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CSE-3330-001

2/6/2019

Assignment 2

1. I would use a client-server DBMS architecture. Numerous amounts of transactions can occur simultaneously without performance issues. Data is also more secure with the client-server architecture. Using a centralized architecture would have worse performance and security than the client-server architecture.
2. **Relational model:** Approach to managing data where all data is represented in terms of tuples, grouped in to relations.

**Object model:** Approach to managing data where both data and their relationships are contained in a structure (object).

**XML model:** Approach to managing data where data and relationships are represented in a tree-like structure.

Differences: Relational model stores data and represents relationships in tuples containing rows and columns. Object model stores data and represents relationships in objects, XML model stores data and represents relationships using tree structures.

1. **Relation Name:** EMPLOYEE

**Tuple:** John Karter 12789876 Sales 5672345677

**Attributes:** Employee\_Name Employee\_Id Department Phone\_No

**Degree:** 4

1. **Foreign key:** A column or group of columns in relational database that provides a link between two tables. The foreign key is the primary key in the table that it is linked to.
2. **a)** Bdate entry is not in correct format, 21-JUN-42 should be 1942-06-21

**b)** No constraint violations

**c)** Dnumber entry is not unique, same Dnumber as Administration (4). Mgr\_start\_date is not in correct format, 01-OCT-88 should be 1988-10-01

**d)** Pno entry is null, Pno is not nullable.

**e)** Bdate entry is not in correct format, 12-DEC-60 should be 1960-12-12

**f)** Cannot delete tuples with ESSN “333445555” because it is used as a foreign key in DEPENDENT

**g)** Cannot delete tuple with SSN “987654321” because it is a foreign key in DEPARTMENT and WORKS\_ON

**h)** No constraint violations

**i)** Super\_snn entry must be an existing Ssn. 943775543 does not exist in EMPLOYEE table

**j)** No constraint violations

1. SSN in TRIP  
   Trip\_ID in EXPENSE  
   Name in EXPENSE (Assumption)?  
   SSN in EXPENSE (Assumption)?
2. **Course#** - **Univ\_Section#**: Each Course# must have unique Univ\_Section# values  
     
   **Course#** - **BuildingCode** – **Room#** **-** **TimePeriod**: Cannot have two of the same Course# with same BuildingCode Room# and TimePeriod.  
     
   **Course# - Univ\_Section# - InstructorName**: Each Course# must have unique Univ\_Section# and InstructorName  
     
   **Course# - InstructorName - TimePeriod**: InstructorName and TimePeriod cannot be the same in two or more tuples.

**AUTOMOBILE**

**Bold =** Primary key *Italics* = Foreign Key

Employee

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Employee\_ID** | Employee\_First\_Name | Employee\_Last\_Name | Employee\_Email | SSN |

Customer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Customer\_ID** | Customer\_First\_Name | Customer\_Last\_Name | Customer\_Email | Credit\_Card\_Number |

Car

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Vehicle\_ID** | Make | Model | Year | Color |

Buy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Customer\_ID*** | ***Employee\_ID*** | ***Vehicle\_ID*** | Price | Discount |

1. FLIGHT.Flight\_number🡪FLIGHT\_LEG  
   FLIGHT.Flight\_number🡪FARE  
   AIRPLANE\_TYPE.Airplane\_type\_name🡪CAN\_LAND  
   AIRPORT.Airport\_code🡪CAN\_LAND  
   AIRPLANE\_TYPE.(Airplane\_type\_name, Max\_seats, Company)🡪AIRPLANE