SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING(IoT and Cybersecurity Including BCT)

COURSE NAME : 19SB502 DATABASE MANAGEMENT SYSTEMS

III YEAR / V SEMESTER

Unit I- **INTRODUCTION TO DATA BASE SYSTEM**

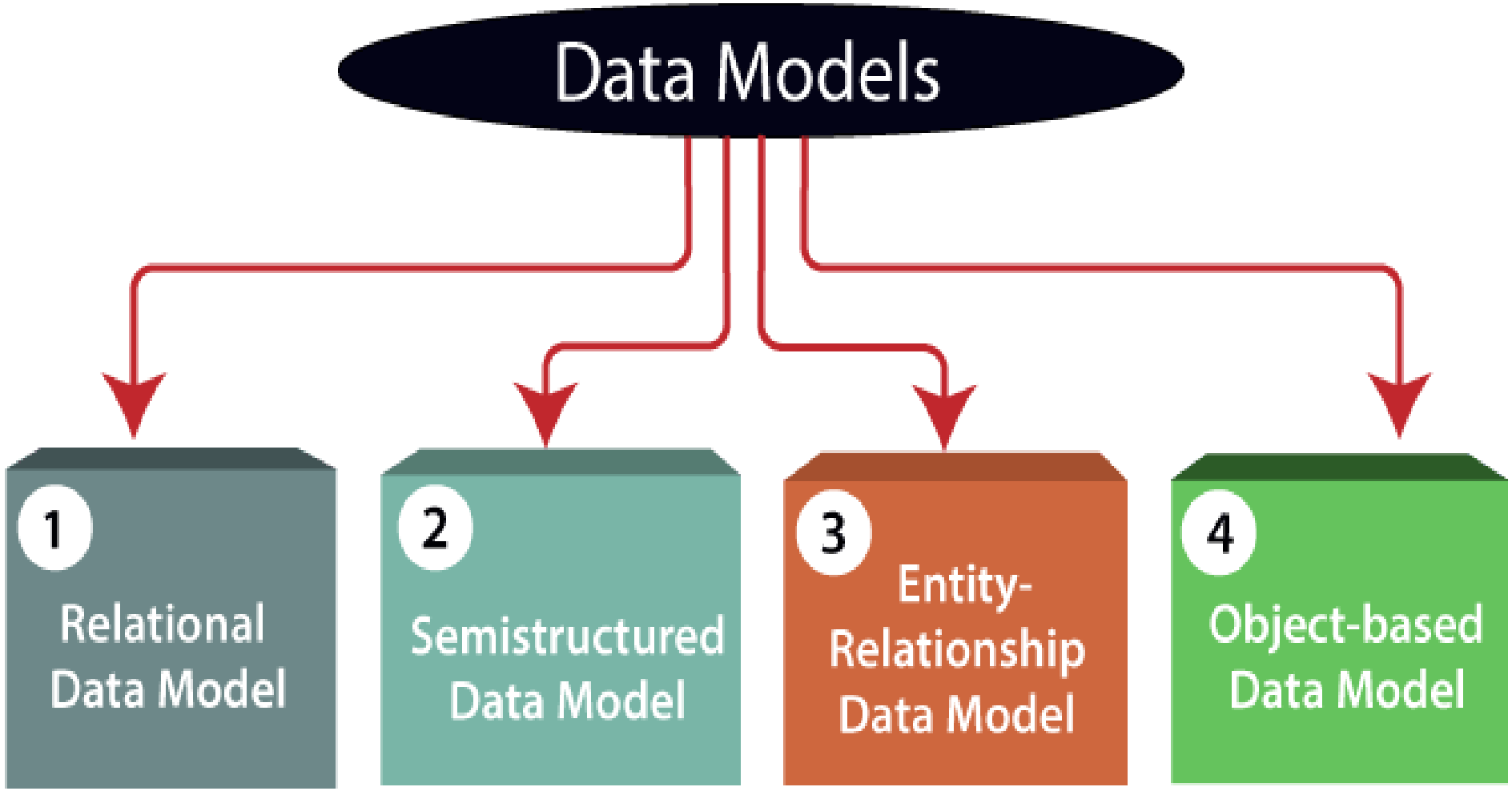
Topic : Data Models

Data Models

Data Model is the modeling of the data description, data semantics, and consistency constraints of the data.

It provides the **conceptual tools for describing the design of a database** at each level of data abstraction.

