

# 数据模型

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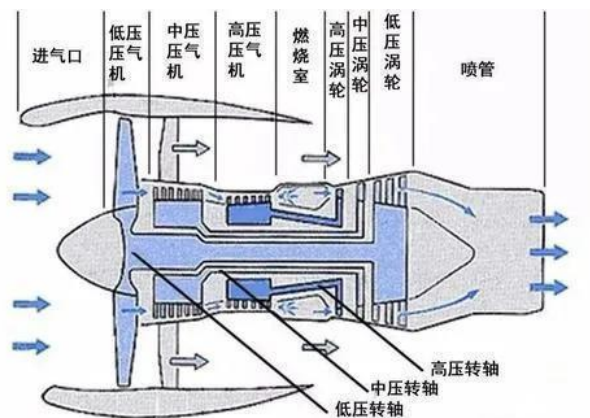
# 模型

## 模型(Model)

- The abstraction of the real world that simulate the real world.
- A map, the sand table of a building, ...

## 数据模型(Data Model)

- The abstraction about data characteristics of the real world.
- An integrated collection of concepts for describing and manipulating data, relationships between data, and constraints on the data in an organization.



$$X \sim N(\mu, \sigma^2) \quad p(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{-\frac{(x-\mu)^2}{2\sigma^2}}, \quad -\infty < x < \infty$$

$$H(n) = \begin{cases} 1 & n = 1 \\ n/2 & n \% 2 = 0 \\ 3n+1 & n \% 2 \neq 0 \end{cases} \quad y = A \sin(\omega x + \phi) + k$$

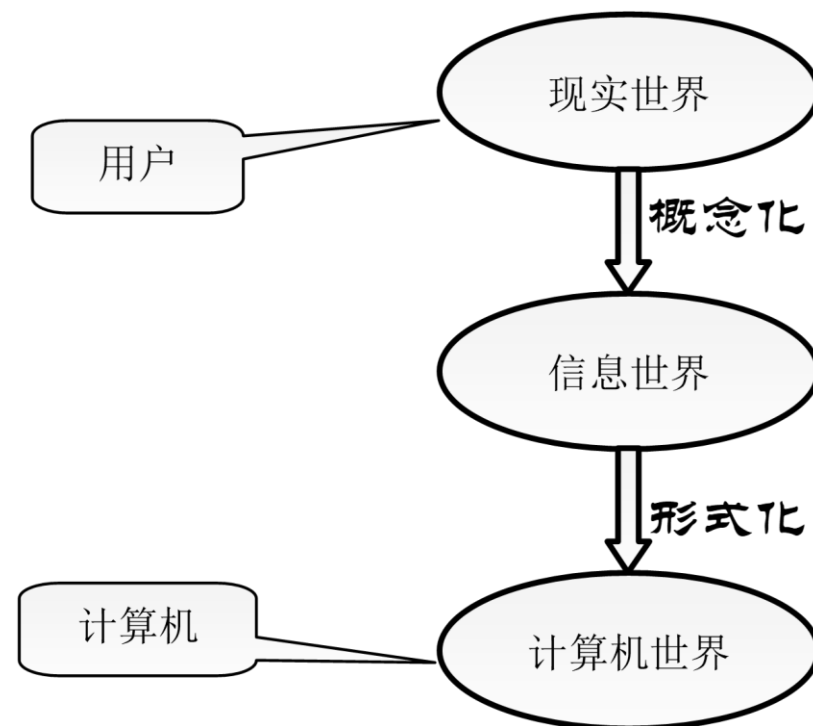
# 为何需要建模

## 数据模型建模基本原则

- Represent the “real world” really
- Make the data understandable for variety of users
- Easy to implement on compute

