

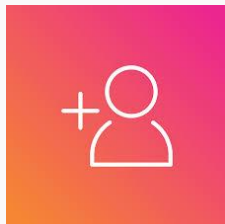
Databases

Unit 4

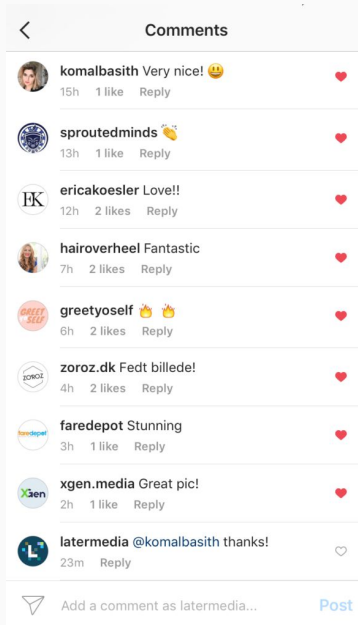


Data

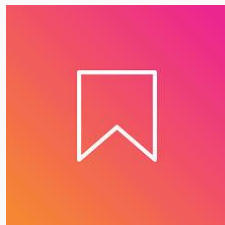
Users



Comments



Stories



Bookmarks

Photos



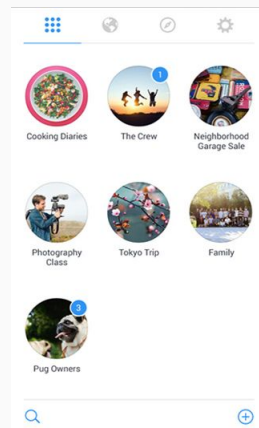
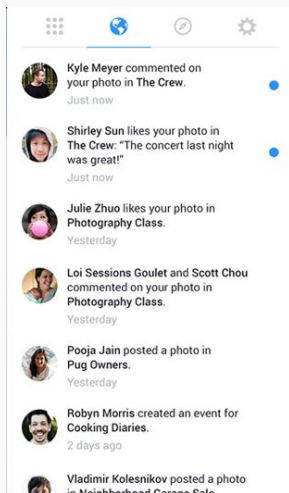
Data

Users

Likes

Notifications

Groups

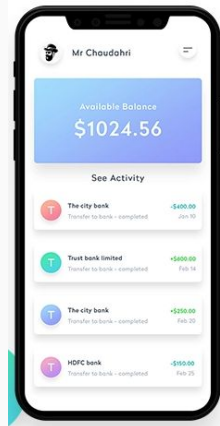


Data

Accounts

Money

Transactions



Database



DBMS - Database Management System

MS SQL Server

Oracle

Microsoft Access

IBM DB2

PostgreSQL

MySQL

MongoDB (NoSQL)

CouchDB (NoSQL)



RDBMS

Relational Database Management System

Basis for SQL

Relational - Tables of data “related” by a common field

SQL

Database Schema



Database

Spatial

XML

Non-relational

Document based

Relational

Database

Large integrated collection of data

Entities - **Customers, Addresses, Payments, Orders**

Relationships

Customer places an **Order** with a **Payment** method

Order is shipped to their **Address**



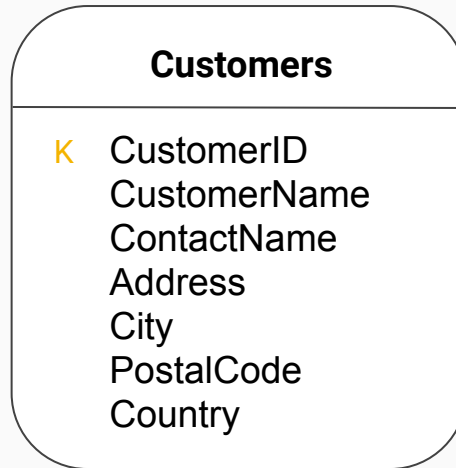
Table

| Column 1 | Column 2 | Column 3 |
|----------|----------|----------|
| Row 1 | ... | ... |
| Row 2 | ... | ... |
| Row 3 | ... | ... |
| Row 4 | ... | ... |
| Row 5 | ... | ... |

Tables

Customers table

fields



Tables

```
SELECT * FROM Customers;
```

Table

Columns

Rows

| CustomerID | CustomerName | ContactName | Address | City | PostalCode | Country |
|------------|--|-----------------------|----------------------------------|----------------|------------|---------|
| 1 | Alfreds Futterkiste | Maria Anders | Obere Str. 57 | Berlin | 12209 | Germany |
| 2 | Ana Trujillo Emparedados y helados | Ana Trujillo | Avda. de la Constitución 2222 | México D.F. | 05021 | Mexico |
| 3 | Antonio Moreno Taquería | Antonio Moreno | Mataderos 2312 | México D.F. | 05023 | Mexico |
| 4 | Around the Horn | Thomas Hardy | 120 Hanover Sq. | London | WA1 1DP | UK |
| 5 | Berglunds snabbköp | Christina Berglund | Berguvsvägen 8 | Luleå | S-958 22 | Sweden |

RDBMS

RDBMS

Database

Tables

Columns

Rows

SQL

Query Language

Interact with the database

Create tables

Change data

Read data

MongoDB - Document Oriented DB Model

NoSQL - Not Only SQL database

Unstructured data

XML

JSON

Collections

Documents