CS 327E Lecture 2

Shirley Cohen

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Question 1: Which of the following are reasons for modeling hierarchies?

A. Represents different levels of granularity among related entity classes

B. Protects data integrity through the use of constraints

C. Simplifies joins between diverse entity classes

D. Clarifies the meaning of the entity classes in the ERD

E. All of the above

Question 2: You should create a subtype if groups of attributes are always null or not null together

A. True

B. False

Question 3: Which of the following is a supertype of the entity class Graduate Student?

A. Masters Student

B. PhD Student

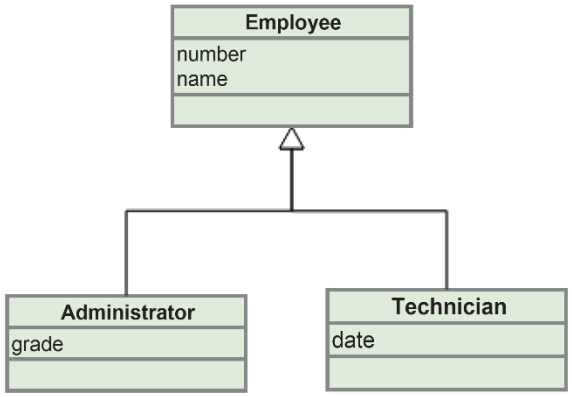
C. Student

D. Undergraduate Student

E. None of the above

Question 4: An Administrator is:

A.sometimes a Technician
B.sometimes an Employee
C.always an Employee
D.never an Employee