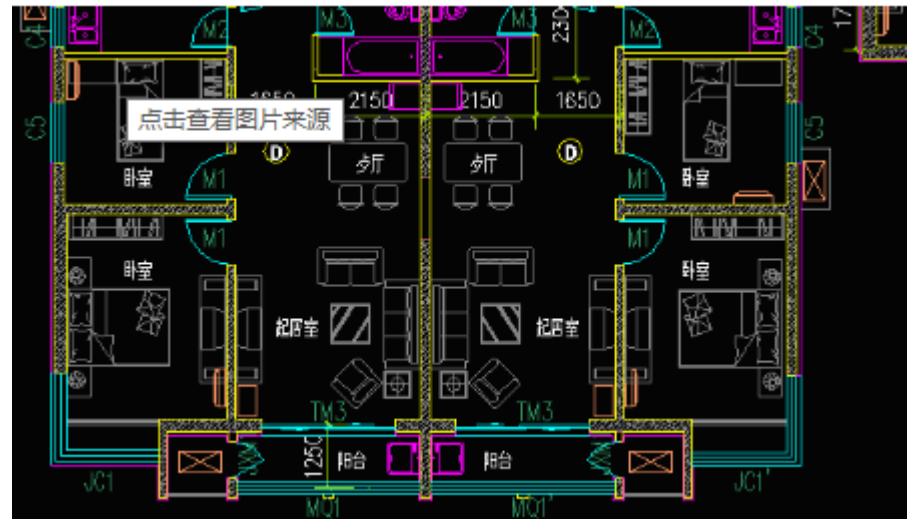
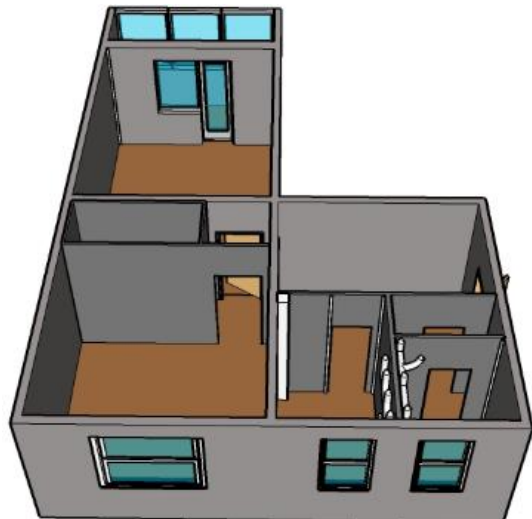
## 数据模型三要素

