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CSE 414 DATABASE

PROJECT REPORT

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Project Definition:

This project is a database designed for online shopping. This system is written in MySQL language.

User Requirements:

Branch: There are thirteen branches of Company. Every branch has their unique ID and manager.

Brand: Every brand has some products to sell on Company.

Product: Products have price and quantity numbers. Also they have a category value.

Customer: Everyone who shop from Company is a customer. They need to provide their phone numbers, addresses, names and birthdays to shop. Every customer has a unique ID, and a total shopping value which keeps the data of number of times the customer makes a purchase. They can order a product

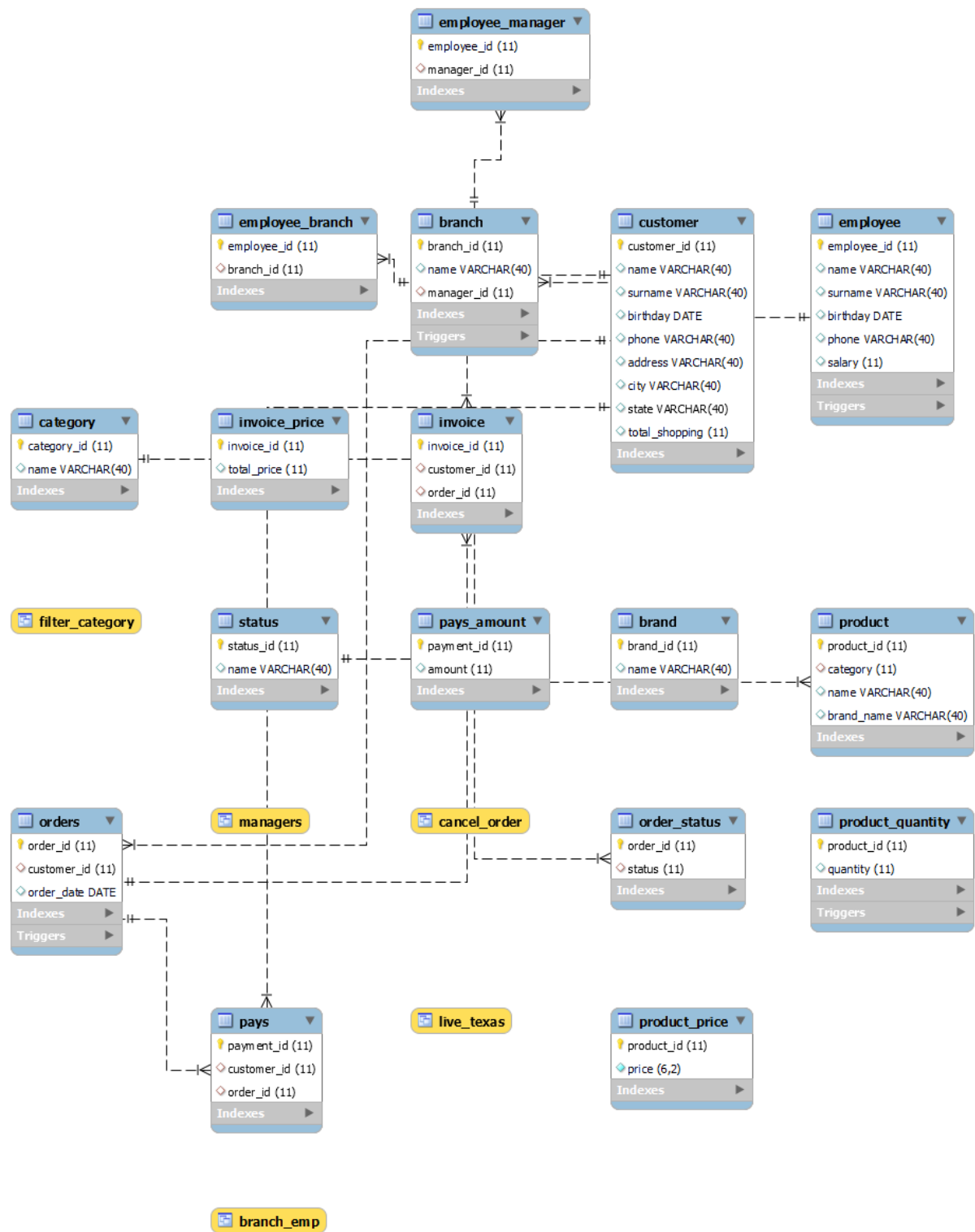
Employee: Employees work at Compony. They have thier unique IDs. And they have a manager. A manager is also an employee, who runs one of the branches.

