The **Young!** History of Database Systems...
IDENTIFICATION DIVISION.
PROGRAM-ID. Sequential.
AUTHOR. Michael couchlan.
* Creates a Relative file from a sequential file.

ENVIRONMENT DIVISION.
INPUT-OUTPUT SECTION.
FILE-COMMENTS.
SELECT SupplierFile ASSIGN TO 'RELSUPP.DAT'
    ORGANIZATION IS RELATIVE
    ACCESS MODE IS RANDOM
    RELATIVE KEY IS SupplierKey
    FILE STATUS IS Supplierstatus.

SELECT SupplierFileSeq ASSIGN TO 'SEQSUPP.DAT'
    ORGANIZATION IS LINE SEQUENTIAL.

DATA DIVISION.
FILE SECTION.
FD SupplierFile.
  01 SupplierRecord.
    02 SupplierCode PIC 99.
    02 SupplierName PIC X(20).
    02 SupplierAddress PIC X(50).

FD SupplierFileSeq.
  01 SupplierRecordSeq.
    02 SupplierCodeSeq PIC 99.
    02 SupplierNameSeq PIC X(20).
    02 SupplierAddressSeq PIC X(50).

WORKING-STORAGE SECTION.
  01 SupplierStatus PIC X(2).
  01 SupplierKey PIC 99.

PROCEDURE DIVISION.
Begin.
OPEN OUTPUT SupplierFile.
OPEN INPUT SupplierFileSeq.
READ SupplierFileSeq
    AT END SET EndOfFile TO TRUE
END-READ
PERFORM UNTIL EndOfFile
    MOVE SupplierCodeSeq TO SupplierKey
    MOVE SupplierRecordSeq TO SupplierRecord
    WRITE SupplierRecord
    INVALID KEY DISPLAY 'Supplier status ='
    SupplierStatus
    END-READ
READ SupplierFileSeq
    AT END SET EndOfFile TO TRUE
END-READ
END-PERFORM.
CLOSE SupplierFile, SupplierFileSeq.
STOP RUN.
$ SET SOURCEFORMAT 'FREE'
IDENTIFICATION DIVISION.
PROGRAM-ID. SeqRel.
AUTHOR. MICHAEL COUGHLAN.
* Creates a Relative file from a sequential file.

ENVIRONMENT DIVISION.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
  SELECT SupplierFile ASSIGN TO 'RELSUPP.DAT'
      ORGANISATION IS RELATIVE
      ACCESS MODE IS RANDOM
      RELATIVE KEY IS SupplierKey
      FILE STATUS IS SupplierStatus.

  SELECT SupplierFileSeq ASSIGN TO 'SEQSUPP.DAT'
      ORGANISATION IS LINE SEQUENTIAL.

DATA DIVISION.
FILE SECTION.
FD SupplierFile.
  01 SupplierRecord.
hierarchical DBMS
navigational DBMS
no physical data independence!
Codd invents Relational Model
„Codd made relations,

... all else

is the work of man.“
WHAT HOW
Research Projects
Oracle
SQL
90ies
Object-relational DBMS
= relational DBMS + object extensions
Object-oriented DBMS
= real object-oriented DBMS
parallel
Web
OLAP = OnLine Analytical Processing
data stream management
Column Stores
<table>
<thead>
<tr>
<th>name</th>
<th>street</th>
<th>city</th>
</tr>
</thead>
<tbody>
<tr>
<td>peter</td>
<td>narrowstreet</td>
<td>new york</td>
</tr>
<tr>
<td>steve</td>
<td>macstreet</td>
<td>cuppertino</td>
</tr>
<tr>
<td>mike</td>
<td>longstreet</td>
<td>saarbruecken</td>
</tr>
</tbody>
</table>
NoSQL
Big Data
1 TB
(actually does not fit on screen)
MapReduce
Analytics
1,700,000,000?
IBM
acquiring
Netezza
263,000,000?
Teradata acquiring Aster Data
HP acquiring Vertica
Teradata acquiring Kickfire
Ingres acquiring VectorWise
Software AG acquiring RTM
EMC acquiring Greenplum
Cisco acquiring Truviso
acquiring
to be continued...
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Heikenwaelder Hugo
http://commons.wikimedia.org/wiki/File:VW-Vincent.jpg
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