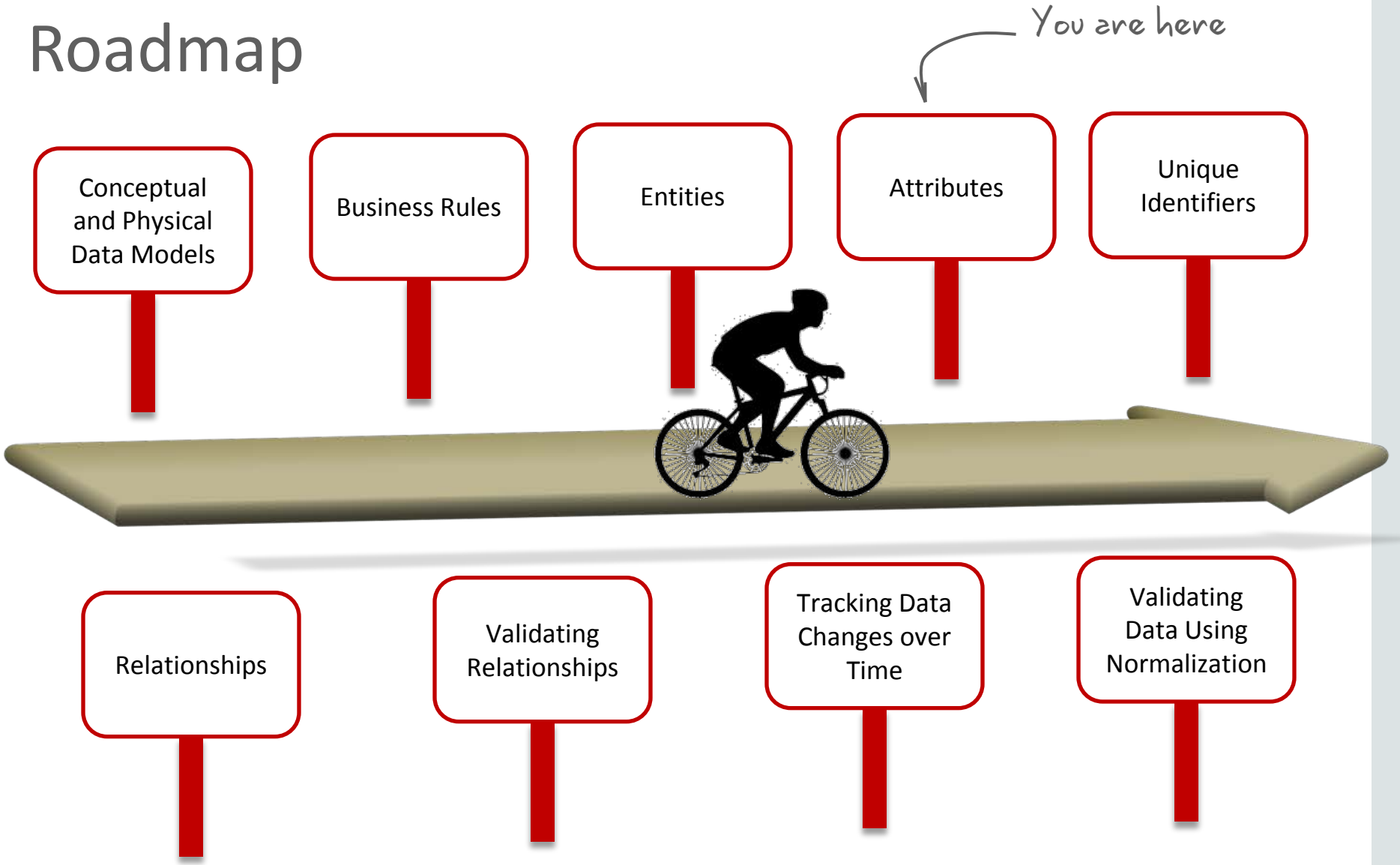

ORACLE
ACADEMY

Database Foundations

3-4
Attributes

ORACLE ACADEMY

Roadmap



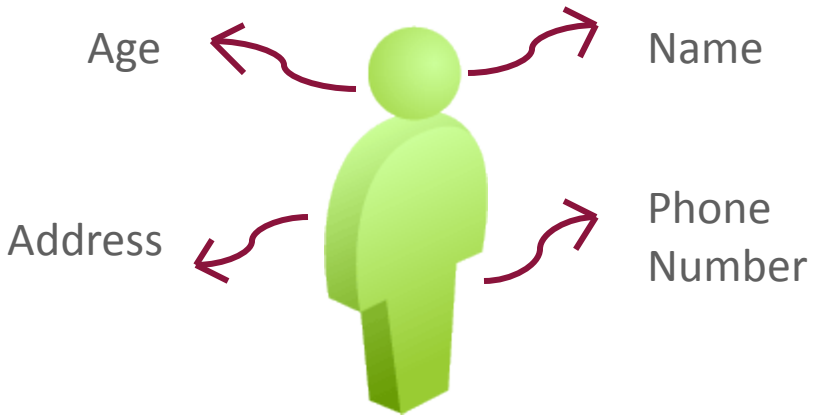
Objectives

This lesson covers the following objectives:

- Identify attributes
- Identify mandatory, optional, volatile, and nonvolatile attributes
- Describe the Barker, Bachman, and Information Engineering notations

Attributes

- Attributes describe entities and are the specific information that must be known.
- It is a single-valued property detail of an entity.



Attribute Characteristics

- Attributes are shown within the entity box on the ERD.
- Attribute names are singular and mixed case or lowercase.
- The name of the attribute should not include the entity's name, because attributes are qualified with the entity name.
- Attributes are classified as one of the following:
  - Mandatory (nulls are not allowed), indicated by *
  - Optional (nulls are allowed), indicated by a lowercase o

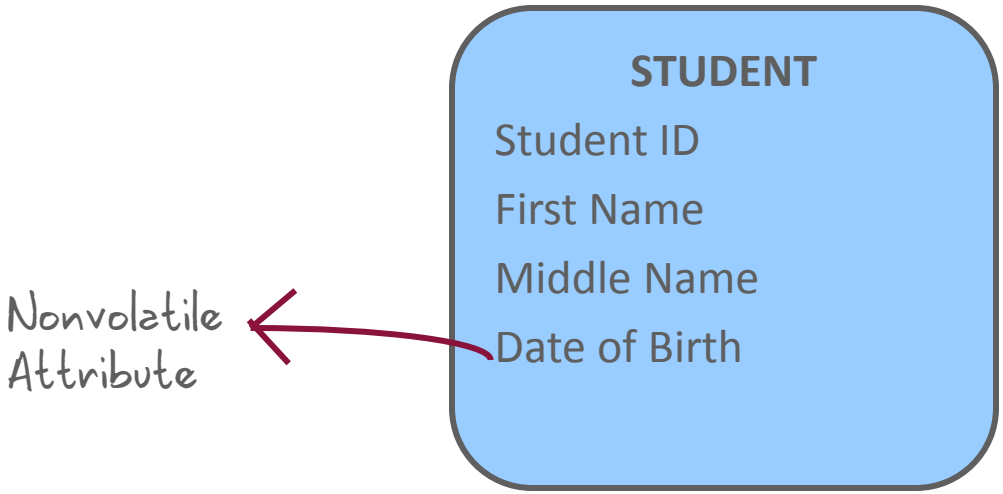
Volatile and Nonvolatile Attributes

- Volatile attributes are unstable attributes.

  Example: Age

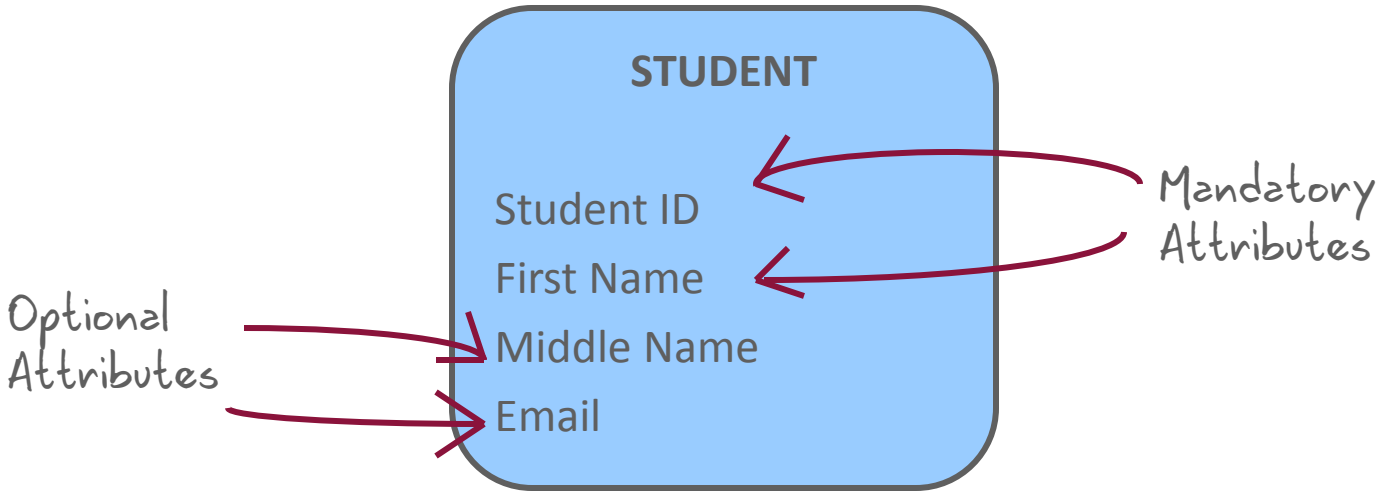
- Nonvolatile attribute are stable attributes.