Orders: After an order is made, the customer gets an invoice from Company which shows the total price of the shopping and customer's and order's IDs.

Every order has a status value. Status is 'preparing' as default.

If order is ready, the status changes to 'on the way'. And when it is arrived it changes to 'delivered'. And If order is canceled,the status changes to 'Cancel'.

E-R Diagram of Company:



Functional Dependencies:

Branch

- branch_id -> name
- branch_id -> manager_id
- branch_id, name -> manager_id
- branch_id, manager_id -> name
- name -> branch_id
- name -> manager_id
- name, branch_id -> manager_id
- name, manager_id -> branch_id
- manager_id -> branch_id
- manager_id -> name
- manager_id, name -> branch_id
- manager_id, branch_id -> name

Brand

- brand_id -> name
- name -> brand_id

Category

- category_id -> name
- name -> category_id

Customer

- customer_id -> name
- customer_id -> surname
- customer_id -> birthday
- customer_id -> phone
- customer_id -> address
- customer_id -> city
- customer_id -> state
- customer_id -> total_shopping
- Every other dependency starting with customer_id
- name -> customer_id
- name -> surname
- name -> birthday
- name -> phone
- name -> address
- name -> city
- name -> state
- name -> total_shopping
- Every other dependency starting with name
- surname -> customer_id
- surname -> name
- surname -> birthday
- surname -> phone
- surname -> address
- surname -> city
- surname -> state
- surname -> total_shopping
- Every other dependency starting with surname
- birthday -> customer_id
- birthday -> name
- birthday -> surname

- birthday -> phone
- birthday -> address
- birthday -> city
- birthday -> state
- birthday -> total_shopping
- Every other dependency starting with birthday
- phone -> customer_id
- phone -> surname
- phone -> birthday
- phone -> name
- phone -> address
- phone -> city
- phone -> state
- phone -> total_shopping
- Every other dependency starting with phone
- address -> customer_id
- address -> surname
- address -> birthday
- address -> phone
- address -> name
- address -> city
- address -> state
- address -> total_shopping
- Every other dependency starting with address
- city -> customer_id
- city -> surname
- city -> birthday
- city -> phone
- city -> address
- city -> name
- city -> state
- city -> total_shopping
- Every other dependency starting with city
- state -> customer_id
- state -> surname
- state -> birthday
- state -> phone
- state -> address
- state -> city
- state -> name
- state -> total_shopping
- Every other dependency starting with state
- total_shopping -> customer_id
- total_shopping -> surname
- total_shopping -> birthday
- total_shopping -> phone
- total_shopping -> address
- total_shopping -> city
- total_shopping -> state
- total_shopping -> name

Employee

- employee_id -> name
- employee_id -> surname
- employee_id -> birthday
- employee_id -> phone
- employee_id -> salary
- Every other dependency starting with employee_id
- name -> employee_id
- name -> surname
- name -> birthday
- name -> phone
- name -> salary
- Every other dependency starting with name
- surname -> employee_id
- surname -> name
- surname -> birthday
- surname -> phone
- surname -> salary
- Every other dependency starting with surname
- birthday -> employee_id
- birthday -> surname
- birthday -> name
- birthday -> phone
- birthday -> salary
- Every other dependency starting with birthday
- phone -> employee_id
- phone -> surname
- phone -> birthday
- phone -> name
- phone -> salary
- salary -> employee_id
- salary -> surname
- salary -> birthday
- salary -> phone
- salary -> name

Employee_Branch

- employee_id -> branch_id

Employee_Manager

- employee_id -> manager_id

Invoice

- invoice_id -> customer_id
- invoice_id -> order_id
- invoice_id, customer_id -> order_id
- invoice_id, order_id -> customer_id
- customer_id -> invoice_id
- customer_id -> total_price
- customer_id -> order_id
- customer_id, invoice_id -> order_id
- customer_id, order_id -> invoice_id
- order_id -> invoice_id
- order_id -> customer_id
- order_id, invoice_id -> customer_id
- order_id, customer_id -> invoice_id

Invoice_Price

- invoice_id -> total_price

Orders

- order_id -> customer_id
- order_id -> order_date
- Every other dependency starting with order_id
- customer_id -> order_id
- customer_id -> order_date
- Every other dependency starting with customer_id
- order_date -> order_id
- order_date -> customer_id

