

CPS510 Assignment 6: Functional Dependencies

Austin Wort, Saad Usmani, Jahmil Ally

Jorge Lopez

October 30th, 2023

Employee Table

EMPID	USERNAME	PASSWORD	TYPE
1	12 emp12	pass12	WRKR
2	13 emp13	pass13	WRKR
3	14 emp14	pass14	WRKR
4	15 emp15	pass15	MNGR
5	16 emp16	pass16	WRKR
6	17 emp17	pass17	WRKR
7	18 emp18	pass18	MNGR
8	19 emp19	pass19	MNGR
9	20 emp20	pass20	WRKR
10	21 emp21	pass21	MNGR
11	22 emp22	pass22	WRKR
12	23 emp23	pass23	WRKR
13	24 emp24	pass24	MNGR

The Employee Table (EMP) is a strong entity, and is in essence, the highest level entity in the DBMS. Every other table references the Employee table in some way. Thus, the employee table is functionally independent, however every other table is functionally dependent on the Employee table.

- EMPID (Employee Primary Key, must be a NOT NULL, UNIQUE integer)

Manager / Worker Table(s)

EMPID	MNGR_EMPID	NAME	SALARY	HOURSPERWEEK
1	15	15 Bethany Hampton	67118	45
2	18	18 Victoria Barry	43954	35
3	19	19 Alastair Matthams	64753	39
4	21	21 Hanna Bernard	48005	42
5	24	24 Tanya Simpson	38975	35
6	28	28 Brogan Russo	55670	50
7	29	29 Joan Mayo	54367	43
8	30	30 Milo Petty	65465	34

EMPID	WRKR_EMPID	NAME	WAGE	HOURSPERWEEK
1	12	12 Ana Berg	23	20.5
2	13	13 Verity Nichols	16	19.5
3	14	14 Bertie Moody	21	21
4	16	16 Otis Bowen	18	18.5
5	17	17 Maximilian McBride	17	19
6	20	20 Cole Perry	19	22.5
7	22	22 Callan Hicks	20	21
8	23	23 Anaya Byrne	19	15

The Manager and Worker tables are tables formed due to specialization from the Employee table. The discriminator column that differentiates the two is “TYPE” in the Employee table, that specifies whether an employee is a manager or worker. The functionally dependant attributes of each table respectively are:

- MNGR_EMPID (Manager foreign key inherited from the Employee table)
- WRKR_EMPID (Worker foreign key inherited from the Employee table)

Supplier Table

	SUPPL...	MNGR_EMPID	SUPPLIERNAME	ITEMTYPE
1	86	15	ChicWardrobe Creations	T-shirts
2	48	21	UrbanThreads Unlimited	Jeans
3	23	21	TrendyStitch Apparel	Dresses
4	36	48	VelvetHues Boutique	Hoodies
5	68	46	StyleSavvy Designs	Blazers
6	63	24	CoutureCrafted Creations	Skirts
7	76	18	DenimDreams Inc.	Leggings
8	81	44	SilkSerenity Studios	Jumpsuits
9	49	43	ModaMania Outfitters	Shorts
10	56	30	GlamourGrove Garments	Overalls
11	50	21	FabricFinesse Fashion	Sweaters

Based on the data from the table, we can draw conclusions about functional dependencies. The Supplier tables functional dependencies are:

- SUPPLIERID (Supplier Primary Key, must be a UNIQUE integer)
- MNGR_EMPID (Foreign Key inherited from the Manager table)
- SUPPLIERNAME (Must be NOT NULL UNIQUE VARCHAR)

Clothing Table

	ITEMNUM	SUPP_SUPPLIERID	SUPP_MANAGER_EMPID	PRICE	QUANTITY	DESIGN
1	1	86	15	65	96	Graphic
2	2	86	15	86	15	Classic T-shirts
3	3	48	21	23	21	Acid-Washed Jeans
4	4	48	21	23	21	Slim-Fit Jeans
5	5	23	21	36	48	Floral Print Dresses
6	6	23	21	36	48	Cocktail Dresses
7	7	36	48	68	46	Fleece Hoodies
8	8	36	48	68	46	Zip-Up Hoodies
9	9	68	46	48	21	Wool Blend Blazers
10	10	68	46	48	21	Pinstripe Blazers

Based on the data from the table, we can draw conclusions about functional dependencies. The Clothing tables functional dependencies are:

- ITEMNUM (Clothing Primary Key, must be a NOT NULL, UNIQUE integer)
- SUPP_SUPPLIERID (Clothing Foreign Key, inherited from Supplier table)
- SUPP_MANAGER_EMPID (Clothing Foreign Key, inherited from Manager Table)

Customer Table

	⚡ CUSTOMERID	⚡ WRKR_EMPID	⚡ PHONENUM	⚡ NAME
1	18	12	9999999999	Katie Marsh
2	19	13	9999998600	Arman Aujla
3	20	14	9999912003	Omar Malik
4	21	16	9999912405	Hamza Qayumi
5	22	16	9999982329	Bilal Shams
6	23	14	9999912399	Aman Sandhu
7	24	33	9999945021	Umair Alvi
8	25	33	9999912942	Jashan Sandhu
9	26	26	9999912942	Emilia Zachemski
10	27	25	9999908612	Karla Smith
11	28	49	9999924353	Muhammad Zafar
12	29	50	9999950923	Danish Sheikh

Based on the data from the table, we can draw conclusions about functional dependencies. The Customer tables functional dependencies are:

- CUSTOMERID (Customer Primary Key, must be a NOT NULL, UNIQUE integer)
- WRKR_EMPID (Customer Foreign Key, inherited from Worker table)

Transaction Table

	⚡ CCNUMBER	⚡ CUST_CUSTOMERID	⚡ CUST_WORKER_EMPID
1	1252352538679523	21	16
2	1825013568123950	32	23
3	3056930009020004	20	14
4	3158710251516970	31	39
5	3622720627166712	24	33
6	4000000760000002	28	49
7	4000004840008001	29	50
8	4123910812741245	30	39
9	4124657864535425	18	12
10	5555050360000080	27	25
11	6011981111111113	23	14
12	6200000000000005	25	33

Based on the data from the table, we can draw conclusions about functional dependencies. The Customer tables functional dependencies are:

- CCNUMBER (Transaction Primary Key, must be NOT NULL, UNIQUE integer)
- CUST_CUSTOMERID (Transaction Foreign Key inherited from Customer table)
- CUST_WORKER_EMPID (Transaction Foreign Key inherited from Worker table)