

Data model Schema and Instance

 [javatpoint.com/dbms-data-model-schema-and-instance](https://www.javatpoint.com/dbms-data-model-schema-and-instance)

- The data stored in database at a particular moment of time is called instance of database.
- The overall design of a database is called schema.
- A database schema is the skeleton structure of the database. It represents the logical view of the entire database.
- A schema contains schema objects like: table, foreign key, primary key, views, columns, data types, stored procedure etc.
- A database schema can be represented by using the visual diagram. That diagram shows the database objects and relationship with each other.
- A database schema is designed by the database designers to help programmers whose software will interact with the database.
- The process of database creation is called as data modeling.

A schema diagram can display only some aspects of a schema like: name of record type, data type and constraints. Other aspects can't be specified through the schema diagram. For example: the given figure neither show the data type of each data item nor the relationship among various files.

In the database, actual data changes quite frequently. For example: in the given figure, the database changes every time when we add a new grade or add a student. The data at a particular moment of time is called as instance of the database.

STUDENT

| | | | |
|------|----------------|-------|-------|
| Name | Student_number | Class | Major |
|------|----------------|-------|-------|

COURSE

| | | | |
|-------------|---------------|--------------|------------|
| Course_name | Course_number | Credit_hours | Department |
|-------------|---------------|--------------|------------|

PREREQUISITE

| | |
|---------------|---------------------|
| Course_number | Prerequisite_number |
|---------------|---------------------|

SECTION

| | | | | |
|--------------------|---------------|----------|------|------------|
| Section_identifier | Course_number | Semester | Year | Instructor |
|--------------------|---------------|----------|------|------------|

GRADE_REPORT

| | | |
|----------------|--------------------|-------|
| Student_number | Section_identifier | Grade |
|----------------|--------------------|-------|

