PRINCIPLES ON DATA FRAGMENTATION

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Given the following relations and fragments:

Global Relations

Kids(kidId, name, address, age)

Toys(toyId, name, price)

Requests(kidId, toyId, willingness)

Note that requests(kidId) is a foreign key to kids(kidId) and similarly, requests(toyId) references toys(toyId).

Fragments

K1= Kids[kidId, name]

K2= Kids[kidId, address, age]

T1= Toys(price >= 150)

T2= Toys(price < 150)

R1 = Requests $\ltimes$ T1

R2 = Requests $\ltimes$ T2

Answer the following questions:

- *Briefly explain which fragmentation strategy has been applied for the database above.*

- It has been applied a hybrid fragmentation strategy, given that the database has both horizontal (primary for table Toys and derived for table Requests) and vertical (table Kids).

- *Is this fragmentation strategy complete and disjoint? Can we reconstruct the global relations? Explicit the algebraic operation you would use to reconstruct the global relation.*

- Yes, the Kids fragmentation ensures that the union of the projected attributes in both K1 and K2 produces the original relation and the Toys and Requests fragmentation ensure that every tuple is assigned to at least one fragment.

- Yes, applying a join for the Kids fragmentation and a union in the case of Toys and Requests.