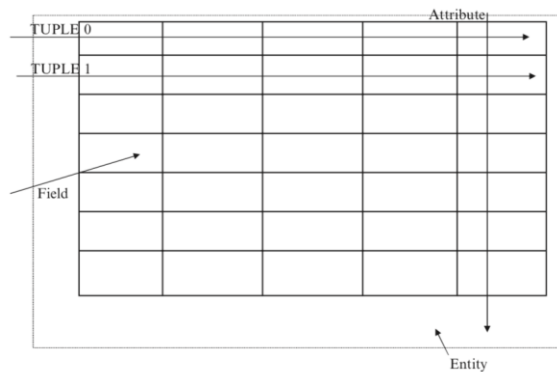


Access Practice

Relational Database Model

Keys, Domain, Attribute, Degree, Cardinality

- Relations must have a **key**. Keys can be a set of attributes.
- For each column of a table there is a set of possible values called its **domain**. The domain contains all possible values that can appear under that column.
- Domain is the set of valid values for an attribute.
- **Degree** of the relation is the number of attributes (columns) in the relation.
- **Cardinality** of the relation is the number of tuples (rows) in the relation.



Lab Exercise: Creating a Simple Database

Step 1: Open Microsoft Access

- Open MS Access on your computer.
- Click on "**Blank Database**" to create a new database.
- Give your database a name (e.g., "SchoolManagementSystem") and choose where to save it.
- Click **Create**.

Lab Exercise: Creating a Simple Database

Table 1: Students

- In the Access interface, under **Table Tools**, go to the **Design View**.
- Name the table: **Students**.
- Define the fields as follows:

Field Name	Data Type	Description
StudentID	AutoNumber	Primary Key
FirstName	Short Text	Student's First Name
LastName	Short Text	Student's Last Name
DateOfBirth	Date/Time	Date of Birth
Email	Short Text	Student's Email Address

Lab Exercise: Creating a Simple Database

Enter Data into the Tables Students Table (5 Records)

StudentID	FirstName	LastName	DateOfBirth	Email
1	John	Smith	01/10/2000	john@example.com
2	Emily	Johnson	04/12/2001	emily@example.com
3	Michael	Brown	07/15/2000	michael@example.com
4	Sarah	Davis	02/20/2002	sarah@example.com
5	David	Wilson	09/30/2001	david@example.com

Lab Exercise: Creating a Simple Database

Table 2: Courses

- In the Access interface, create a new table.
- Name the table: **Courses**.
- Define the fields as follows:

Field Name	Data Type	Description
CourseID	AutoNumber	Primary Key
CourseName	Short Text	Name of the Course
Credits	Number	Number of Credits

- Set **CourseID** as the **Primary Key**.
- Save the table.

Lab Exercise: Creating a Simple Database

CourseID	CourseName	Credits
1	Mathematics	4
2	English	3
3	Computer Science	4
4	History	3
5	Physics	4

Lab Exercise 2: Creating a Simple Database

You are a database designer for a **local bookstore**. The store needs a simple database to manage its **inventory** of books and **authors** who write them. You will create two tables: one for **Books** and one for **Authors**, each with at least five records.

Lab Exercise 2: Creating a Simple Database

Field Name	Data Type	Description
BookID	AutoNumber	Primary Key (Automatically generated)
Title	Short Text	Title of the book
Genre	Short Text	Book's genre
Price	Currency	Price of the book
PublishedYear	Number	Year the book was published

Field Name	Data Type	Description
AuthorID	AutoNumber	Primary Key (Automatically generated)
FirstName	Short Text	Author's first name
LastName	Short Text	Author's last name
Country	Short Text	Author's country of origin
DateOfBirth	Date/Time	Author's date of birth

Lab Exercise 2: Creating a Simple Database

Books Table (5 Records)

BookID	Title	Genre	Price	PublishedYear
1	The Great Adventure	Fiction	\$15.99	2018
2	Science of Nature	Science	\$25.50	2021
3	Mystery at Midnight	Mystery	\$12.99	2017
4	The Art of Cooking	Cooking	\$30.00	2020
5	History of Civilizations	History	\$18.75	2019

Authors Table (5 Records)

AuthorID	FirstName	LastName	Country	DateOfBirth
1	John	Smith	USA	01/10/1970
2	Emily	Johnson	Canada	03/22/1980
3	Robert	Brown	UK	05/05/1965
4	Sarah	Davis	Australia	07/14/1985
5	Michael	Lee	South Korea	10/01/1978

Lab Exercise: Creating a Simple Database

Table 3: Enrollments

- Create a third table.
- Name the table: **Enrollments**.
- Define the fields as follows:

Field Name	Data Type	Description
EnrollmentID	AutoNumber	Primary Key
StudentID	Number	Foreign Key from Students
CourseID	Number	Foreign Key from Courses
EnrollmentDate	Date/Time	Date of Enrollment

- Set **EnrollmentID** as the **Primary Key**.
- Save the table.

Further Reading :

Chapter 1: Introduction to Databases

- Database Systems: A Practical Approach to Design, Implementation, and Management Sixth edition by • Thomas Connolly • Carolyn Begg