RIT | Golisano College of Computing and Information Sciences
School of Information

Introduction to Database & Data Modeling - **PE05**

ISTE 230
Fall 2024

Due Date (See **My**Courses **ASSIGMENTS)** Assignment Box **PE05**

Name: Please put Last name (Lastname, Firstname)_____Lynch, Connor_____

Instructions:

1) Download this Word Document. Type your answers in this Word Document.

2) Convert this Word Document INTO PDF Document after you complete all your answers.

For each problem below, normalize the relations into the second Normal Form 2nf.

Be sure to use proper relational notation (relational scema):

RELATION(pkattr, attribute1, attribute2, attribute3, *fkattr*)

Include reference statements for foreign keys (Must Exist In or M.E.I.) statements

Problem #1

EMPLOYEE2

Emp_ID	Name	Dept_Name	Salary	Course_Title	Date_Completed
100	Margaret Simpson	Marketing	48,000	SPSS	6/19/200X
100	Margaret Simpson	Marketing	48,000	Surveys	10/7/200X
140	Alan Beeton	Accounting	52,000	Tax Acc	12/8/200X
110	Chris Lucero	Info Systems	43,000	SPSS	1/12/200X
110	Chris Lucero	Info Systems	43,000	C++	4/22/200X
190	Lorenzo Davis	Finance	55,000		
150	Susan Martin	Marketing	42,000	SPSS	6/19/200X
150	Susan Martin	Marketing	42,000	Java	8/12/200X

EMPLOYEE2(Emp_ID, Name, Dept_Name, Salary, Course_Title, Date_Completed)

Functional Dependencies:

Emp_ID, Course_Title ➔ Name, Dept_Name, Salary, Date_Completed

EmpID ➔ Name, Dept_Name, Salary

YOUR ANSWER (in relationa scema format) is? What is/are your M.E.I. statement(s) ?

EMPLOYEE(EmpID, Name, Dept_Name, Salary)
COURSE(*EmpID*, Course_Title, Date_Completed)

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COURSE(EmpID) M.E.I. EMPLOYEE(EmpID)

Problem #2

ENGINEER-SERVICE(empID, firstname, lastname, email, serviceID, servicename)

Note: an engineer can provide many services and a service can be provided by many engineers.
<M:N> Is the correct cardinality ratio of this problem.

Functional Dependencies:

empID, serviceID ➔ firstname, lastname, email, servicename
empID ➔ firstname, lastname, email
email ➔ empID, firstname, lastname
serviceID ➔ servicename

YOUR ANSWER (in relationa scema format) is? **What is/are your M.E.I. statement(s) ?**

EMPLOYEE(empID, firstname, lastname, email)
SERVICE(serviceID, servicename)
EMP-SERV(*empID*, *serviceID*)
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EMP-SERV(empID) M.E.I. EMPLOYEE(empID)
EMP-SERV(serviceID) M.E.I. SERVICE(serviceID)

Problem #3

Movie

Title	Year	Length	Type	Studio	Star
Star Wars	1977	124	Color	Fox	C. Fisher
Star Wars	1977	124	Color	Fox	M. Hamil
Star Wars	1977	124	Color	Fox	H. Ford
Alien	1979	117	Color	Paramount	S. Weaver
Aliens	1986	137	Color	Paramount	S. Weaver
Alien3	1992	113	Color	Paramount	S. Weaver
Annie Hall	1977	93	Color	Warner Bros	W. Allen
Annie Hall	1977	93	Color	Warner Bros	D. Keaton
Chaplin	1992	124	B&W	MGM	R. Downey
Dr. Strangelove	1964	93	B&W	Paramount	R. Torn
Restoration	1995	117	Color	Miramax	R. Downey

MOVIE(Title, Year, Length, Type, Studio, Star)

Functional Dependencies:

Title, Star ➔ Year, Length, Type Studio

Title ➔ Year, Length, Type, Studio

YOUR ANSWER (in relationa scema format) is? What is/are your M.E.I. statement(s) ?

MOVIE(title, year, length, type, studio)

STARS(*title*, star)

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STARS(title) Must Exist In MOVIE(title)

Problem #4

Is This a relation?_____YES OR NO_____

What is/are the Primary key? __SupplierId + ProductID_____ It appears to have 2 fields (COMPOSTE KEY)

Normalize the folling table. Use Relational Schema! Please include a proper M.E.I.

SupplierID	SupplierName	Phone	Email	ProductID	ProductName	UnitPrice
00001	Acme Corporation	(585)475-6369	sales@acme.com	1	Chocolates	10.50
00001	Acme Corporation	(585)475-6369	sales@acme.com	2	Iphone	1000.50
00001	Acme Corporation	(585)475-6369	sales@acme.com	3	Toy rockets	975.50
00001	Acme Corporation	(585)475-6369	sales@acme.com	4	Basketball	22.99
00002	Hobby Lobby	(555)233-5555	sales@hobby_lobby.com	1	Cricut Explore Air	250.00
00002	Hobby Lobby	(555)233-5555	sales@hobby_lobby.com	2	Chalk Paint	9.95
00002	Hobby Lobby	(555)233-5555	sales@hobby_lobby.com	3	Ink Pad	4.50
00010	Dicks Sporting Goods	(585)555-1234	sales@sporting_goods.com	1	Baseball Glove	42.00
00010	Dicks Sporting Goods	(585)555-1234	sales@sporting_goods.com	2	Baseball HAT	22.99
00010	Dicks Sporting Goods	(585)555-1234	sales@sporting_goods.com	3	Baseball Bat	31.99

10 rows in set (0.00 sec)

mysql>

Study myfirstdb_version3.sql

What is/are your M.E.I. statement(s) ? What are your relational schemas?

SUPPLIER(SupplierID, SupplierName, Phone, Email)

PRODUCT(*SupplierID*, ProductID, ProductName, UnitPrice)

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PRODUCT(SupplierID) M.E.I. SUPPLIER(SupplierID)

Problem #5

Grocery Locations

You need to normalize **(to the 3rd Normal form rule)** an inventory database for a small-town grocery store. Write the normalized relations using relational schema. Also write the require **M.E.I.** (**M**ust **E**xist **I**n) Statement

- **Business Rule:**
  - **A product, regardless of brand, will only be stored in one place (aisle#) in the store.**

INVENTORY			
Brand	Product	Size	Aisle
Hunt's	Canned tomatoes	#2 can	3
Contadina	Canned tomatoes	#3 can	3
Hunt's	Canned tomatoes	#3 can	3
Hunt's	Ketchup	12 oz.	5

AISLE(Product, Aisle)

ITEM(Brand, *Product*, Size)

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ITEM(Product) M.E.I. AISLE(Product)