CSCC43

Tutorial Week 1 – Relational Model

Schema 1

Employee Table

Employee ID	Name	SSN	Department
10101	John	123456789	HR
12121	Jane	987654321	Marketing
15151	Bob	555123456	Sales
76543	Alice	777889999	IT
98345	Kate	15664312	Customer Service
32343	Kim	647113412	Finance

Question 1

1. What is the relation schema for the above instance?

2. What are the attributes?

3. What are the tuples?

4. What is the Cardinality of the above relation?

5. What is the Arity?

Question 2

Consider the domain constraint for the above instance. Give examples for the possible inserts that would violate the domain key constraint?

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Question 3

1. Identify the possible set of combinations of superkeys for the above instance.

2. Identify the candidate keys for the above instance.

3. Employee ID, SSN Which one could be the primary key?

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Question 4

Create a table by using the foreign key constraint for the above instance.

Schema 2

Movies(mID, title, director, year, length)
Artists(aID, aName, nationality)
Roles(mID, aID, character)

Roles[mID] $\subseteq$ Movies[mID]
Roles[aID] $\subseteq$ Artists[aID]

Sample Database:

Movies

mID	title	director	year	length
1	Shining	Kubrick	1980	146
2	Player	Altman	1992	146
3	Chinatown	Polanski	1974	131
4	Repulsion	Polanski	1965	143
5	Star Wars IV	Lucas	1977	126
6	American Graffiti	Lucas	1973	110
7	Full Metal Jacket	Kubrick	1987	156

Artists

aID	aName	nat
1	Nicholson	American
2	Ford	American
3	Stone	British
4	Fisher	American

Roles

mID	aID	character
1	1	Jack Torrance
3	1	Jake 'J.J.' Gittes
1	3	Delbert Grady
5	2	Han Solo
6	2	Bob Falfa
5	4	Princess Leia Organa

1. Change the instance of the database so that this constraint is violated:
   Roles[aID] $\subseteq$ Artists[aID]

2. Does any actor show up in relation Roles twice with same mID ?

3. What would be the impact of defining Roles as follows: Roles(<u>mID</u>, <u>aID</u>, <u>character</u>)?