Assignment 1: What is vertical and horizontal partitioning of database tables? What is the difference regarding allocation?

Assignment 2: Given the following dates, compare the different requirements for storing the cube in MOLAP- or ROLAP:

1. 1 fact; 3 dimensions with each 1000 values; Füllgrad 20%;
   1 attribute = 8 bytes
2. 1 fact; 5 dimensions with each 1000 values; filling degree 20%;
   1 attribute = 8 bytes
3. 1 fact; 3 dimensions with each 1000 values; filling degree 50%;
   1 attribute = 8 bytes
4. 1 fact; 5 dimensions with each 1000 values; filling degree 50%;
   1 attribute = 8 bytes

Assignment 3: Create the dwarf for the following example data:

<table>
<thead>
<tr>
<th>Region</th>
<th>Customer</th>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saxony-Anhalt</td>
<td>Müller</td>
<td>Mobile phone</td>
<td>30</td>
</tr>
<tr>
<td>Saxony-Anhalt</td>
<td>Schmidt</td>
<td>TV</td>
<td>30</td>
</tr>
<tr>
<td>Saxony-Anhalt</td>
<td>Schneider</td>
<td>TV</td>
<td>20</td>
</tr>
<tr>
<td>Saxony</td>
<td>Fischer</td>
<td>Mobile phone</td>
<td>45</td>
</tr>
</tbody>
</table>

Which advantages do dwarfs have?

Assignment 4: Discuss important properties of row- and column-stores concerning the following aspects:

1. Usability for Online Analytical Processing
2. Compression techniques
3. Query execution
Assignment 5: Given is the following SQL-query:

```sql
SELECT shipdate, linenum
FROM lineitem
WHERE shipdate = '12-30-1995' AND linenum = 12
```

Based on this query, discuss the different materialization strategies for Column-Stores.