Therefore, there are following four data models used for understanding the structure of the database


Data Models
1
Relational Data Model
2
Semistructured Data Model
3
Entity-Relationship Data Model
4
Object-based Data Model

1) Relational Data Model

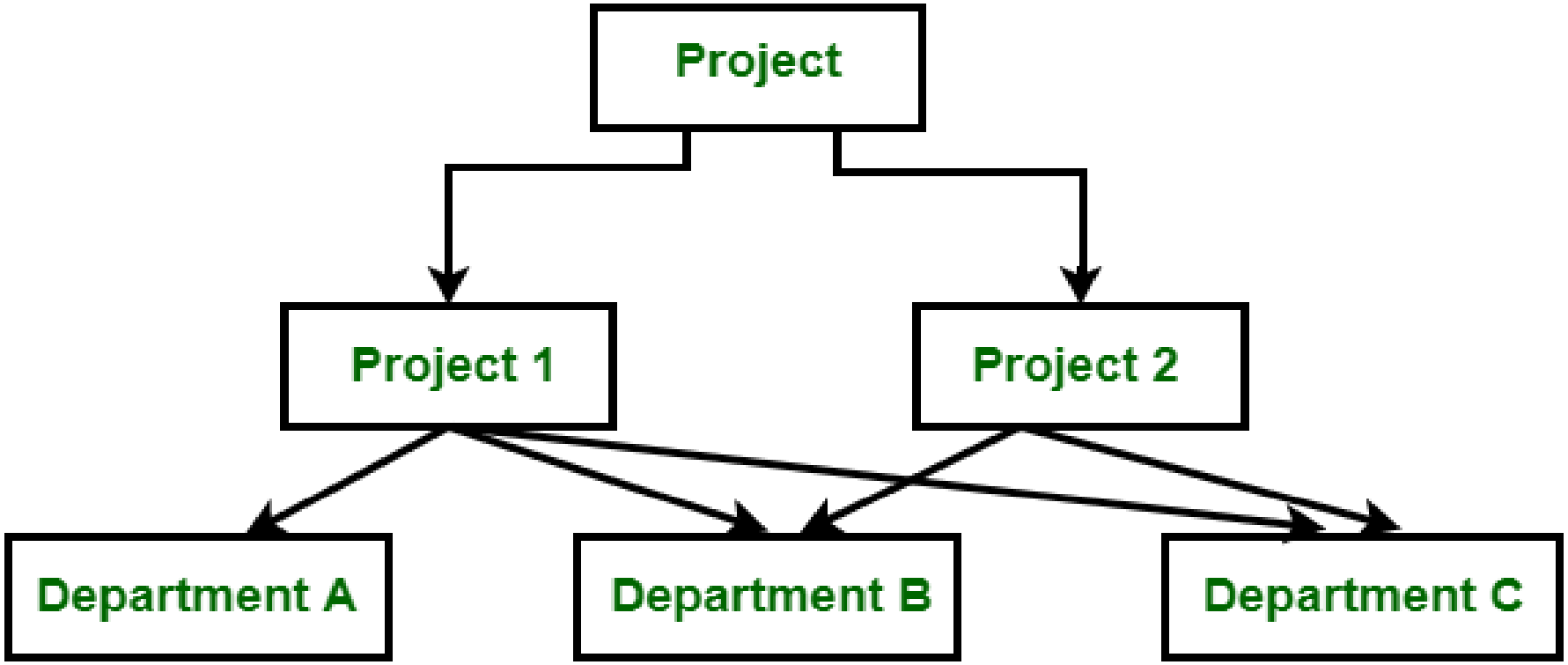
This type of model designs the data in the form of **rows and columns** within a table.

Thus, a relational model **uses tables for representing data and in-between relationships.**

Tables are also called **relations.**

This model was initially described by Edgar F. Codd, in 1969.

The relational data model is the widely used model which is primarily used by **commercial data processing applications.**


Project
Project 1
Project 2
Department A
Department B
Department C

2) Semi structured Data Model

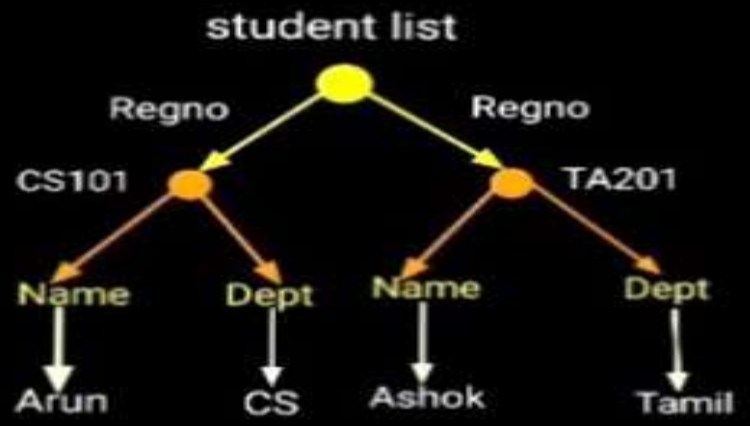
This type of data model is different from the other three data models

The semi structured data model allows the **data specifications** at places where the individual data items of the same type may have different attributes sets.

