Shiyas Ahamed S

DB Assignment
Normalization of Tables

13/12/23

1. Employee Information

EmployeeID	EmployeeName	Department	ManagerID	Salary	HireDate
1	John Smith	HR	101	50000	2022-01-15
2	Alice Brown	IT	102	60000	2022-02-20
3	Mark Johnson	Sales	101	55000	2022-03-10

- Removing Partial Dependency:

EmployeeID	EmployeeName
1	John Smith
2	Alice Brown
3	Mark Johnson

- No transitive dependency

- Making it more efficient:

Employee

EmployeeID	EmployeeName
1	John Smith
2	Alice Brown
3	Mark Johnson

Department

Department_Id	Department
001	HR
002	IT
003	Sales

Employee_Mapping

EmployeeID	Department_Id	ManagerID	Salary	HireDate
1	001	101	50000	2022-01-15

2	002	102	60000	2022-02-20
3	003	101	55000	2022-03-10

2. Training Programs

ProgramID	ProgramName	Trainer	Department	EmployeeID	Employee Name	Date
1	Java Fundamentals	John Smith	IT	101	Alice Brown	2022-03-01
2	Project Management	Sarah White	HR	102	Bob Green	2022-03-10
3	Sales Techniques	Mark Johnson	Sales	103	Charlie Black	2022-03-20

- Removing partial dependency

ProgramID	ProgramName	Trainer
1	Java Fundamentals	John Smith
2	Project Management	Sarah White
3	Sales Techniques	Mark Johnson

- Removing transitive dependency

EmployeeID	EmployeeName
101	Alice Brown
102	Bob Green
103	Charlie Black

ProgramID	Department	EmployeeID	Date
1	IT	101	2022-03-01
2	HR	102	2022-03-10
3	Sales	103	2022-03-20

- Making it more efficient

Employee

EmployeeID	EmployeeName
101	Alice Brown

102	Bob Green
103	Charlie Black

Program

ProgramID	ProgramName	Trainer
1	Java Fundamentals	John Smith
2	Project Management	Sarah White
3	Sales Techniques	Mark Johnson

Department

DepartmentID	DeptName
D-101	IT
D-102	HR
D-103	Sales

Employee_program mapping

ProgramID	DepartmentID	EmployeeID	Date
1	D-101	101	2022-03-01
2	D-102	102	2022-03-10
3	D-103	103	2022-03-20

3. Customer orders

OrderID	CustomerName	ProductID	ProductName	Qty	UnitPrice	TotalAmount	OrderDate
1	John Doe	101	Laptop	2	800	1600	2022-01-15
2	Jane Smith	102	Smartphone	1	500	500	2022-02-20u
3	John Doe	103	Printer	1	200	200	2022-03-10

- Removing partial dependency

Customer_ID	CustomerName
1	John Doe
2	Jane Smith
3	John Doe

- Removing transitive dependency

ProductID	ProductName	UnitPrice
101	Laptop	800
102	Smartphone	500
103	Printer	200

- Making it more efficient

Customer

Customer_ID	CustomerName
1	John Doe
2	Jane Smith
3	John Doe

Product

ProductID	ProductName	UnitPrice
101	Laptop	800
102	Smartphone	500
103	Printer	200

Product_Order mapping

OrderID	Customer_ID	ProductID	Qty	TotalAmount	OrderDate
1	1	101	2	1600	2022-01-15
2	2	102	1	500	2022-02-20u
3	3	103	1	200	2022-03-10

4. Stress management

EmployeeID	FirstName	LastName	StressLevel	HoursOfWork	BreaksTaken	PhysicalActivity	CounselingSessions
101	Sarah	White	Moderate	45	3	Yoga	2
102	Bob	Green	High	50	2	Jogging	1
103	Charlie	Black	Low	40	4	Meditation	3
104	David	Miller	High	48	1	Gym	2
105	Jane	Doe	Moderate	42	3	Walking	1

- Removing partial dependency

EmployeeID	FirstName	LastName
101	Sarah	White
102	Bob	Green
103	Charlie	Black
104	David	Miller
105	Jane	Doe

StressLevelID	StressLevel
1	Low
2	Moderate
3	High

- There is no transitive dependency in this case

- Making it more efficient

Employee

EmployeeID	FirstName	LastName
101	Sarah	White
102	Bob	Green

103	Charlie	Black
104	David	Miller
105	Jane	Doe

counseling

EmployeeID	PhysicalActivity	CounselingSessions
101	Yoga	2
102	Jogging	1
103	Meditation	3
104	Gym	2
105	Walking	1

StressLevelID	StressLevel
1	Low
2	Moderate
3	High

Employee_Stress_mapping

EmployeeID	StressLevelID	HoursOfWork	BreaksTaken
101	2	45	3
102	3	50	2
103	1	40	4
104	3	48	1
105	2	42	3

