Agenda

* Data – field and values
* Data record
* Data file
* Database
* Summary

Data

* Data is Facts and Statistics.
* In a table, the part consisting of several uniquely named components, which contains a value are called **data fields**.

Value

* The value are **quantities**, **characters**, or **symbols** on which operations are performed by a computer.

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| Notes:  The data may be transmitted in the form of **electrical signals**, may be recorded (stored) on **magnetic**, **optical**, or **mechanical recording media.** |

Data Record

* A record is a set of information about an entity.
* A record is a basic data structure.
* A record is also referred to as a ROW in RDBMS.
* A data structure is a collection of values, the relationships among them, and the
* The data should be related to one another.

Data File /Data Table

* A data file is any file that contains data, but not code.
* It is only meant to be read, or viewed, or to be modified and not executed.
* For example, a web page, a doc written in a word processor, and a text file are all considered data files.
* A **Data file** stores data to be used by a computer **application** or **system**.
* It generally refers to files that contain information used as input, or written as output by some software program to store data permanently.
* A data file is technically a data table.

Data Record

* A record is a set of information about an entity.
* A record is a basic data structure.

Database

* Several **data records** make up a **data file**.
* Several **data files** make up a **database.**

Summary

* **Collection of organized characters is a field(data).**
* **Group of organized fields is a record.**

Data

* Data is divided into master data and transactional data.
* **Master Data:** Data will not undergo change frequently ex stud id.

Foreign Key

* Also called Referential Integrity.
* That is cannot del if it has referencing material in subsequent tables.
* A primary key should be present in order to create a foreign key for the same data.

Data Types

It can be,

* Numbers
  + Byte - 8 Bit
  + Short - 16
  + Int - 32
  + Long - 64
  + Float - 32
    - Tuple
    - Decimal
  + Double - 64
* Characters
* 2 or more characters(string)
* Boolean
* Image (BLOB-Binary Large Objects)
* Date
* Time

Integers

* bit
  + 1 or 0
* int
  + -2^31 to 2^31
* smallint
  + 2^15 to 2^15 - 1
* tinyint
  + 0 to 255

Decimal and Numeric

* decimal
  + Fixed precision and scale numeric data form -10^38 - 1 through 10^38 - 1.
* numeric
  + A synonym for decimal.
* money and smallmoney
* float
  + -1.79E + 308 to 1.79E + 308 ( range not important don’t study )
* real
* datetime
  + Date and time from January 1, 1753, to December 31, 9999
* smalldatetime
  + Date and time from January 1, 1900, to June 6, 2079

Char (n is support for unicode characters)

* varchar
  + Variable-length non-unicode
* text
* nchar
* nvarchar
* ntext

Binary Strings

* binary
  + 8000 bytes
* Varbinary
  + 8000 bytes
* Image
  + 2^31 – 1 (2,147,438,647) bytes

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| **Datepart** | **Abbreviations** |
| Year | yy, yyyy |
| Quarter | qq, q |
| Month | mm, m |
| dayofyear | dy, y |
| Day | dd, d |
| Week | wk, ww |
| Hour | hh |
| minute | mi, n |
| Second | ss, s |
| Millisecond | ms |