people's levels and how much progress they have made towards their next level.

Training description of the training.

Class ID will show what classes there are as well as their identification number and their written description of the class there is.

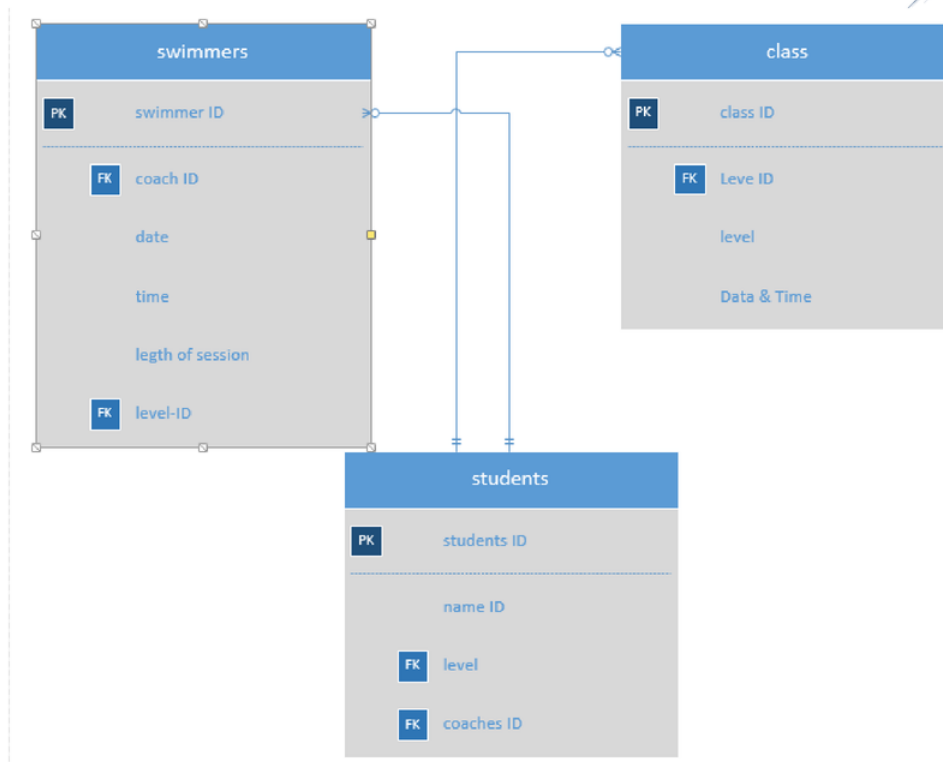
Student

Student ID this will be used to keep track of each students individual identification and make it easier to contact them

Name ID this will list each of the student's names in the classes and link them with there student ID

Level.

Coaches ID this will be used to link different coaches with their classes and their identification numbers among other personal information.



Customer's Information

Swimmer ID	Class ID	Student
Coach ID-Int/String	Names ID-String	Level ID-Int
Date-Date	Level-Int	Level-Int
Length of session-Time	Coaches ID-string & Int	Date & Time-Date & Time
Level ID-Int		

Many swimmers may become a student.

Many classes can be taken by one student.

Student

Student ID this will be used to keep track of each students individual identification and make it easier to contact them

Name ID this will list each of the student's names in the classes and link them with there student ID

Level.

Class

The class which shows a class ID will show what classes there are as well as their identification number and their written description of the class there is.

Level ID is used to keep track of different people's levels and how much progress they have made towards their next level.

Level.

Date & time.

Swimmer ID

Swimmer ID this will be used to keep track of each swimmer individual identification and make it easier to contact them

Name ID this will list each of the swimmer's names in the classes and link them with there student ID

Level.

Date.

Session time this will be used to log the time of a users session that they use the leisure center.

Definitions

Entity relationship

Entity relationship diagrams are a set of objects that will hold a set amount of data that will be connected to one another or be connecting via an intermediary which will be a way the two connect such as shop and supplier can connect with one another and if you add in local the entity changes to a local shop with local products. "An entity-relationship diagram (ERD) is crucial to creating a good database design" [2].

Foreign keys

Foreign keys are used as a look-up between entities that will search for the connection of the primary Key in the entity and will find the connecting foreign Key in the connecting entity table. [3]

Primary Key

This is used as a unique identifier which row is looked up. Instead of by Column where as a foreign key will there can only be one primary key in an entity table as that is a main item in that list whereas there can be many foreign keys. [3]

Concatenated keys

Concatenated key is used in a database as a way for the database to find information easier and more reliable information that could conflict and have the same name but would have a different identification number this would make it easier to find as if an object had a similar name to another in the database that is where the identification number would be of use and the concatenated key would look at both the name and ID to find the correct row.

Relationships

Relationships are what connects entities to one another there are many different types of ways there is one to one which is used in some way such as teacher to lesson, there is also one-to-many this is used as one teacher can use have many students, there is also many to many which are used as many students can have many lessons. [3]

Entity

Entities are used in a database as a way to show how and what is being stored in the entity things such as IDs and or an object that is being stored in the database but the word entity is also a word that is used to describe an object that is in the real world as a physical object like things such as computers, cars and other objects these objects can be entered in to a database as a table and be able to expand as a logical entitie. (An entity may be defined as a thing which an organization recognizes as being capable of an independent existence and which can be uniquely identified)[3]**referenced transcript,**

Conclusion

For this conclusion, I think that the design of the ERD and determinant database,

1. Is a basic but will be simple enough for a user to use and keep the data that they want and will be able to teach it to others in a quick and easy manner.
2. the next stage of designing will need to use the Microsoft access software for the next part to create a database by using the software to create a database using the ERD as a wireframe that will help the next part by using the entities as guide, to different IDs such as a person's name and address or their coaches name and their identification.
3. There may be problems with implementing some of the different subjects in the ERD this is because some of the subjects require personal information, and will need a lot more than random letters and numbers to have a database, which will save the data. There will also be the problem that if there is a lot of people that use the leisure center then the database will need to store a lot of data on users' names and their addresses.
4. The design will work as a starting point but will need to be altered before the final stage as to make the design run as smooth as possible the alterations of the database will be managed at the next stage of the project.

Bibliography

- [1] P. Ward and G. Dafoulas, Database Management Systems, London: Thomas Learning, 2006.
- [2] M. Chapple, "Determinants in Databases," ThoughtCo., 19 01 2018. [Online]. Available: <https://www.thoughtco.com/determinant-definition-1019250>. [Accessed 29 01 2018].
- [3] Technopedia, "Entity-Relationship Diagram (ERD)," Technopedia, 2018. [Online]. Available: <https://www.techopedia.com/definition/1200/entity-relationship-diagram-erd>. [Accessed 25 01 2018].
- [4] J. L. Harrington, Relational Database Design Clearly Explained, London: Elsevier Science, 2002.
- [5] P. Beynon-Davies, Database Systems, Hampshire, new york: Paulgrave Mackmillan, 2004.

FINAL GRADE

62/100

GENERAL COMMENTS

Instructor

A good introduction with some reference to the theoretical elements of database analysis. You mention a leisure centre and some elements of your report trying to mix things up this is a swimming club.

Appropriate use and it attempts to normalise the data through determinants he diagrams that perhaps you could have also used some test data to confirm your overall design.

Suitable tables but be careful of the way you use PK/FK e.g. your competitors table consists of all FK no independent fields. What about the student is the competitor not also a student of the swimming club?

Some very good work presented to a high standard but a little bit more work on testing test data when normalising.

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