5. Flee Market

ItemID	SellerName	ItemName	Category	Price	Quantity	Description	Condition	Location	DateListed
101	John's Treasures	Vintage Chair	Furniture	50.00	2	Beautiful vintage chair, excellent condition	Like New	Booth 15, Section A	2022-01-15
102	Alice's Finds	Antique Clock	Home Decor	80.00	1	Authentic antique clock with Roman numerals	Good	Stall 8, Section B	2022-02-20
103	Mark's Collectibles	Vinyl Records	Music	15.00	10	Various artists and genres, in good condition	Used	Booth 20, Section C	2022-03-10
104	Emma's Treasures	Vintage Jewelry	Accessories	35.00	5	Assorted vintage jewelry pieces, unique designs	Excellent	Stall 12, Section D	2022-04-05
105	Robert's Finds	Retro Camera	Electronics	60.00	1	Vintage Polaroid camera with	Good	Booth 5, Section A	2022-05-15

					original case			

- Removing partial dependency

ItemID	ItemName	Category	Price	Description	Condition
101	Vintage Chair	Furniture	50.00	Beautiful vintage chair, excellent condition	Like New
102	Antique Clock	Home Decor	80.00	Authentic antique clock with Roman numerals	Good
103	Vinyl Records	Music	15.00	Various artists and genres, in good condition	Used
104	Vintage Jewelry	Accessories	35.00	Assorted vintage jewelry pieces, unique designs	Excellent
105	Retro Camera	Electronics	60.00	Vintage Polaroid camera with original case	Good

SellerID	SellerName	Location
101	John's Treasures	Booth 15, Section A
102	Alice's Finds	Stall 8, Section B
103	Mark's Collectibles	Booth 20, Section C
104	Emma's Treasures	Stall 12, Section D
105	Robert's Finds	Booth 5, Section A

- No transitive dependency in this table

- Making this more efficient

Item Table

ItemID	ItemName	Category	Price	Description	Condition
101	Vintage Chair	Furniture	50.00	Beautiful vintage chair, excellent condition	Like New
102	Antique Clock	Home Decor	80.00	Authentic antique clock with Roman numerals	Good
103	Vinyl Records	Music	15.00	Various artists and genres, in good condition	Used
104	Vintage Jewelry	Accessories	35.00	Assorted vintage jewelry pieces, unique designs	Excellent
105	Retro Camera	Electronics	60.00	Vintage Polaroid camera with original case	Good

Seller

SellerID	SellerName	Location
101	John's Treasures	Booth 15, Section A
102	Alice's Finds	Stall 8, Section B
103	Mark's Collectibles	Booth 20, Section C
104	Emma's Treasures	Stall 12, Section D
105	Robert's Finds	Booth 5, Section A

Item_Seller_Mapping

ItemID	SellerID	Quantity	DateListed
101	101	2	2022-01-15
102	102	1	2022-02-20
103	103	10	2022-03-10
104	104	5	2022-04-05
105	105	1	2022-05-15

6. Learning Management System

CID	CourseName	Instructor	Department	Credits	Enrolled Students	StartDate	EndDate	Location	Availability
101	Introduction to Biology	Prof. Smith	Science	3	25	2022-01-15	2022-05-10	Room 101	Open
102	Programming in Python	Prof. Brown	Computer Science	4	30	2022-02-20	2022-06-15	Lab 3, Building B	Closed
103	Financial Accounting	Prof. Green	Finance	3	20	2022-03-10	2022-07-05	Room 201	Open
104	English Literature	Prof. White	Humanities	3	22	2022-04-05	2022-08-20	Room 301	Open
105	Web Development Fundamentals	Prof. Black	IT	4	28	2022-05-15	2022-09-25	Lab 2, Building A	Closed

- Remove partial dependency

InstructorID	Instructor
1	Prof. Smith
2	Prof. Brown
3	Prof. Green
4	Prof. White
5	Prof. Black

DepartmentID	Department
01	Science
02	Computer Science

03	Finance
04	Humanities
05	IT

- No Transitive dependency

- Making it more efficient

InstructorID	Instructor
1	Prof. Smith
2	Prof. Brown
3	Prof. Green
4	Prof. White
5	Prof. Black

DepartmentID	Department
01	Science
02	Computer Science
03	Finance
04	Humanities
05	IT

CID	CourseName	InstructorId	DepartmentID	Credits	Enrolled Students	StartDate	EndDate	Location	Availability
101	Introduction to Biology	1	01	3	25	2022-01-15	2022-05-10	Room 101	Open
102	Programming in Python	2	02	4	30	2022-02-20	2022-06-15	Lab 3, Building B	Closed
103	Financial Accounting	3	03	3	20	2022-03-10	2022-07-05	Room 201	Open
104	English Literature	4	04	3	22	2022-04-05	2022-08-20	Room 301	Open
105	Web Development Fundamentals	5	05	4	28	2022-05-15	2022-09-25	Lab 2, Building A	Closed