  Example: Birth Date



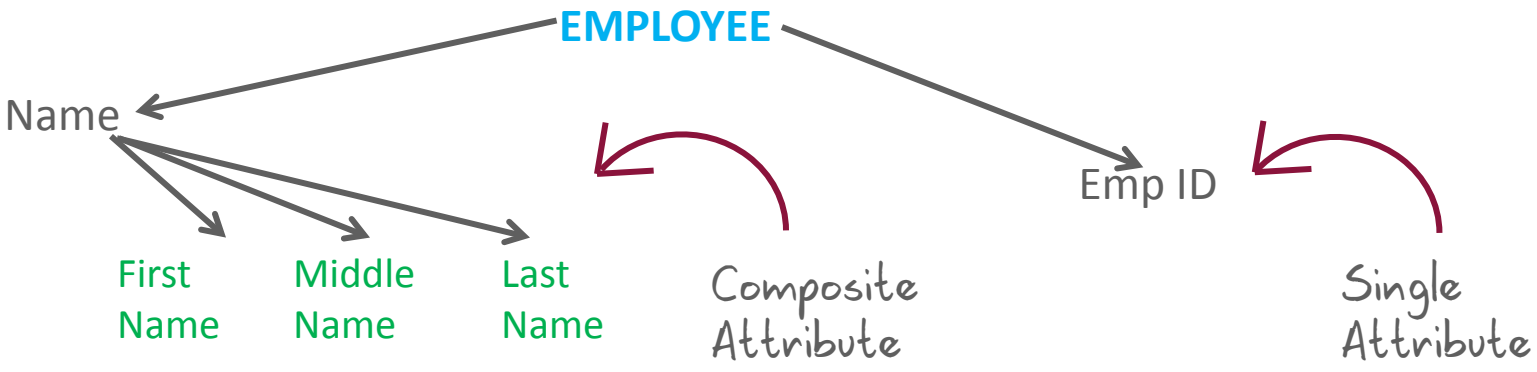
Mandatory and Optional Attributes

- Mandatory attributes must have a value.
- Optional attributes cannot have a value and can be blank.



Single and Composite Attributes

- Single or atomic attributes are attributes that cannot be divided into subparts.
- Composite attributes are attributes that can be divided into smaller subparts that represent basic attributes with independent meanings of their own.



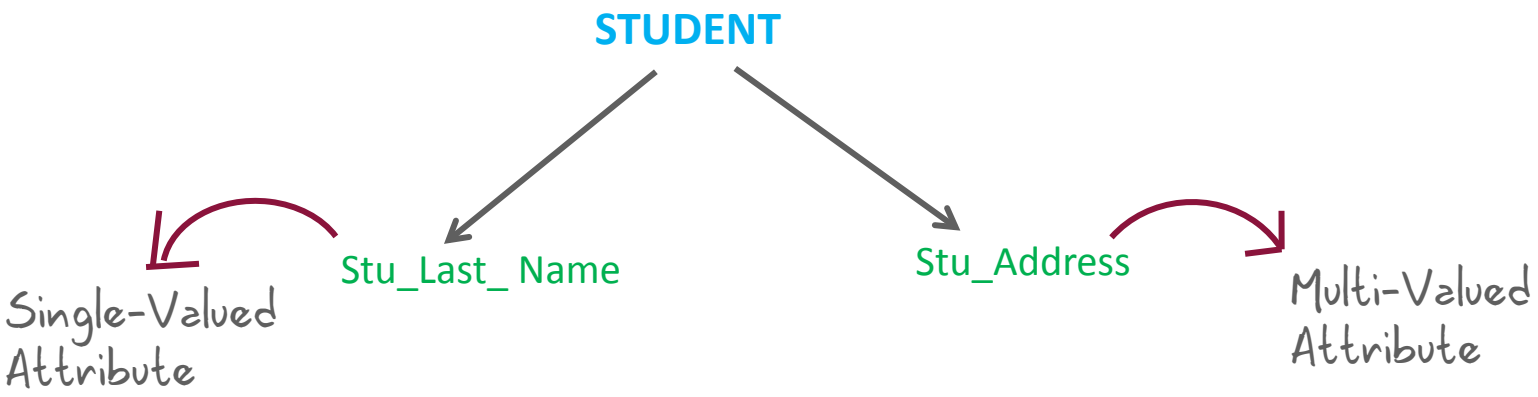
Single-Valued and Multi-Valued Attributes

