



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.




Athletes and Teams

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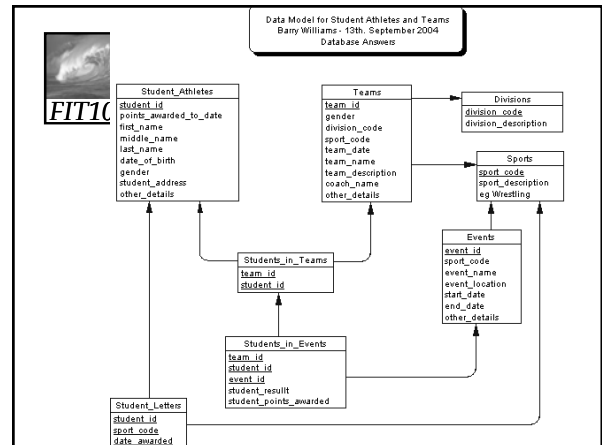

Building the Database

- 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



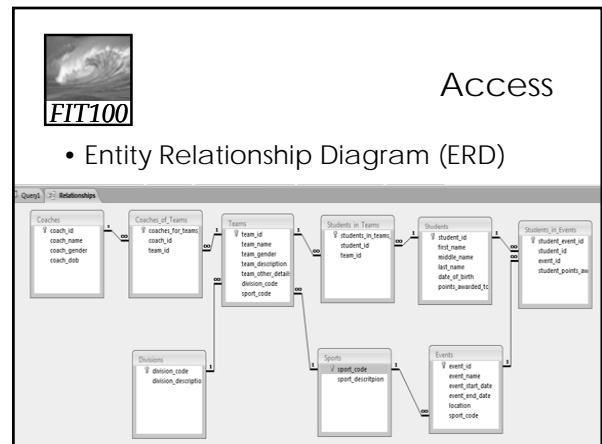
Reflection Paper


- 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






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

- 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)




Queries

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




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 (*)




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 (*)



Field:	student_id	last_name
Total:	Student_Athletes	Student_Athletes
Sort:	Count	First
Show:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:		Like "Sm"
SQL:		




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




Queries

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

```

SELECT AVG(student_points_awarded) FROM
Student_Athletes
    
```




Queries

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

```

SELECT *
FROM Events
ORDER BY event_start_date
    
```




Queries

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

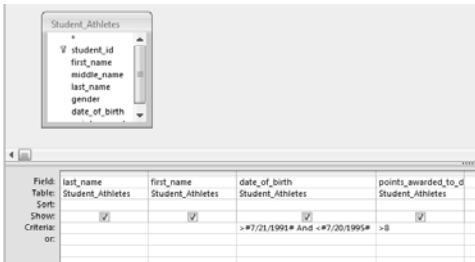

```

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

9. Design View:

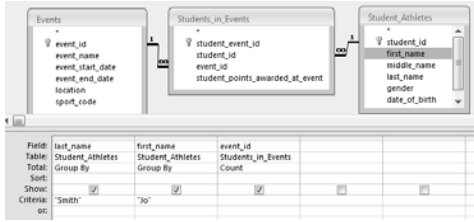
Queries

10. How many times has Jo Smith competed?




Queries

10. How many times has Jo Smith competed?




Field:	last_name	first_name	event_id
Table:	Student_Athletes	Student_Athletes	Students_in_Events
Total:	Group By	Group By	Count
Sort:			
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:	"Smith"	"Jo"	
on:			



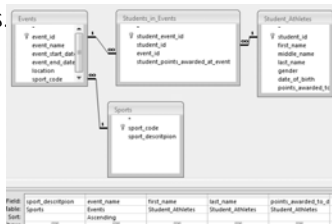
Queries

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




Queries

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




Field:	sport_description	event_name	first_name	last_name	points_earned_to_d
Table:	Sports	Events	Student_Athletes	Student_Athletes	Student_Athletes
Sort:		Ascending			
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:	"Track"				
on:					



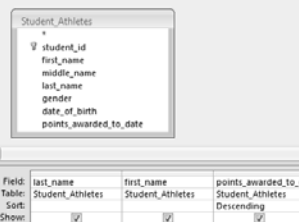
Queries

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




Queries

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



Field:	last_name	first_name	points_earned_to_d
Table:	Student_Athletes	Student_Athletes	Student_Athletes
Sort:			Descending
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			>=5 <=8
on:			



Queries

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