ISAM / KSAM

Indexed Sequential Access Method

Keyed Sequential Access Method

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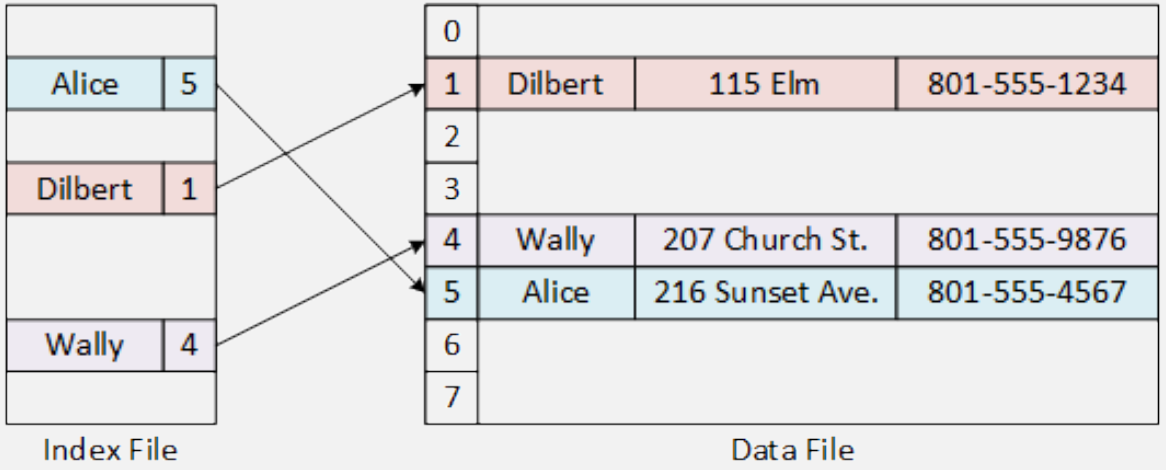
ISAM ARCHITECTURE



DATA FILE

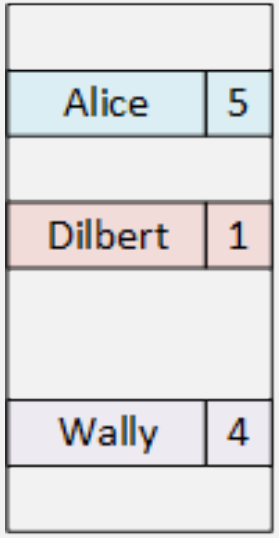
0			
1	Dilbert	115 Elm	801-555-1234
2			
3			
4	Wally	207 Church St.	801-555-9876
5	Alice	216 Sunset Ave.	801-555-4567
6			
7			

Data File

- Fixed-length records
- Consists of many fields
- Too large to fit into memory
  - Each record is relatively large
  - There are many records
  - Impractical to reorganize
- New records are appended at the end of the file

INDEX FILE

- Records have two fields
  - A key duplicating one data file field
  - A record number or absolute address of a data file record
- Support a fast-search algorithm
- An ISAM system requires one index file for each searchable data record field