- Data structure
- Data manipulation
- Constraints of data integrity



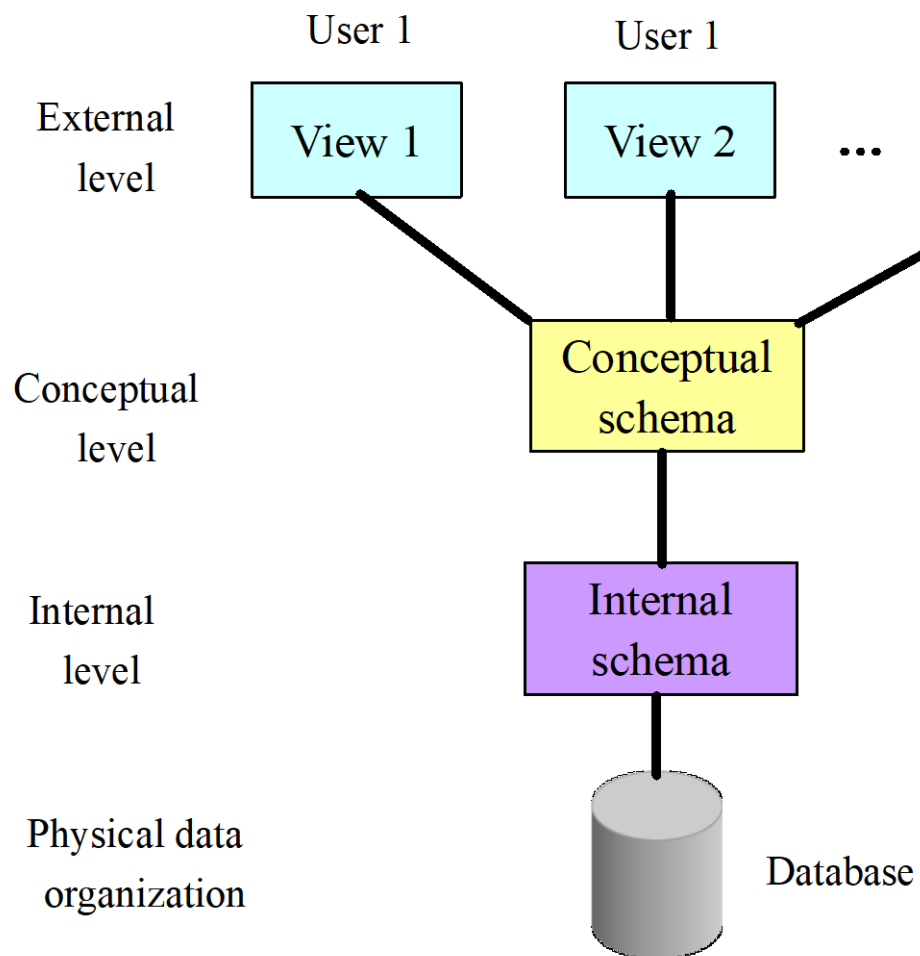
# 模型的多样性

视角不同，同一对象可能有多种表达模型

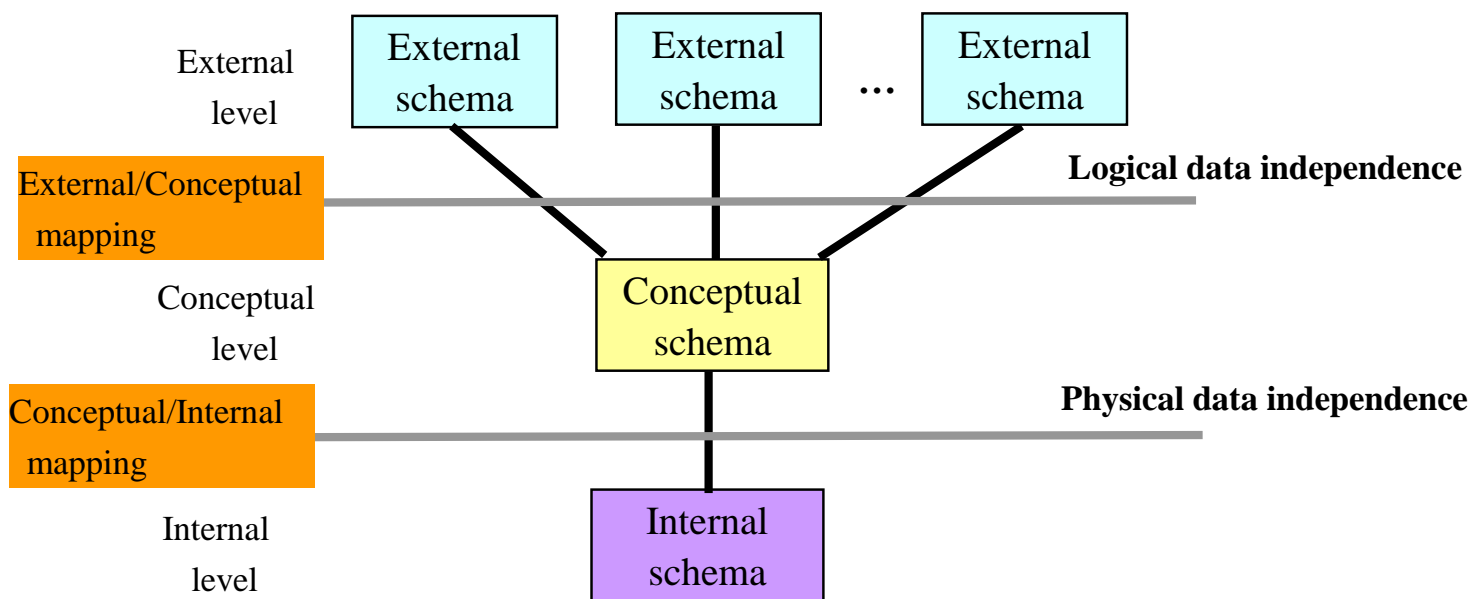


# 数据模型的三级模式结构与二级映射

## The Three-Level ANSI-SPARC Architecture



**Conceptual schema is the 'heart' of the database**



## 关于本讲内容

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# 感谢观看！

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