- Single-valued attributes can have a single value at a particular instance of time.

  Example: Student Last Name

- Multi-valued attributes can have more than one value at one time.

  Example: Student Address

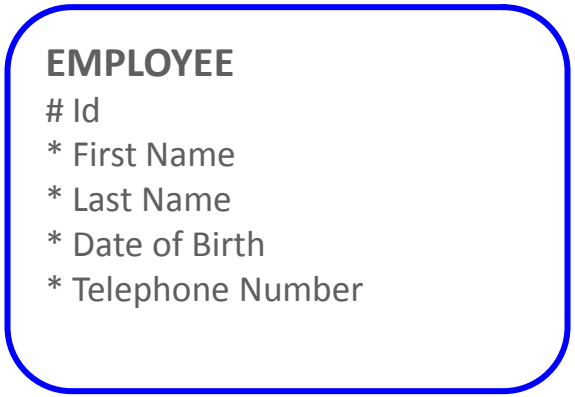


Barker Notation: Rules for Drawing Entities

- An entity is represented as a round-cornered rectangle.
- An entity must be named, and the name must be placed inside the entity in the upper-left corner.
- The entity name should be in uppercase form.
- The entity name should be in singular form.

Barker Notation: Rules for Drawing Attributes

- The attributes must be written so that everyone, not just developers, can understand them.
- Attributes must be written with the first letter of each word in uppercase and the rest in lowercase.
- A symbol representing the type of attribute should be placed next to each attribute .

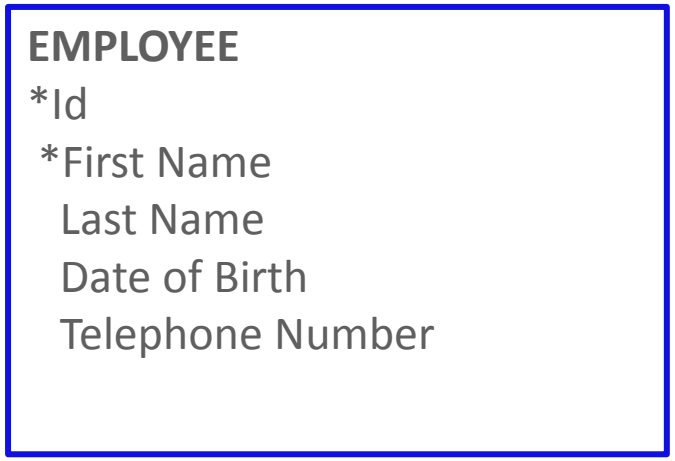


Barker Notation: Rules for Drawing Relationships

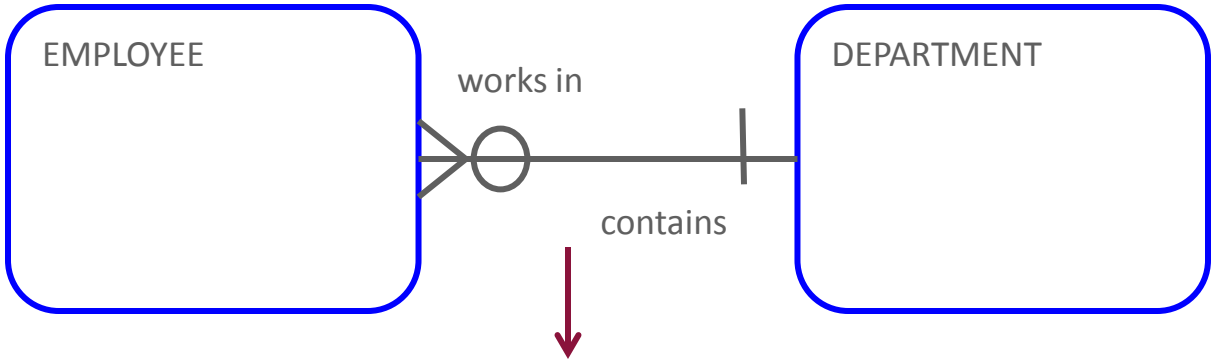
- A relationship can exist between a maximum of two entities.
- A relationship can exist on the same entity.
- A relationship has two perspectives.
- Both perspectives of a relationship must be labeled.

