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IST 659

**Part 1: Design**

Project Description: 1

[Data](https://docs.google.com/document/d/1eYOD0k4RUN7ok-umpmdUqCal6Bc4sKuECRO9tG1gm4c/edit#heading=h.fzcmqc3941ar) Dictionary: 1-2

[Data Questions:    3](https://docs.google.com/document/d/1eYOD0k4RUN7ok-umpmdUqCal6Bc4sKuECRO9tG1gm4c/edit#heading=h.smbvkhqdxx11)

[Entity Relationship Diagram:    3](https://docs.google.com/document/d/1eYOD0k4RUN7ok-umpmdUqCal6Bc4sKuECRO9tG1gm4c/edit#heading=h.hw31dhgo5bjh)

[Logical Model Diagram:   4](https://docs.google.com/document/d/1eYOD0k4RUN7ok-umpmdUqCal6Bc4sKuECRO9tG1gm4c/edit#heading=h.jkexl3efnk2k)

Normalized Model:    4

**Project Description:**

My project is to create a database for Cass County Special Olympics of North Dakota in order to gain efficiencies related to storing data and using the data to maintain historic knowledge. By creating this database, the Area Director can quickly update, maintain, and delete data related to athletes, coaches, sports, and state games. This database will only be used for swimming (currently) but will build it knowing that in the future it may be used for additional sports.

Currently Special Olympics uses forms that are completed by athletes, coaches, staff, and directors. All these forms are then added into several spreadsheets that track the information related to each specific form. These spreadsheets are updated year to year, season to season, to maintain current information. This current process lacks the ability to see historic data when needed. This will also allow coaches a faster and more efficient way to identify athletes who are eligible for specific sporting events, evaluate performance over time and to contact previous coaches and other volunteers when more are needed.

**Data Dictionary:**

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Attributes | Data Dictionary | Description |
| Athlete |  |  | An athlete is someone who participates in the Special Olympic program and elects to participate in a sport(s). |
|  | Athlete name | Required | Composite of first, middle initialvarc and last name |
|  | Athlete Address | Required | Composite of street, city, state, zip |
|  | Staff Name | Required | Composite of first and last name |
|  | Medical Condition | Required | Varchar and Multivalue |
|  | Stroke | Required | Varchar and Multivalue |
|  | Stroke Time | Required | Datetime and Multivalue |
| Coach |  |  | A coach is someone who volunteers to coach the sport(s). |
|  | Coach Name | Required | Composite of first and last name |
|  | {Coach Address} | Optional | Composite of street, city, state, zip |
|  | Certified | Required | Varchar |
|  | Certification Date | Required | Datetime |
| Practice |  |  | A practice is a one-hour session held during the week, but not on a game day. |
|  | Attended | Required | Datetime and Multivalue |
|  | Missed | Required | Datetime and Multivalue |
|  | Excused | Required | Datetime and Multivalue |
|  | Building Name | Required | Varchar |
|  | Building Address | Required | Composite of street, city, state, zip |
| State Games |  |  | State Games is a combination of sporting events that are held at specified periods throughout the year (one for each season). |
|  | Judges Name | Required | Composite of first and last name |
|  | {Judges Address} | Optional | Composite of street, city, state, zip |
|  | State Game Season | Required | Varchar |
|  | Start Date | Required | Datetime |
|  | End Date | Required | Datetime |
|  | Building Name | Required | Varchar |
|  | Building Address | Required | Composite of street, city, state, zip |
| Sport |  |  | A sport is the given athletic sport that is being played. |
|  | Sport Name | Required | Varchar |
|  | Sport Season | Required | Varchar |
|  | {Team Name} | Optional and Unique | Varchar |
|  | Start Date | Required | Datetime |
|  | End Date | Required | Datetime |

**Data Questions:**

The below questions are information that would typically be queried by coaches or the Area Director:

How many swimming athletes participated in the 2018 State Games?

Who were the top 10 fastest 25M freestylers and what are their times (fastest to slowest)?

Are all the coaches currently certified?

How many swim events are there and what are they?

Where are practices held?

**Entity Relationship Diagram:**

For the above relationships the model looks like the following.

A screenshot of text

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**Logical Model Diagram Steps and Diagram:**

In order to convert our ERD into a Logical Model we need to follow these steps:

1. Begin by mapping the regular entities.
2. Breakdown the composite attributes into simple attributes.
3. Create two new relationships for each of the multivalue fields.
4. Indicate primary and unique constraints.
5. Add the foreign keys to each of the Many side of the newly created tables.
6. Breakdown each Many-to-Many relationship using associative tables.
7. Map the relationships.

A screenshot of a cell phone

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**Normalized Model:**

At this point, my model is already in 3NF and no further normalization is required.