The **Extensible Markup Language**, also known as XML, is widely used for **representing the semi structured data**.

Although XML was initially designed for including the markup information to the text document, it gains importance because of its application in the exchange of data.

Semi - Structured data model in dbms



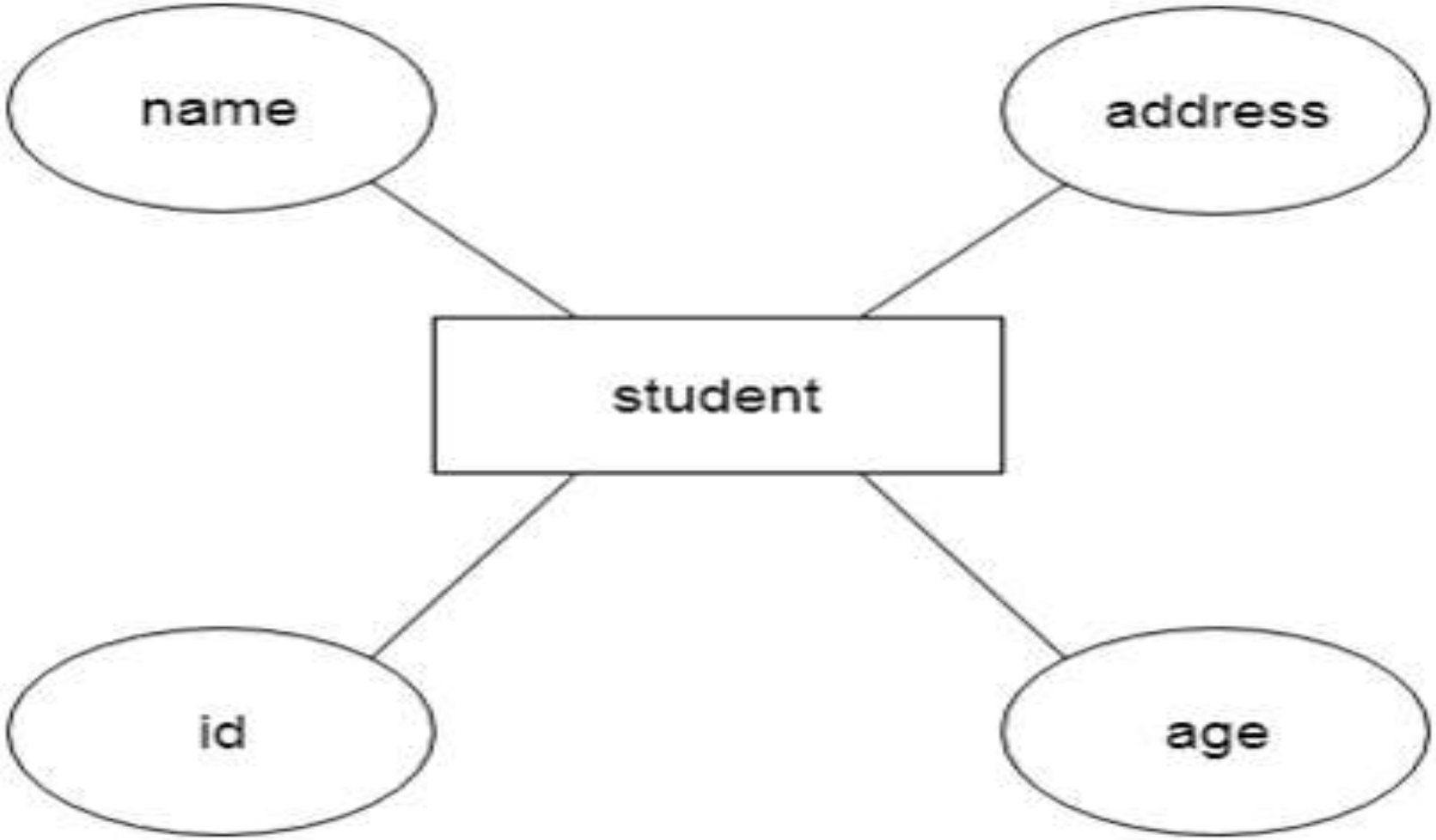
3) Entity-Relationship Data Model:

An ER model is the **logical representation of data** as **objects and relationships among them.**

These objects are known as **entities, and relationship is an association among these entities.**

This model was designed by Peter Chen and published in 1976 papers. It was widely used in database designing. A set of attributes describe the entities.

