

# CSE 4125: Distributed Database Systems

## Chapter – 4

### (Part – E)

## Distributed Database Design

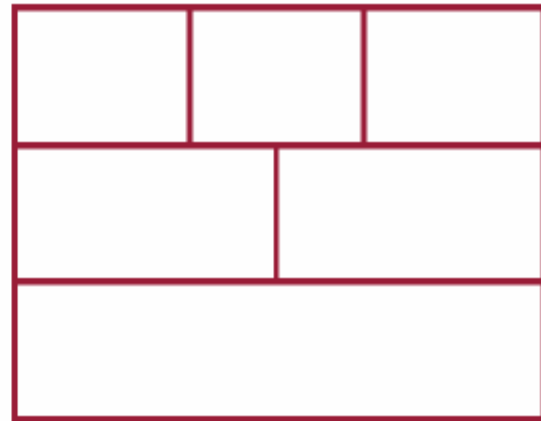
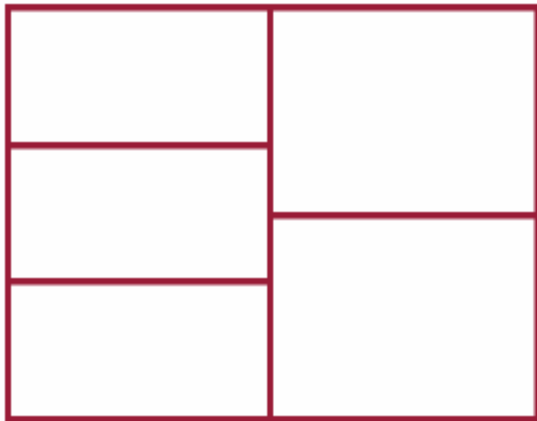
# Topics to be discussed -

- Design of Mixed Fragmentation
- Design of Allocation of Fragments

# **The Design of Mixed Fragmentation**

# Approaches

1. Applying horizontal fragmentation to vertical fragmentation.
2. Applying vertical fragmentation to horizontal fragmentation.

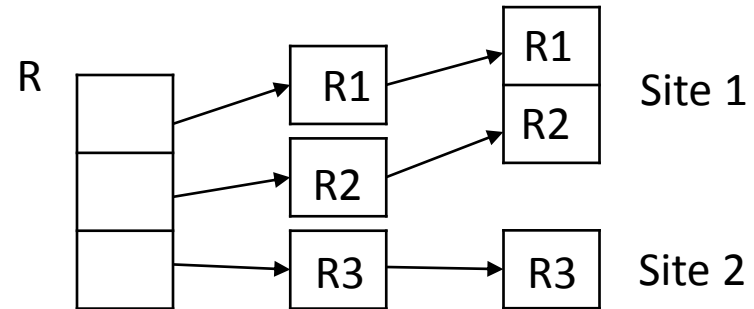


# **The Design of Allocation of Fragmentation**

# Types of Allocation of the Fragments

## 1. Non-redundant allocation.

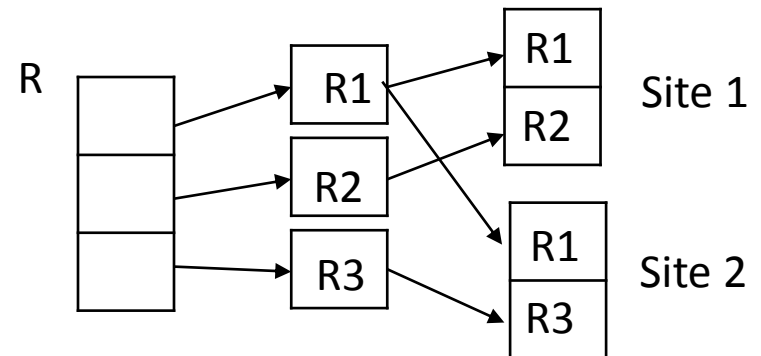
One copy  $\Rightarrow$  one site.



## 2. Redundant allocation.

One copy  $\Rightarrow$  many sites.

Replication.



# Method for Non-redundant Allocation

## **Best fit:**

A measure is associated with each possible sites.

–i.e. measuring the access frequency by local application.

Site with best measure is selected.

# Method for Redundant Allocation

## a) **All beneficial sites:**

- Determining the set of sites where *benefit is higher*.
- For example, determining sites where—  
*cost for update operation < cost for read-only application.*
- Allocate fragments to each one of those sites.



## **b) Additional replication:**

- Firstly, do the non-replication.
- Then progressively add replicated fragments.
  - ❑ From most beneficial to less beneficial.
- Degree of redundancy is considered.
  - ❑ Because benefit does not grow proportionally to the degree of redundancy.

THANK YOU  
FROM  
CHAPTER 4