



Foundation University  
Rawalpindi Campus

# Introduction to Database Systems – CSC - 221

A Presentation by

M. Hafeez Javed  
[www.rmhjaved.com](http://www.rmhjaved.com)  
[rmhjaved@gmail.com](mailto:rmhjaved@gmail.com)



# RECAP

o MY NAME IS.....

o I REMEMBER.....





# Objectives of Today's Lecture

Inter –  
Schema  
Mappings

Data  
Independen  
ce



# Inter-Schema Mappings

- ❑ Also a part of 3-level architecture

The mechanism through which the records or data at one level is related to the changed format of the same data at another level is known as mapping.

- ✓ There are two types of mapping



# Schema Mappings



The diagram consists of two vertical items. Each item has a circular icon on the left and a dark blue rectangular box on the right containing text. The top item has an orange circle and the text 'External/Conceptual Mapping'. The bottom item has a yellow circle and the text 'Conceptual/Internal Mapping'. A thin black line connects the top of the orange circle to the top of the yellow circle.

**External/Conceptual Mapping**

**Conceptual/Internal Mapping**



# External/Conceptual Mapping

- **Specifies Mapping**
- **Between objects in the external view/schema to those in the logical/Conceptual view/schema**

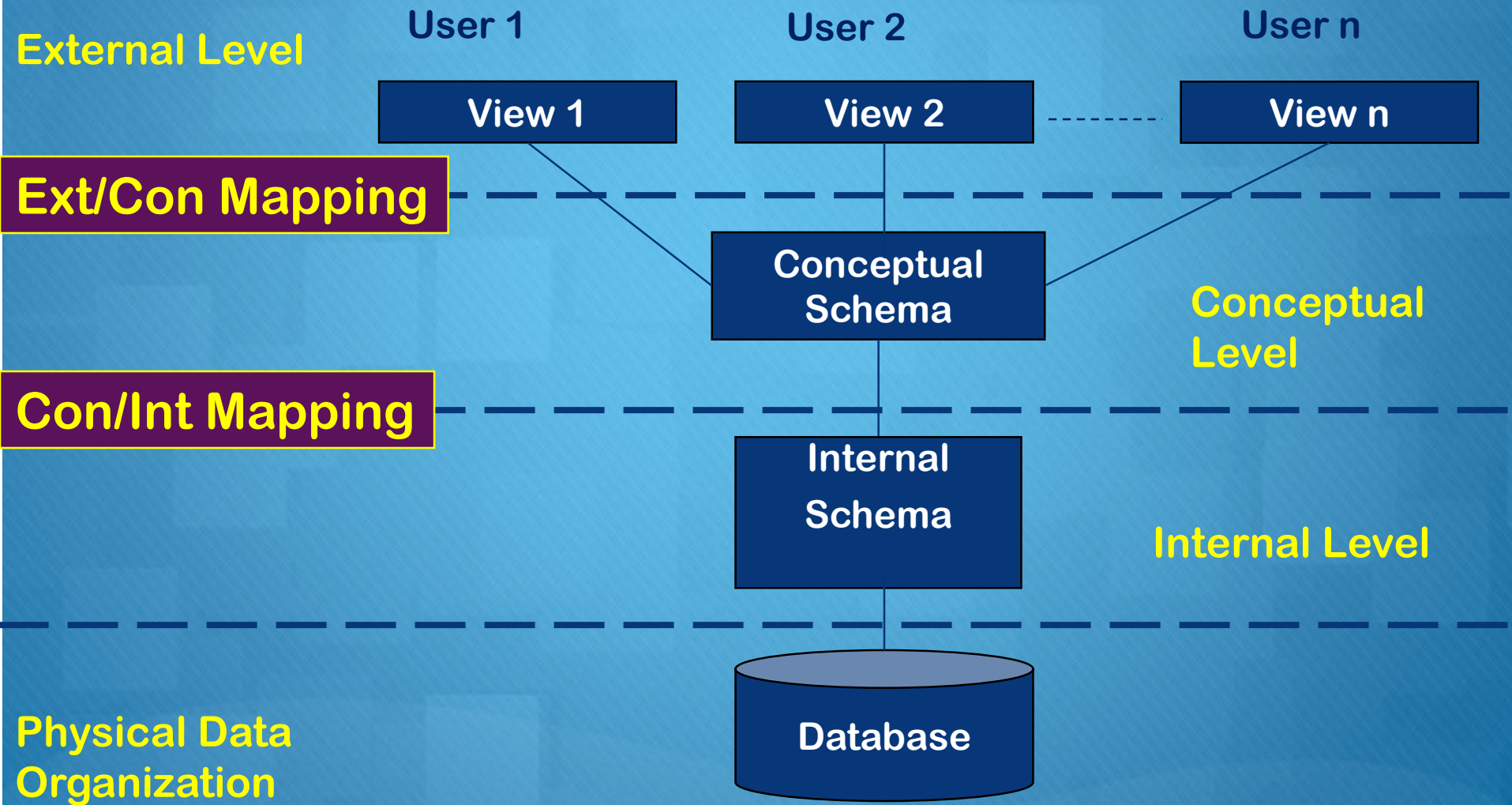




# Conceptual/Internal Mapping

- **Specifies Mapping**
- **Between objects in the logical/Conceptual schema to those in the physical/Internal schema**

# The Three-Level Architecture – Schema Mappings



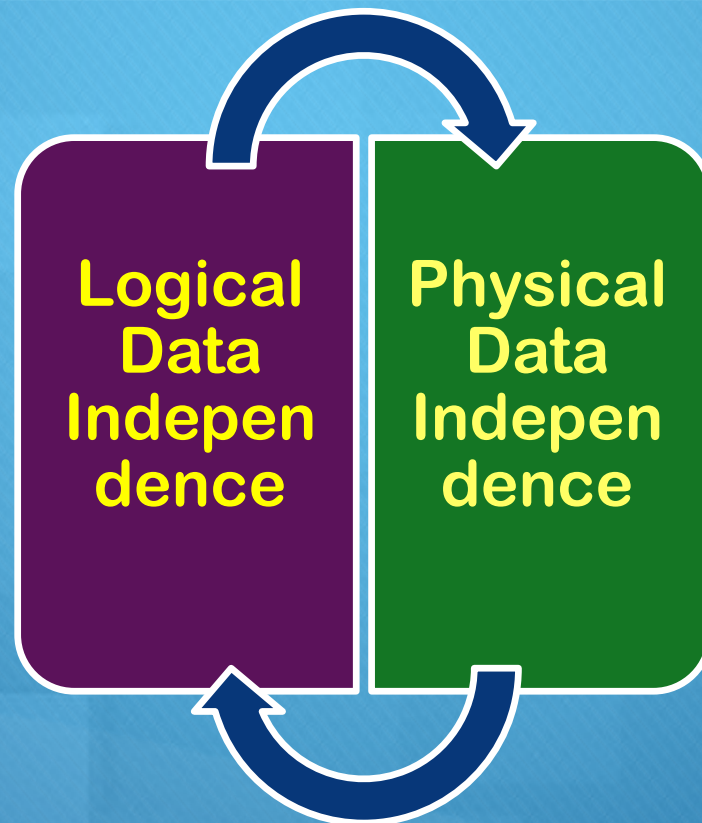




# Data Independence

- A major outcome of 3-Level Architecture
- The immunity of applications to change in storage structure and access strategy.
- Changes in lower level do not affect the upper levels.

# Data Independence – Types







# Logical Data Independence

- Changes in conceptual view do not affect the external views.
- Immunity of external level from changes at conceptual level.

# Changes – Examples

Adding a new  
file/index etc.

Adding a new field in  
a file

Changes

Changing type/size

Deleting an attribute



# Physical Data Independence

- Changes in the internal schema/view do not affect the conceptual schema/view.
- Immunity of Conceptual level from changes at Internal level.

# Changes – Examples

**Changing file  
organization**

**Index implementation,  
hash, tree etc.**

**Changes**

**Changing storage  
medium**





**CHHUTTI**

**AND THAT IS  
FAREWELL TO  
DAY SEVEN 😊**