Question 5: Subtypes cannot have their own subtypes

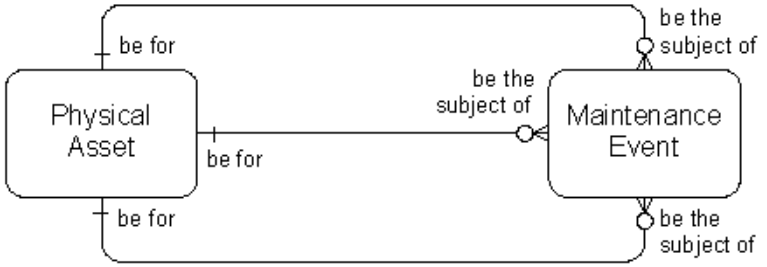
A. True

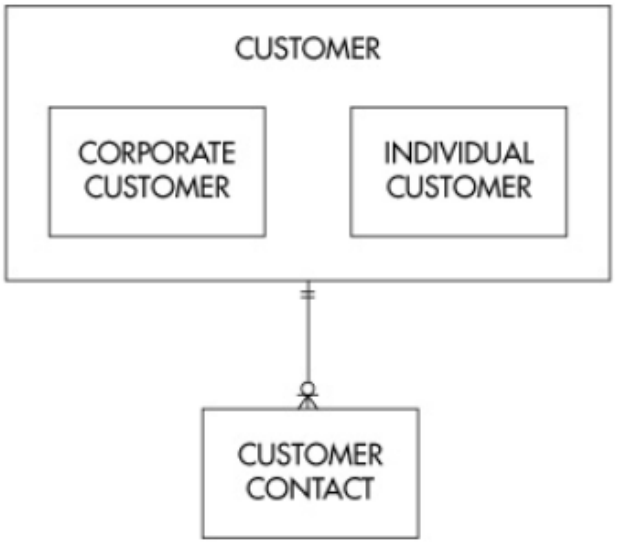
B. False

Modeling Hierarchies

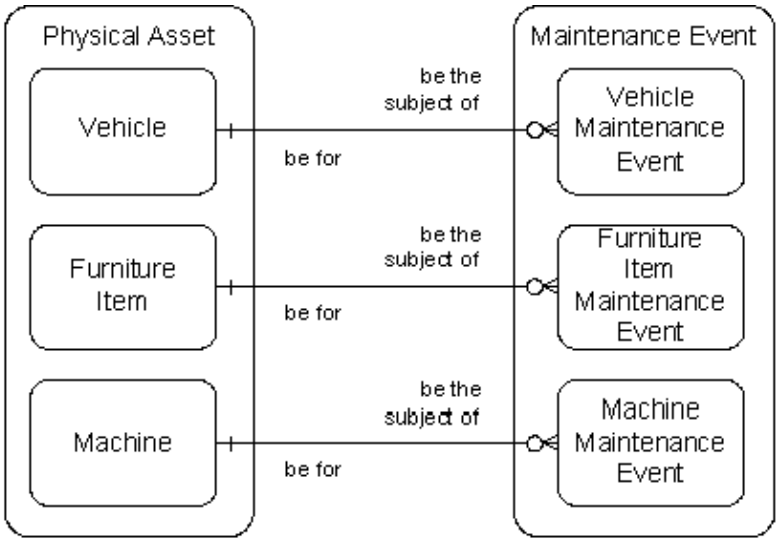
Key Concepts:

- Supertypes
- Subtypes



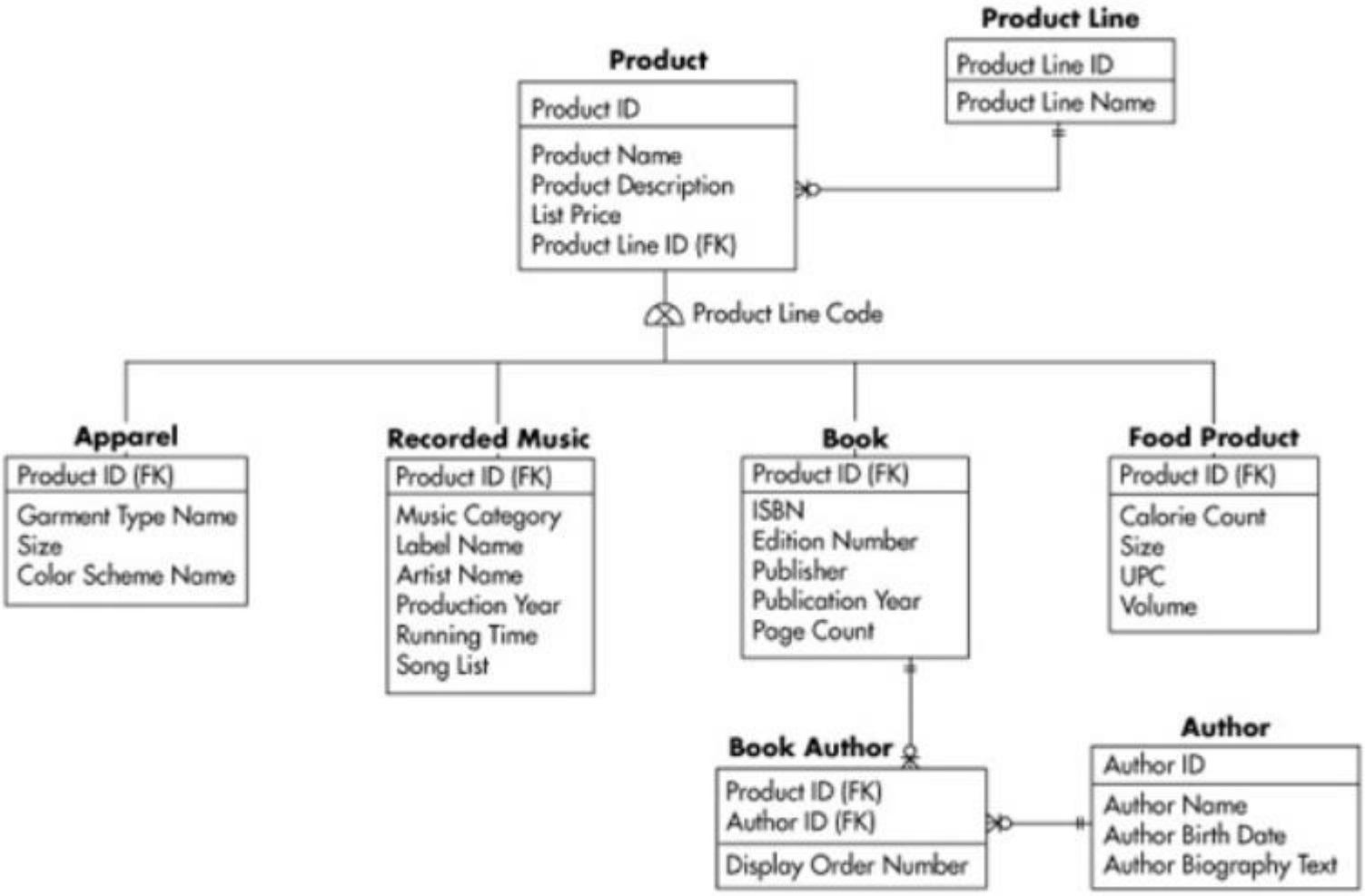


Example 1



Example 2

Product Catalog Hierarchy



Anti-pattern

Product Line

Prod. Line ID	Prod. Line Desc.
101	Apparel
104	Food Products

Property Type

Prop. Type ID	Prop. Name	Prop. Data Type
P10001	Size	String
P10005	Garment Type Name	String
P10012	Calorie Count	Integer

Property Type Applicability

Prod. Line ID	Prop. Type ID
101	P10001
101	P10005
104	P10001
104	P10012

Product

Prod. ID	Prod. Name	Prod. Description	List Price	Prod. Line ID
1254678	ComfoSteer Glove	Men's leather driving glove	22.99	101
3549076	CalDry Apricots	Dried California apricots	3.25	104

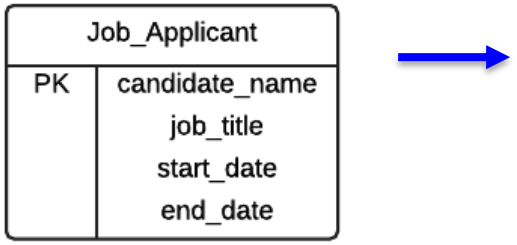
Product Property Value

Prod. Prop. ID	Prod. ID	Prop. Type ID	Display Order Num.	Prop. Value
33341461	1254678	P10001	2	Large
86743573	1254678	P10005	1	Men's gloves
77303926	3549076	P10001	1	6 oz.
96901490	3549076	P10012	2	110

Class Enrollment ERD Exercise

Concept Question 1

This is an entity class for storing information on job applicants and their employment history. What constraints have we used on this table that help to protect the integrity of the data?




```
CREATE TABLE Job_Applicant
(
  candidate_name VARCHAR(50) PRIMARY KEY,
  job_title VARCHAR(50)NOT NULL,
  start_date DATE NOT NULL,
  end_date DATE,
  CHECK (end_date >= start_date)
)
```

A. primary key on `candidate_name`

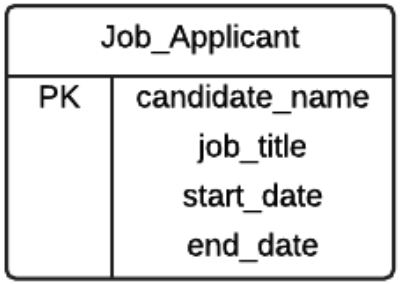
B. not null on `job_title` and `start_date`

C. check constraint on date fields

D. all of the above

Concept Question 2

How can we improve the design of the `Job_Applicant` table to be able to track multiple previous employments per applicant?

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)
```

A. change the unique identifier on the table

B. separate first and last name

C. add a column for each job title

D. none of the above

Concept Question 3

This is a table that is intended for storing the room reservations of hotel guests. Can you figure out what's wrong with the design?