For example, student_name, student_id describes the 'student' entity. A set of the **same type of entities** is known as an **'Entity set',** and the set of the **same type of relationships** is known as **'relationship set'.**


name
address
student
id
age

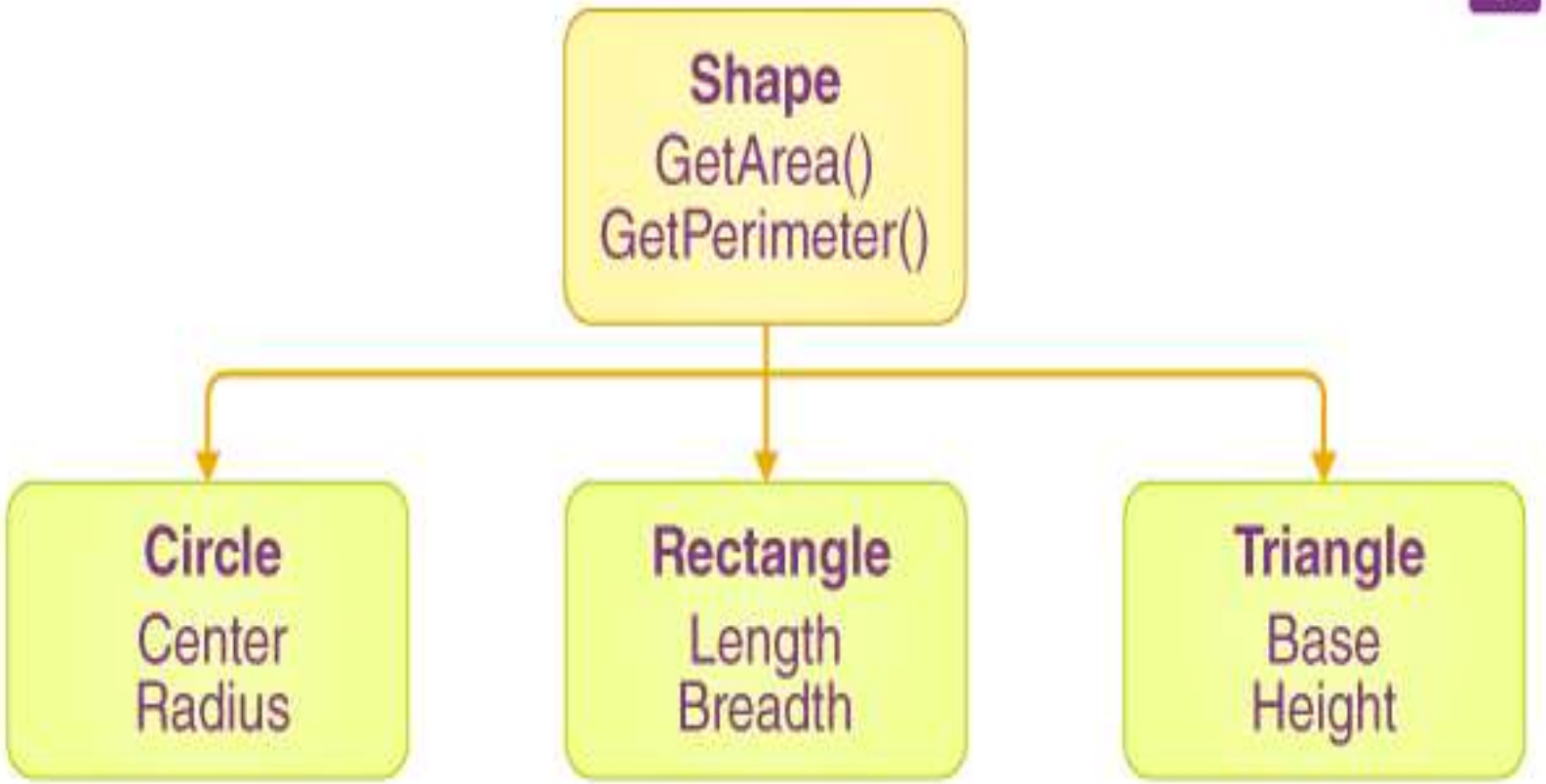
4) Object-based Data Model

An **extension of the ER model with notions of functions, encapsulation, and object identity**, as well.

This model supports a **rich type system that includes structured and collection types.**

Thus, in 1980s, various database systems following the object-oriented approach were developed.

Here, the objects are nothing but the data carrying its properties.


Shape
GetArea()
GetPerimeter()
Circle
Center
Radius
Rectangle
Length
Breadth
Triangle
Base
Height

Any Query????

Thank you……