

Lecture 1

Basic file concepts

Agenda

- Entities
 - Attributes
 - Field
 - Record
 - Types of variables –length records
 - File
- * Computers exist to process data.
- * Usually the data represents information useful to people for some purpose.
- * Data concerns a large number of similar objects, or entities. for example the employees of a company or the transactions made in the accounting system.

Entities : are described in the computer systems by one or more attributes.

Attributes : are characteristics that describe an entity and allow us to distinguish one entity from another.

Entities with similar attributes (e.g., all the employees in an organization) form an entity set.

A field is a single elementary unit of information representing an attribute of an entity.

A record is the collection of field values of a given entity.

A file is the collection of records of the entities in a given entity set.

File looks like a table where rows represent entities and columns represent attributes.

Physical File : A collection of bytes stored on a disk or tape.

Logical File : A “Channel” (like a telephone line) that hides the details of the file’s location and physical format to the program.

A file structure allows application to read, write and modify data. It might also support finding the data that matches some search criteria or reading through the data in some particular order.

Keys are attributes, or combinations of attributes that are used to order and / or find records within a file.

Primary keys are able to uniquely identify a record, and may be the basis for assigning a location to the record within the file.

External key is one that is not composed of one or more attributes of the logical record, but rather is derived from some characteristic of the physical record such as record number and they are unique and used as primary keys.

Fixed-length records : records which have the same fields in the same quantity, order, and length.

Types of variables – length records:

1 – Variable length fields ;

A field may contain widely varying amounts of data from record to record. " names "

2 – Variable format records :

Result when data on different types of entities are stored in the same file (hourly & monthly rate)

3 – Repeating group occur when there is an attribute or group of attributes that may be repeated an indefinite number of times (insurance information about each employee and his dependents)

Example for file

Record No	Name	Age	Sex	Tel.NO
0	John Brown	28	M	234-5186
1	Pual cohen	32	M	234-5523
3	Mary Davis	25	F	512-7756
4	Linda Evans	30	F	301-7889