A **foreign key** is a column (or collection of columns) in one table that refers to the primary **key** in another table (the base table).

**Consider the following schema:**

1. classroom(building, room\_number, capacity)
2. department(dept\_name, building, budget)
3. course(course\_id, title, dept\_name, credits)
4. instructor(ID, name, dept\_name, salary)
5. section(course\_id, sec\_id, semester, year, building, room\_number, time\_slot\_id)
6. teaches(ID, course\_id, sec\_id, semester, year)
7. student(ID, name, dept\_name, tot\_cred)
8. takes(ID, course\_id, sec\_id, semester, year, grade)
9. advisor(s\_ID, i\_ID)
10. time\_slot(time\_slot\_id, day, start\_time, end\_time)
11. prereq(course\_id, prereq\_id)
12. Draw a dependency graph for the schema (The nodes of these graph are table names. If tableA has a foreign key references tableB, draw an arrow from tableA to tableB.) For example,

Course

Department

Diagram

Description automatically generated

1. Because of the foreign keys, the create table statements cannot be executed in an arbitrary order. Give a sequence of table numbers for valid create table statements.

2,4,7,3,9,8,11,5,6,1

1. Can the records be inserted into the tables in the same order given in the previous question?

Yes

1. Suppose that we would like to delete all records from all tables. Give a sequence of table numbers for valid delete statements.

10, 1, 6, 5, 11, 8, 9, 3, 2, 4, 2

1. Suppose that we would like to drop all tables. Give a sequence of table numbers for valid drop table statements.

10, 1, 6, 5, 11, 8, 9, 3, 2, 4, 2