SchoolNova

IT102

SQL Select Statement

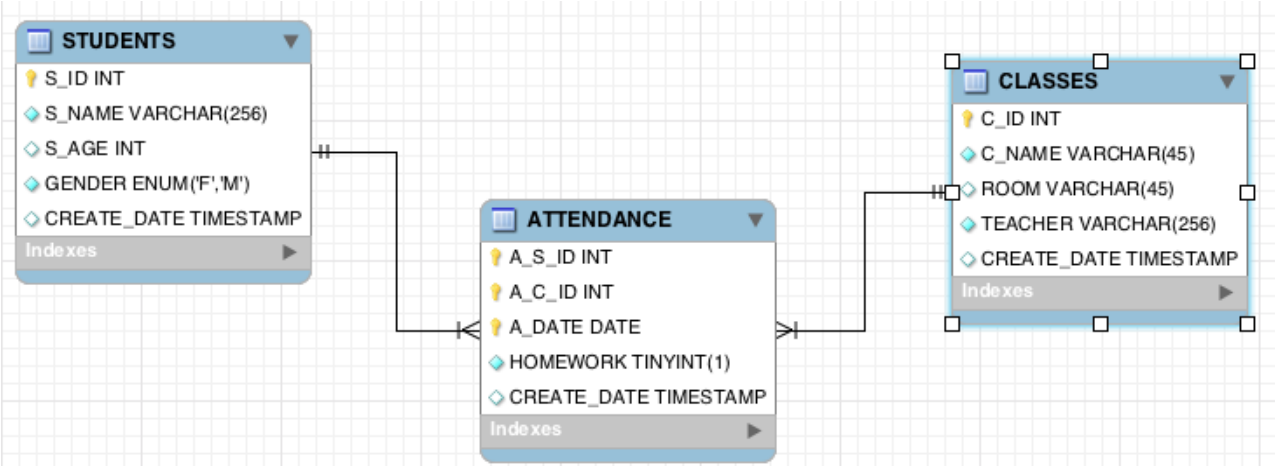
Functions

- COUNT - Return a count of the number of rows returned
- MIN - Return the minimum value
- MAX - Return the maximum value
- SUM - Return the sum
- AVG - Return the average value of the argument
- Examples:
  - SELECT COUNT(*) FROM STUDENTS;
  - SELECT AVG(S_AGE) FROM STUDENTS;
  - SELECT MIN(S_AGE) FROM STUDENTS;
  - SELECT COUNT(*) FROM CLASSES;

GROUP BY

- The GROUP BY clause groups rows on the basis of similarities between them.
- For example, grouping all the rows in the ATTENDANCE table on the basis of CLASS DATE would produce a count of students in attendance per Sunday. Grouping all the rows in the ATTENDANCE table on the basis of CLASS ID and CLASS DATE would produce the a count of students per class per Sunday.
- In short, the GROUP BY clause is frequently used to formulate questions based on the word “per”.

- SELECT S_AGE, COUNT(S_ID) AS NUMBER_OF_STUDENTS FROM STUDENTS GROUP BY S_AGE;
- SELECT GENDER, COUNT(S_ID) AS NUMBER_OF_STUDENTS FROM STUDENTS GROUP BY GENDER;
- SELECT A_DATE, COUNT(A_S_ID) AS STUDENTS_WITH_HW FROM ATTENDANCE WHERE HOMEWORK=1 GROUP BY A_DATE;
- How many classes does every teacher teach?

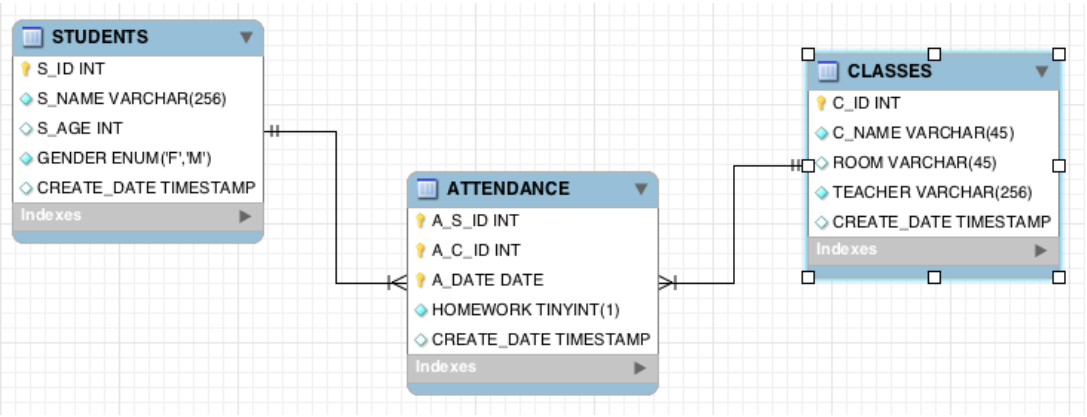


http://www.schoolnova.org/student_area/IT102/IT102_Lesson_7.sql

ORDER BY

- What is the sequence of results returned by a SELECT statement? Without the ORDER BY clause, the sequence is unpredictable.
- The addition of the ORDER BY clause guarantees that the rows will be sorted in a certain way.
- The simplest form of ORDER BY clause is sorting on one or more columns.
- You can specify the sorting order:
  - ASC – Ascending: 0 – 9, A – Z
  - DESC – Descending: 9 – 0, Z – A

- SELECT S_NAME, S_AGE FROM STUDENTS ORDER BY S_AGE DESC;
- SELECT S_NAME, S_AGE, GENDER FROM STUDENTS ORDER BY S_NAME ASC;
- SELECT DISTINCT TEACHER FROM CLASSES ORDER BY TEACHER ASC;
- List the dates when Maxim submitted homework ordered by ATTENDANCE.A_DATE in descending order



Homework

- New schema (tables and data) can be loaded from http://www.schoolplusstonybrook.com/IT102/IT102_Lesson_7.sql
- Select all classes ordered by class name.
- Count classes per teacher, ordered from high to low. Show teacher's name and how many classes s/he teaches, starting from the teacher who teaches most classes.
- Find the student(s) who submitted most of their homework (write an SQL statement that counts all homework per student and orders results by homework in descending order).
- How would you change the database design if you had to collect information about student's grades? What tables and/or columns would you add?