Orders_Status

- order_id -> status

Payment

- payment_id -> customer_id
- payment_id -> order_id
- Every other dependency starting with payment_id
- customer_id -> payment_id
- customer_id -> order_id
- Every other dependency starting with customer_id
- order_id -> payment_id
- order_id -> customer_id

Payment_Amount

- payment_id -> amount

Product

- product_id -> category
- product_id -> name
- product_id -> brand_name
- Every other dependency starting with product_id
- category -> product_id
- category -> name
- category -> brand_name
- Every other dependency starting with category
- name -> product_id
- name -> category
- name -> brand_name
- Every other dependency starting with name
- brand_name -> product_id
- brand_name -> name
- brand_name -> category

Product_Price

- product_id -> price

Product_Quantity

- product_id -> quantity

Status

- status_id -> name
- name -> status_id

List Tables:

	123 brand_id 🔽	ABC name 🔽
1	1	Paper Company
2	2	New Age Books
3	3	Tech Zone
4	4	Smart Roof
5	5	Diamond
6	6	Road Runners
7	7	Wash
8	8	FFood
9	9	Starbucks
10	10	Lego
11	11	Cosmetic
12	12	Apple
13	13	Samsung
14	14	Ferro
15	15	Zipot
16	16	Faber Castel

Brand Tables

123 branch_id 🔽	ABC name 🔽	123 manager_id 🔽
1	New York	101 ↗
2	Buffalo	102 ↗
3	Chicago	105 ↗
4	Rize	771 ↗
5	Brooklyn	900 ↗
6	Utah	688 ↗
7	Washington	100 ↗
8	Texas	303 ↗
9	Michigan	598 ↗
10	North Carolina	[NULL]
11	California	[NULL]
12	Ohio	[NULL]
13	Florida	[NULL]

Branch Tables

123 category_id 🔽	ABC name 🔽
1	Pencil
2	book
3	technology
4	construction
5	accessory
6	shoe
7	cleaning
8	food
9	clothing
10	toy
11	cosmetic

Category Tables

123 employee_id 🔽	123 branch_id 🔽
101	1 ↗
100	3 ↗
303	3 ↗
105	4 ↗
159	5 ↗
102	8 ↗
771	9 ↗
688	10 ↗
900	11 ↗
598	13 ↗

Employee_Branch

123 employee_id 🔽	ABC name 🔽	ABC surname 🔽	🕒 birthday 🔽	ABC phone 🔽	123 salary 🔽
100	Sarah	Smith	1968-02-19	781-932-9754	63,996
101	Alex	Gordon	1986-06-17	559-181-3744	119,241
102	Lisa	Woodson	1987-07-14	[NULL]	98,926
105	Clara	Brown	1999-03-14	804-427-9456	110,150
303	Sam	Jackson	1990-11-11	719-724-7869	94,860
401	Will	Blue	1969-01-30	407-231-8017	52,832
598	Hailey	Grace	1997-05-12	312-480-8498	32,179
688	Logan	Dawson	1968-10-04	615-641-4759	77,182
771	Ann	Daniele	1987-02-03	941-527-3977	67,987
900	George	Johnson	1996-12-15	404-246-3370	62,871

Employee Tables

customer_id	ABC name	ABC surname	birthday	ABC phone	ABC address	ABC city	ABC state
1	Julia	Williams	1997-02-28	579-161-3724	0 Sage Terrace	Waltham	MA
2	Hayley	Wallace	1999-10-24	897-181-2135	14187 Commercial Trail	Hampton	VA
3	Roger	Walker	1988-07-21	923-763-3741	251 Springs Junction	Colorado Springs	CO
4	Jack	Kenneth	1997-12-03	561-182-9077	30 Arapahoe Terrace	Orlando	FL
5	Edward	True	1996-04-20	908-243-7532	5 Spohn Circle	Arlington	TX
6	Joe	Sparks	1991-05-16	887-156-9824	34267 Glendale Parkway	Huntington	WV
7	Taylor	Rose	1994-09-30	980-547-8743	50 Lillian Crossing	Nashville	TN
8	Betty	James	1998-01-11	231-908-0909	7 Manley Drive	Chicago	IL
9	Peter	Robinson	1989-09-23	332-652-9162	520 Ohio Trail	Visalia	CA
10	Ketie	Thomas	1967-11-19	652-102-6790	68 Lawn Avenue	Atlanta	GA
11	Simon	Jal	1998-09-03	565-321-4598	23 Manathan	New York	WV
12	Jonathon	Bailey	1997-05-02	455-321-4598	89 Strawger	Rize	TR
13	Sim	Green	1998-09-03	565-321-0202	14 Tuprerh	Orlando	FL
14	Kim	Flor	1993-04-18	565-321-4751	025 Termik	Huntington	USA
15	Flay	Gerty	1998-09-13	565-321-9735	178 Gerald Bor	Texas	VA
16	Love	Britghen	1988-02-03	565-321-1598	45 Yurettton	Texas	FL
17	Rain	Seer	1998-08-16	565-321-6541	76 Vels	Oslo	CO
18	Sally	Gupper	1999-09-03	565-321-4789	9876 Floagg	Huntington	USA
19	Greg	Swales	1989-09-02	565-321-1232	1287 Bagger	Brooklyn	IL

