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Announcements

- Project 3B
  * Build the queries
  * Answer the questions
  * Due Tuesday, June 10, before Noon
    - Save database and queries, and upload to Collect It
    - Submit quiz

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Demo

- querySailorAge
  * current age: DateDiff("yyyy",[tableSailors]![birthdate],Now())

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Announcements

- Free copy of Access, Vista, etc., for educational/academic use:
  * Links on Computing page on Course Web site
    - Search for CSE or INFO to find the link on the page
    - Username is your full UW email address
    - Password is different!
      – Click on "send a reminder"
      – Check wherever your email forwards to

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Announcements

- Rubrics for Quick Writes will be available this week

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Designing and Querying the Database

Hands on in Access

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Animation

- A natural join

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Student Athletes

- **The Area being Modeled is:**
  - Athletes and Teams in High School.
- **User Requirements:**
  - A Database for an athletics department
  - Storing details of
    - Teams, with division, gender, coach (Student) Athletes data file.

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Student Athletes

- Individuals are selected for a team.
- Track points awarded to each student for participating in a sport for the awarding of school letters.
- The Database tracks student Athletes over five years with any given Athlete participating in multiple sports in a given year.

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Student Athletes

- THINGS of Interest, include :
  - Athletes
  - Events
  - Points earned for success
  - Teams
- These THINGS are **related** as follows:
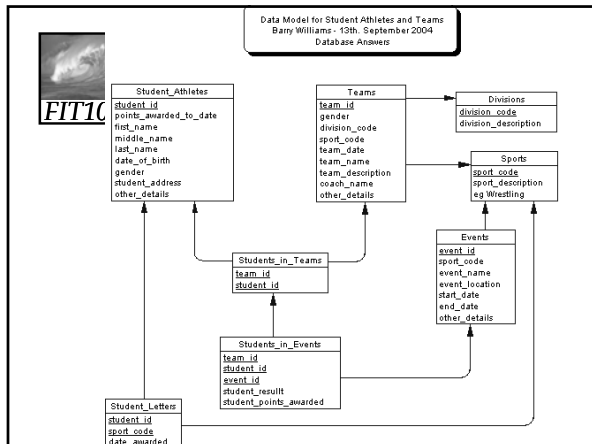 - A Student Athlete can participate in zero, one or many TEAMS.

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Athletes and Teams

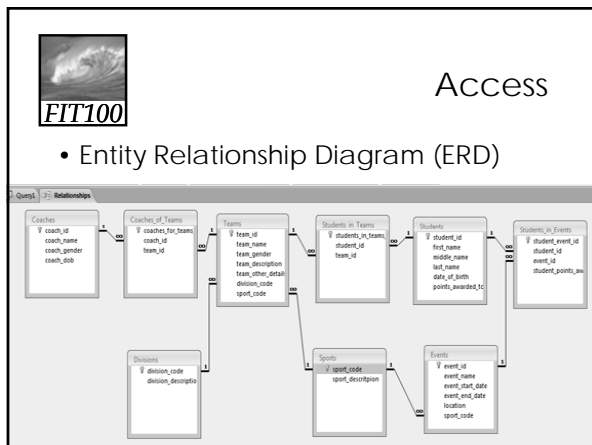|	
student_id	team_name
student_result_at_event	student_gender
student_points_to_date	team_description
student_points_at_event	student_address
student_first_name	coach_name
letters_sport_code	student_other_details
student_middle_name	team_other_details
letters_awarded_date	division_description
student_last_name	sport_description
team_gender	event_name
student_date_of_birth	event_start_date
event_location	event_end_date
	event_other_details

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Exercise

- Build the Student Athletes database
  - Work in teams of 2 or 3
  - You have 15 minutes

Slide 1

Data Model for Student Athletes and Teams
Barry Williams - 13th. September 2004
Database Answers

Slide 2 — Demo

Demo

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- Relationships in Access
  - ∗ Database Tools > Relationships
  - ∗ Right-Click > Show Tables
    - Add tables needed for Query
  - ∗ Double-click on fields needed for query
  - ∗ Checkbox is checked for columns that will show

Slide 3 — Access

Access

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- Entity Relationship Diagram (ERD)

Slide 4 — DB Design Questions

DB Design Questions

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- Bridge tables
  - ∗ Transform many:many into one:many
    - Students_in_Teams
    - Students_in_Events
    - Coaches_of_Teams
- Lookup Tables
  - ∗ Helps data entry
    - Division
    - Sport
    - State abbreviations