Bachman Notation

- Entity (represented by a box)
- Attributes
- Relationship lines



Information Engineering Notation



An EMPLOYEE works only in one DEPARTMENT.
A DEPARTMENT contains zero or more EMPLOYEES.

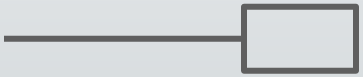
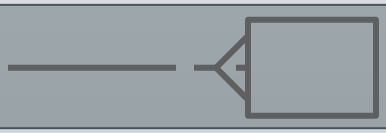
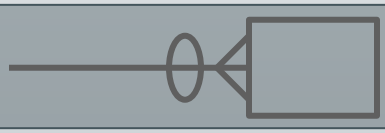
zero or more

zero or one

one or more

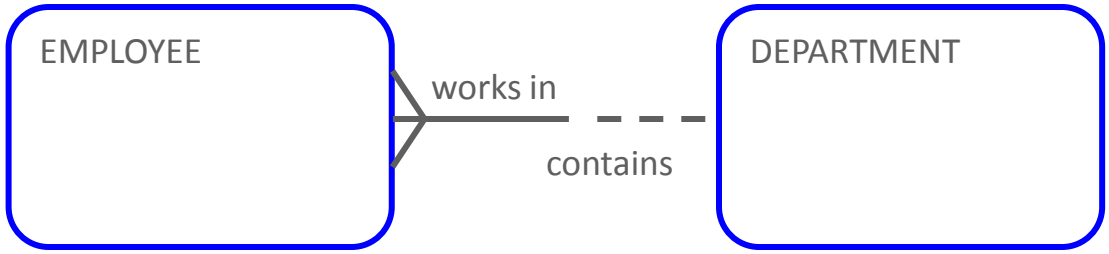
only one

Data Model Notations

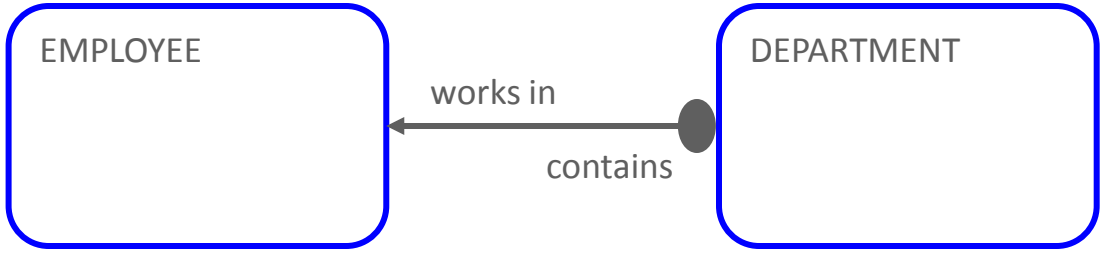
Notation	Barker Notation	Bachman Notation	Information Engineering
Zero or one			
One only			
Zero or more			
One or more			
Primary Key/Unique key	#	P	

Data Model Notations: Examples

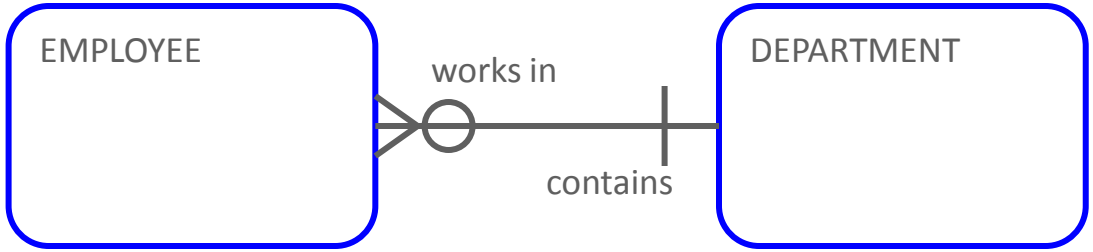
Barker Notation



Bachman Notation



Information Engineering Notation



Summary

In this lesson, you should have learned how to :

- Identify attributes
- Identify mandatory, optional, volatile, and nonvolatile attributes
- Describe the Barker, Bachman, and Information Engineering notations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