Customer Tables

invoice_id	customer_id	order_id
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	14	11
12	12	12
13	11	13
14	18	14
15	9	15
16	19	16

invoice_id	total_price
1	2
2	5
3	1,500
4	20
5	20
6	100
7	10
8	10
9	100
10	20
11	78
12	468
13	668
14	365
15	56
16	12

Invoice Tables:

Invoice_price Tables:

employee_id	manager_id
101	[NULL]
105	[NULL]
598	101
688	101
771	102
900	102
100	105
401	105
157	303
303	771
102	900

Employee_Manager Tables

123 order_id	123 status
5	1
6	1
13	1
15	1
16	1
4	2
7	2
1	3
3	3
8	3
9	3
10	3
11	3
14	3
2	4
12	4

Orders_status Tables

123 order_id	123 customer_id	order_date
1	1	2022-06-22
2	2	2022-01-03
3	3	2022-09-20
4	4	2022-01-29
5	5	2022-02-25
6	6	2022-05-08
7	7	2022-05-19
8	8	2022-06-22
9	9	2022-04-21
10	10	2022-01-05
11	14	2022-06-22
12	12	2022-06-23
13	11	2022-06-24
14	18	2022-06-14
15	9	2022-04-08
16	19	2022-06-21

Orders Tables:

123 payment_id	123 customer_id	123 order_id
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16

Pays Tables

123 payment_id	123 amount
1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1
9	1
10	1
11	1
12	1
13	1
14	1
15	1
16	1

Pay_amaunt Tables

123 status_id	ABC name
1	preparing
2	on the way
3	delivered
4	cancel

Status Tables

123 product_id ↑↓	123 category ↑↓	ABC name ↑↓	ABC brand_name ↑↓
1	1	pencils	Paper Company
2	2	childrens books	New Age Books
3	3	personal computer	Tech Zone
4	4	clay	Smart Roof
5	5	jewellery	Diamond
6	6	running shoes	Road Runners
7	7	detergent	Wash
8	8	burger	FFood
9	9	coffee	Starbucks
10	10	lego	Lego
11	11	Rimmel	Missha
12	3	telephone	Apple
13	3	telephone	Ferro
14	8	Zipot	Ferro
15	5	Ring	Zipot
16	1	pencil	Faber Castel

Product Tables

123 product_id ↑↓	123 price ↑↓
1	2
2	5
3	1,500
4	20
5	20
6	100
7	10
8	10
9	100
10	20
11	689
12	5,000
13	4,000
14	499
15	67
16	45

Product_price Tables

123 product_id ↑↓	123 quantity ↑↓
1	100
2	20
3	20
4	10
5	100
6	15
7	100
8	100
9	10
10	100
11	80
12	220
13	200
14	14
15	13
16	24

Product_quantity Tables

Join Queries:

```
SELECT *
FROM orders
LEFT OUTER JOIN customer ON customer.customer_id = Orders.customer_id
```