Slide 5 — Query Examples

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From simple to complicated

QUERY EXAMPLES

Slide 6 — Queries

Queries

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- List all student athletes
  1. **SELECT** * **FROM** Student_Athletes
     – Wild card * selects ALL fields
  2. **SELECT** * **FROM** Student_Athletes
     ORDER BY student_name **ASC**
     – Sorts on specified field in ascending order (A-Z, 0-9)
  3. **SELECT** * **FROM** Student_Athletes
     ORDER BY student_name **DESC**
     – Sorts on specified field in descending order (Z-A, 9-0)

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Queries

4. Which students' last names begin with 'Smith'?
   SELECT last_name, first_name
   FROM Student_Athletes
   WHERE last_name **LIKE** "Smith*"
   - * is the wildcare that replaces any number of characters

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Queries

5. How many students have last names beginning with 'Sm'?
   SELECT COUNT(student_id)
   FROM Student_Athletes
   WHERE last_name **LIKE** "Sm*"
   ORDER BY last_name

   - Use LIKE and the wildcard (*)

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Queries

5. How many students have last names beginning with 'Sm'?
   SELECT COUNT(student_id)
   FROM Student_Athletes
   WHERE last_name **LIKE** "Sm*"
   ORDER BY last_name

   - Use LIKE and the wildcard (*)

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Queries

6. Which students have last names with 'nn' somewhere in the middle?
   SELECT COUNT(last_name)
   FROM Student_Athletes
   WHERE last_name **LIKE** "*nn*"

   - Use wildcard (*) at both ends

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Queries

7. What are the average points won by student athletes?
   SELECT AVG(student_points_awarded) **FROM** Student_Athletes

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Queries

8. Show a listing of events sorted by starting date.
   SELECT *
   FROM Events
   ORDER BY event_start_date

Queries

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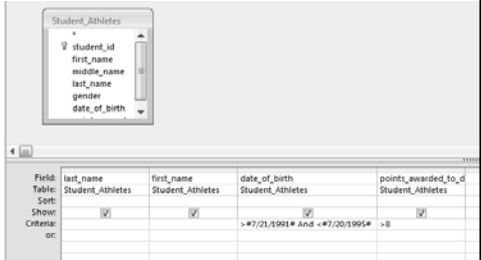9. How many students were born between 7/21/91 and 7/20/95 and have earned over 8 points?

   SELECT last_name, first_name, points_earned
   FROM Student_Athletes
   WHERE
   date_of_birth **>** #7/21/1991# **AND**
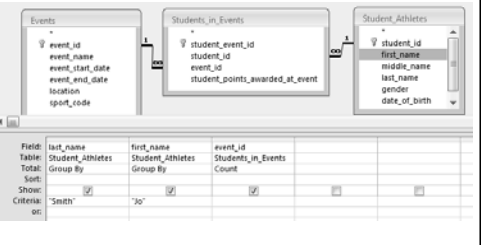   date_of_birth < #7/20/1995# **AND**
   points_earned > 8

Queries

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9. Design View:

Queries

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10. How many times has Jo Smith competed?

Queries

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10. How many times has Jo Smith competed?
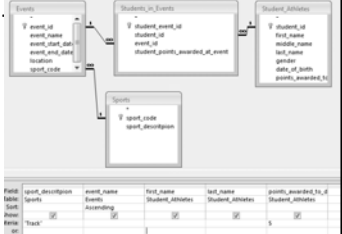

Queries

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11. List all the events involving track and students who have earned at least 5 points.

Queries

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11. List all the events involving track and students who have earned at least 5 points.

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Queries

12. List all students who have earned between 5 and 8 points sorted with highest points first.

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Queries

12. List all students who have earned between 5 and 8 points with highest points listed first.

Student_Athletes

- student_id
- first_name
- middle_name
- last_name
- gender
- date_of_birth
- points_awarded_to_date

Field:	last_name	first_name	points_awarded_to_d
Table:	Student_Athletes	Student_Athletes	Student_Athletes
Sort:			Descending
Show:	✓	✓	✓
Criteria:			>2 And <9
or:			

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Queries

13. Show a listing of the average number of points won by students in each sport.

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For more information

- **sum, avg, max, min, count, etc.**
- **W3 Schools: SQL Tutorial**
  - ∗ **Search for Aggregate Functions**
  - ∗ http://www.w3schools.com/sql/sql_groupby.asp