CSC343 Worksheet 15 Solution (Final)

July 14, 2020

1. • E/R Diagram

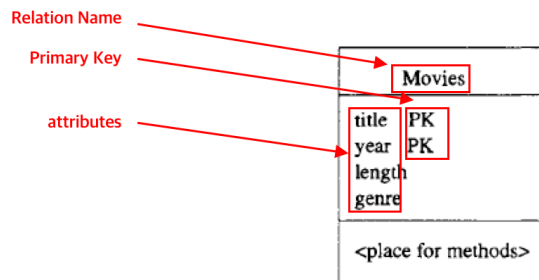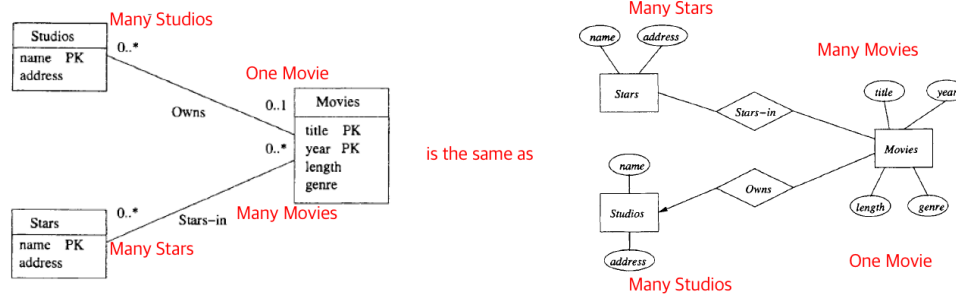Customer

Account

Notes:

- UML
  - Was developed originally as a graphical notation for describing software designs in an object-oriented style
  - Offers the same as E/R model, with the exception of multiway relationship

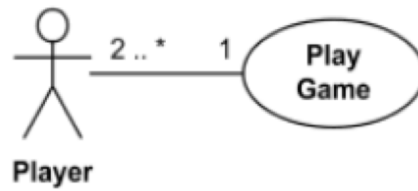| UML	E/R Model
Class	Entity set
Association	Binary relationship
Association Class	Attributes on a relationship
Subclass	Isa hierarchy
Aggregation	Many-one relationship
Composition	Many-one relationship with referential integrity

- UML Class

- Associations

Multiplicity in UML

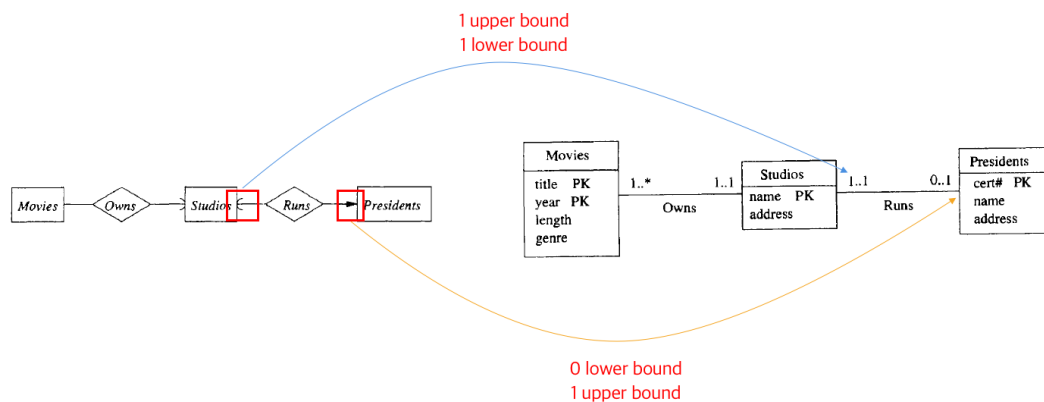| Multiplicity	Option	Cardinality
0..0	0	Collection must be empty
0..1		No instances or one instance
1..1	1	Exactly one instance
0..*	*	Zero or more instance
5..5	5	Exactly 5 instances
$m..n$		At least m but no more than n instances

Example:

Two or more Player actors are required
to initiate **one** Play Game use case.

References:

1) uml-diagrams, UML Multiplicity and Collections, link

- Referential Integrity
  - Means that a value appearing in one context must also appear in another

Means studio can have **at most one** president
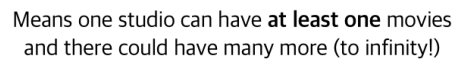but it could not have a president at some time

many upper bound

Movies — ⟨Owns⟩ — Studios ⟨Runs⟩ → Presidents

Movies		Studios		Presidents
title PK	1..* Owns 1..1	name PK	1..1 Runs 0..1	cert# PK
year PK		address		name
length				address
genre				

1 lower and upper bound

Means one studio can have **at least one** movies
and there could have many more (to infinity!)

- Self-Assoiations

Original

⟨Sequel-of⟩ — Movies

Sequel

Movies	0..1	TheOriginal
title PK		
year PK		
length		
genre	0..*	TheSequel

is the same

- Assoiations

Compensation (name, year, pk, salary, residuals)