order_id	customer_id	order_date	customer_id	cust name	cust surname	birthday	cust phone	cust address	cust city	st
1	1	2022-06-22	1	Julia	Williams	1997-02-28	579-161-3724	0 Sage Terrace	Waltham	MA
2	2	2022-01-03	2	Hayley	Wallace	1999-10-24	897-181-2135	14187 Commerci	Hampton	VA
3	3	2022-09-20	3	Roger	Walker	1988-07-21	923-763-3741	251 Springs Junct	Colorado Spr	CO
4	4	2022-01-29	4	Jack	Kenneth	1997-12-03	561-182-9077	30 Arapahoe Terr	Orlando	FL
5	5	2022-02-25	5	Edward	True	1996-04-20	908-243-7532	5 Spohn Circle	Arlington	TX
6	6	2022-05-08	6	Joe	Sparks	1991-05-16	887-156-9824	34267 Glendale P	Huntington	WV
7	7	2022-05-19	7	Taylor	Rose	1994-09-30	980-547-8743	50 Lillian Crossin	Nashville	TN
8	8	2022-06-22	8	Betty	James	1998-01-11	231-908-0909	7 Manley Drive	Chicago	IL
9	9	2022-04-21	9	Peter	Robinson	1989-09-23	332-652-9162	520 Ohio Trail	Visalia	CA
10	10	2022-01-05	10	Katie	Thomas	1967-11-19	652-102-6790	68 Lawn Avenue	Atlanta	GA
11	14	2022-06-22	14	Kim	Flor	1993-04-18	565-321-4751	025 Ternik	Huntington	US
12	12	2022-06-23	12	Jonathon	Bailey	1997-05-02	455-321-4598	89 Strawger	Rize	TR
13	11	2022-06-24	11	Simon	Jal	1998-09-03	565-321-4598	23 Manathan	New York	WV
14	18	2022-06-14	18	Sally	Gupper	1999-09-03	565-321-4789	9876 Floaggy	Huntington	US
15	9	2022-04-08	9	Peter	Robinson	1989-09-23	332-652-9162	520 Ohio Trail	Visalia	CA
16	19	2022-06-21	19	Greg	Swales	1989-09-02	565-321-1232	1287 Bagger	Brooklyn	IL

```
SELECT *
FROM product_price
RIGHT OUTER JOIN product ON product.product_id = product_price.product_id
```

product_id	price	product_id	category	name	brand_name
1	2	1	1	pencils	Paper Company
2	5	2	2	childrens books	New Age Books
3	1,500	3	3	personal computer	Tech Zone
4	20	4	4	clay	Smart Roof
5	20	5	5	jewellery	Diamond
6	100	6	6	running shoes	Road Runners
7	10	7	7	detergent	Wash
8	10	8	8	burger	FFood
9	100	9	9	coffee	Starbucks
10	20	10	10	lego	Lego
11	689	11	11	Rimmel	Missha
12	5,000	12	3	telephone	Apple
13	4,000	13	3	telephone	Ferro
14	499	14	8	Zipot	Ferro
15	67	15	5	Ring	Zipot
16	45	16	1	pencil	Faber Castel

```

SELECT *
FROM product_price
RIGHT OUTER JOIN product ON product.product_id = product_price.product_id
where category = 3

```

product_id	price	product_id	category	name	brand_name
3	1,500	3	3	personal computer	Tech Zone
12	5,000	12	3	telephone	Apple
13	4,000	13	3	telephone	Ferro

Triggers:

```

AFTER UPDATE
ON branch
FOR EACH ROW
BEGIN
IF
new.name != old.name OR new.manager_id != old.manager_id
THEN
INSERT INTO branch SET name = old.name, manager_id= old.manager_id;
END IF;
END

```

```

AFTER INSERT
ON employee
FOR EACH ROW BEGIN
INSERT INTO trigger_test VALUES('A new employee is added to database.' );
END

```

```

AFTER UPDATE
ON employee
FOR EACH ROW BEGIN
INSERT INTO trigger_test VALUES('An employee is updated int the database.' );
END

```

```

AFTER DELETE
ON employee
FOR EACH ROW BEGIN
INSERT INTO trigger_test VALUES('An employee is deleted from database.' );
END

```

```

AFTER UPDATE
ON product_quantity
FOR EACH ROW
BEGIN
INSERT INTO product_quantity SET product_id= old.product_id, quantity= old.quantity - 1;
END

```

Views:

View for canceled orders

cancel_order			
	123 order_id	123 status	
1	2	4	
2	12	4	

View For products whose category is cosmetics and books

filter_category			
123 product_id	123 category	ABC name	ABC brand_name
2	2	childrens books	New Age Books
11	11	Rimmel	Missha

View For Manager name and salary

ABC name	ABC surname	123 salary
[NULL]	[NULL]	[NULL]
[NULL]	[NULL]	[NULL]
Alex	Gordon	119,241
Alex	Gordon	119,241
Lisa	Woodson	98,926
Lisa	Woodson	98,926
Clara	Brown	110,150
Clara	Brown	110,150
Sam	Jackson	94,860
Ann	Daniele	67,987
George	Johnson	62,871

View for Texas residents

live_texas		
ABC name	ABC surname	ABC city
Flay	Gerty	Texas
Love	Britghen	Texas

View for Id of the employee working in the 10th branch

Name	Value
-----+-----	+
employee_id	688
branch_id	10

branch_emp	
123	employee_id
123	branch_id