```
CREATE TABLE Hotel_Reservation
(
  guest_name VARCHAR(50) NOT NULL,
  room_nbr INTEGER NOT NULL,
  arrival_date DATE NOT NULL,
  departure_date DATE,
  PRIMARY KEY (room_nbr, arrival_date),
  CHECK (departure_date >= arrival_date)
)
```

A. it doesn't let you store the contact information for the guest

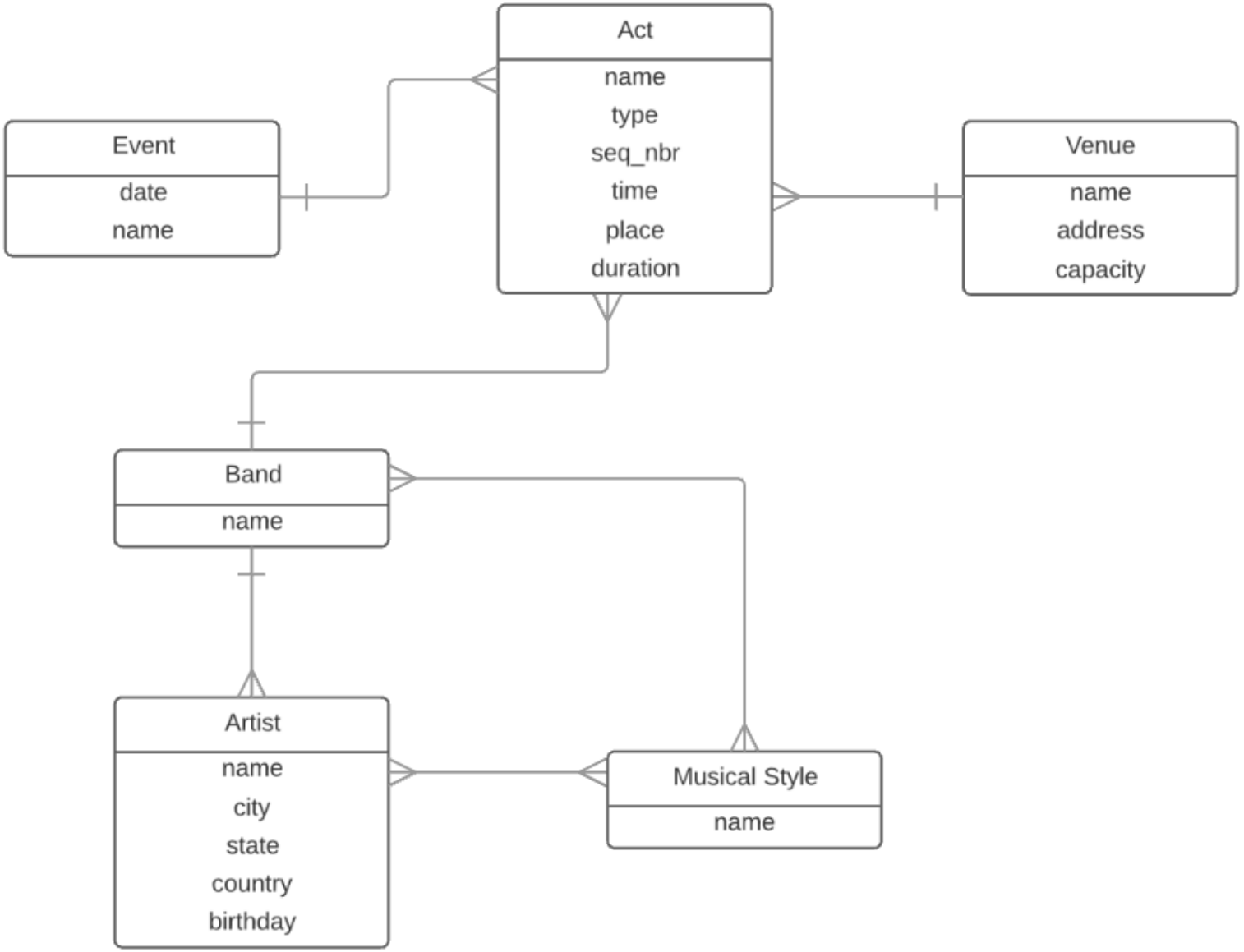
B. it doesn't let you store multiple rooms per guest

C. it allows for double-bookings

D. it doesn't let you check-in and check-out on the same day

E. none of the above

ACL ERD Exercise



Homework for Next Time

- Read chapter 11 from our Data Modeling textbook