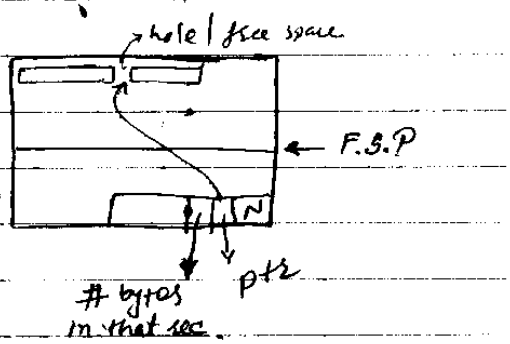
02/16/09

Organization of variable length records



Insertion:

case 0: Find some "hole" in the data section

case 1: Acquire space from free space section

case 2: Page compaction

Page compaction: Moving records to the begining of the page to get continuous chunks of records for feuture insertions.

Index Structures

Built of search keys. A search key is a set of attributes we use to organize data entries in indexes.

Search key is not the key of a database table

There is no universal index.

The data ordering has to be defined before building index.

Types of indexes structures

① Tree-based.

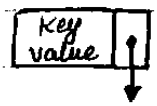
② Hash-based.

③ Bitmap-based (for small domain attributes)

Data entries: Pointers to real data.

In tree based index, the data entries are present in the leaf pages.

Implementation of data entries

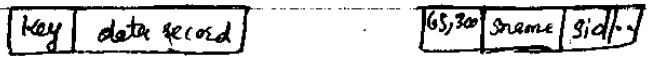


e.g key value: Salary

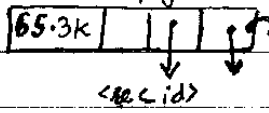
The attribute values on which index is built will be duplicated in the index.

Three alternatives for implementing data entries

(a) The data record is part of the index.

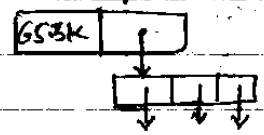


(b) Pointers to pages and record id's



records that have same key value

(c) Multi level pointers to records



Types of indexes

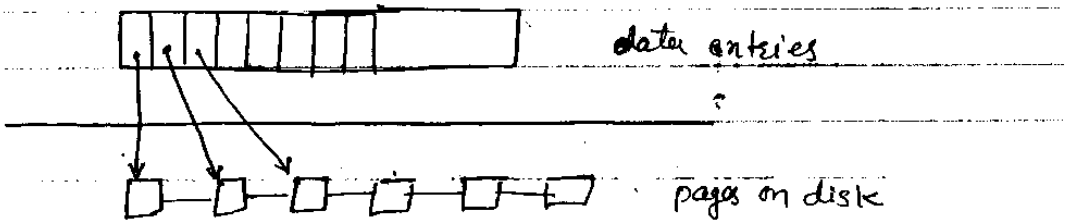
(1) Primary Vs secondary index

Index built on primary key of a table is primary index

(2) Clustered Vs Un-clustered

In clustered index the order of the data entries is same as the order of pages in disk. A heap file can not have clustered index.

There can be only one cluster index of the data as there is only one order of the pages.
The data pointers in entries to disk pages never cross one another.



Sequential I/O is possible in clustered index