Announcements

- Project 3
  * 3A
    - Build the tables
    - Enter the data
    - Due tonight before 11pm
  * 3B
    - Build the queries
    - Answer the questions
    - Due Monday, March 17, before 11pm

Project 3A

- If your average age is rounding up, see the Note in the sidebar in the project description
- If you can’t enter the BID, SID, RID with the numbers given, we changed the numbers so they’ll work with an autonumber field. Look in the project description for the new numbers.

Designing and Querying the Database

Hands on in Access

Agenda

- Reflection paper #3
- Finish up with database design
- SQL Queries for Project 3B

Athletes and Teams

- 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.
Building the Database

• Last time
  ∗ You built a database on paper and we started building the tables.

• After class
  ∗ I continued building the database

• Today we’ll
  1. Look at tricky parts of the design
  2. Demo queries in Access

Reflection Paper

• Before we do that,
  ∗ You will write a reflection paper
    • Close your laptops
    • Close your books

Demo

• 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

Access

• Entity Relationship Diagram (ERD)
DB Design Questions

• 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

From simple to complicated

QUERY EXAMPLES

Queries

1. List all student athletes
   • SELECT * FROM Student_Athletes
     - Selects all fields
   2. SELECT last_name, first_name 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)
   4. Which students’ last names begin with ‘Smith’?
      • SELECT last_name, first_name FROM Student_Athletes
      WHERE last_name LIKE “Smith*”
      • * is the wildcard that replaces any number of characters
   5. How many students have last names beginning with ‘Sm’?
      • SELECT COUNT(student_id) FROM Student_Athletes
      WHERE last_name LIKE “Sm*”
      • Use LIKE and the wildcard (*)
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

7. What are the average points won by student athletes?

```
SELECT AVG(student_points_awarded) FROM Student_Athletes
```

8. Show a listing of events sorted by starting date.

```
SELECT * FROM Events
ORDER BY event_start_date
```

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
```

10. How many times has Jo Smith competed?
10. How many times has Jo Smith competed?

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

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

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