all data sits on pages

-> each page in the system gets a key

-> page ID
Mapping Relations to Virtual Pages?

Employees =

(23, Albert, 45000)
(77, Peter, 50000)
(42, Rob, 37000)
Linearizing Tuples

Employees =

(23, Albert, 45000)
(77, Peter, 50000)
(42, Rob, 37000)

= 23, Albert, 45000, 42, Rob, 37000, 77, Peter, 50000
Linearizing Tuples

Employees =

(23, Albert, 45000)
(77, Peter, 50000)
(42, Rob, 37000)

(23, Albert, 45000)

(42, Rob, 37000)

(77, Peter, 50000)

= 23, Albert, 45000, 42, Rob, 37000, 77, Peter, 50000

SELECT * FROM employees;

ORDER BY ID

<table>
<thead>
<tr>
<th>ID</th>
<th>name</th>
<th>city_code</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>Albert</td>
<td>45000</td>
</tr>
<tr>
<td>42</td>
<td>Rob</td>
<td>37000</td>
</tr>
<tr>
<td>77</td>
<td>Peter</td>
<td>50000</td>
</tr>
</tbody>
</table>
SELECT * FROM employees;

Employees =

(23, Albert, 45000)
(77, Peter, 50000)
(42, Rob, 37000)

= (23, Albert, 45000)
  (42, Rob, 37000)
  (77, Peter, 50000)

= 23, Albert, 45000, 77, Peter, 50000, 42, Rob, 37000
Linearizing Values

Employees =

(23, Albert, 45000)
(77, Peter, 50000)
(42, Rob, 37000)

= 23, 37000, Rob, 77, 42, Albert, 45000, 50000, Peter

SELECT * FROM employees;
Mapping Relations to Devices?

Employees =

(23, Albert, 45000)
(77, Peter, 50000)
(42, Rob, 37000)

virtual pages
page ID 32

page ID 56

page ID 23

do not hallucinate.
Textual Overview on Mapping Steps

1a
linearize
from 2D relations to a 1D sequence of values

1b
serialize
from a 1D sequence of values to bytes on virtual pages

2
devirtualize
from virtual pages to physical pages

3
materialize
from physical pages to storage devices
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