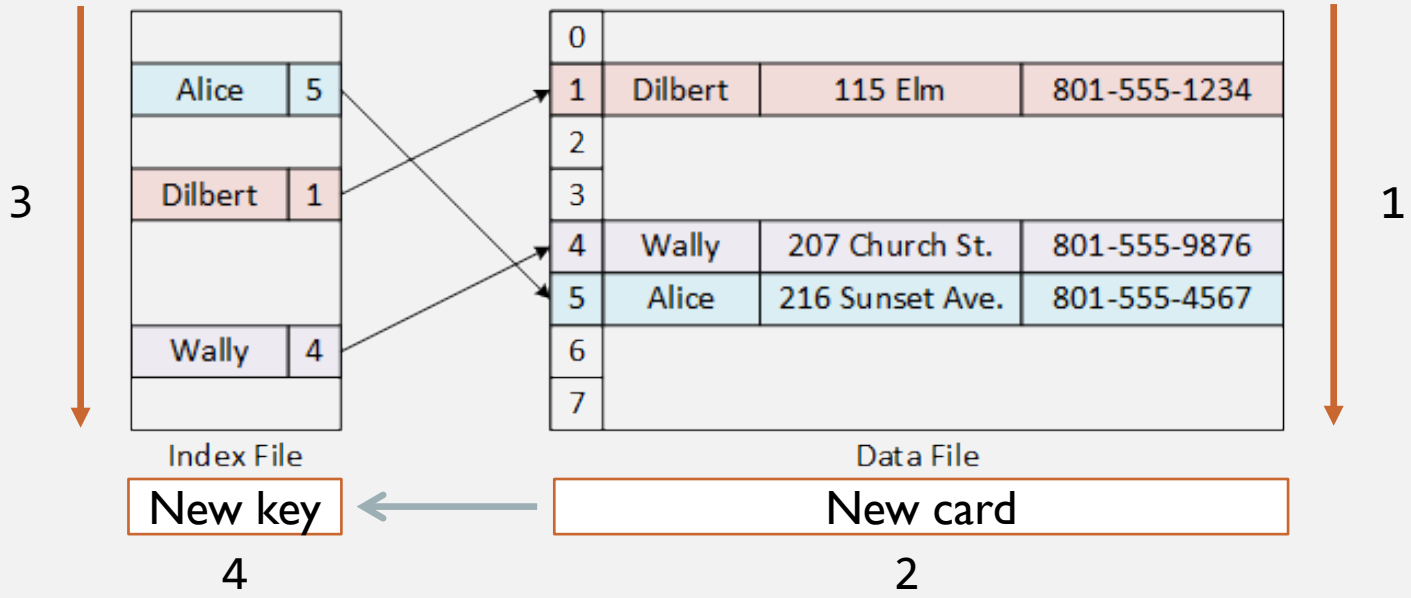


Index File

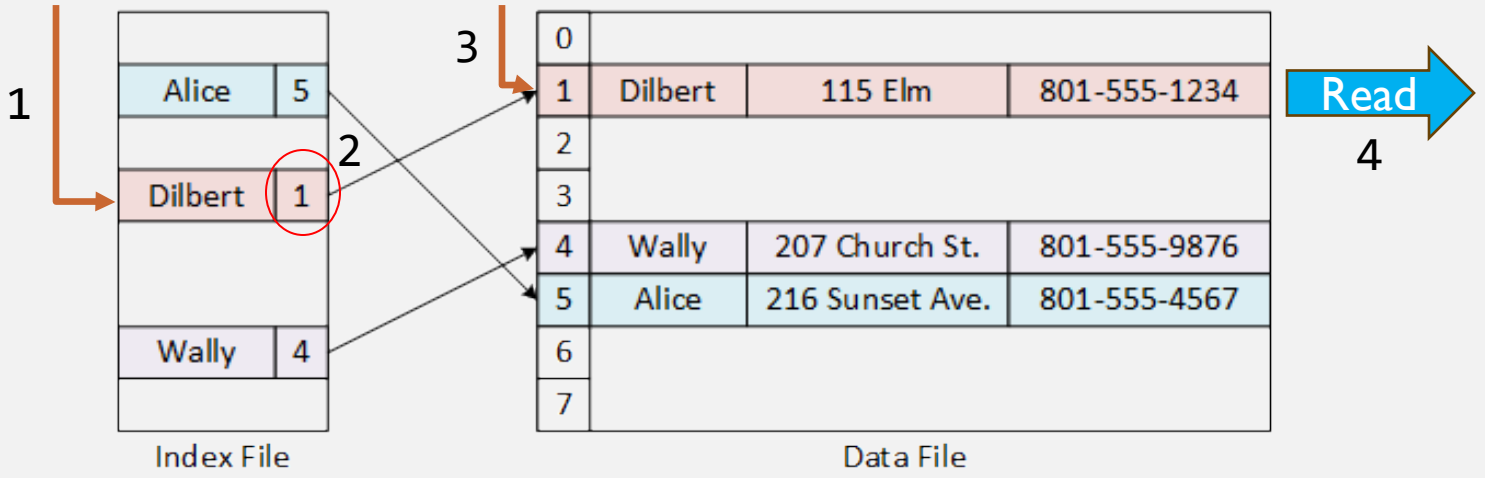
IMPLEMENTING ISAM OPERATIONS

- `read(buffer, bytes)`
- `write(buffer, bytes)`
- Moving the position pointer
  - `seekp(absolute)`
  - `seekp(offset, direction)`
  - `seekg(absolute)`
  - `seekg(offset, direction)`
  - `tellp()` and `tellg()`

ISAM OPERATIONS: ADD A DATA RECORD



ISAM OPERATIONS: SEARCH FOR A DATA RECORD



ISAM EXAMPLE VS MODERN DBMS