

Week 9: Discussion Question

Describe the three data fragmentation strategies. Give an example of at least one of the strategy?

Horizontal Fragmentation splits tables by rows. When distributing a database using this form of fragmentation, there can be no overlapping of key content. For instance, if a database table is fragmented in such a way that employee records are entered at the building where they work, then these employee records cannot be updated from a building where they do not work and there must not be an M:N relationship between buildings and employees.

Vertical Fragmentation splits tables by columns, creating multiple tables. For instance, if we had a table for students, with multiple columns, such as student_id, name, address, phone_number, and such. To vertically fragment the table into a distributed database solution, we might break phone_number out of the table columns, creating a new table with just student_id and phone_number. With the primary key copied, we can still select all of a student's data by joining the two tables. Vertical fragmentation causes complications when we delete a record from one table, as there must be referential integrity in place to delete the corresponding record from the other tables.

Mixed Fragmentation combines horizontal and vertical fragmentation strategies, splitting tables by rows and then further splitting them by columns.

References:

Denormalization Techniques. Gantthead. Retrieved from gantthead.com on Sep 6, 2009 at:

<http://www.gantthead.com/process/popup.cfm?ID=23451&techKid=0>

Rob, Peter & Coronel, Carlos (2009). *Database Systems, Design, Implementation, and Management*. Course Technology, Boston, MA.