

Task A Question 1:

The screenshot shows the pgAdmin 4 interface on a Mac OS X desktop. The left sidebar displays the database structure under 'Servers (1)'. The '19290310' database is selected, showing 'Databases (2)', 'Tables (1)', and 'Tables (1)' for the '19290310_Project1' schema. The main window contains a 'Query Editor' with the following SQL code:

```
-- Task A Question 1 --
set schema '19290310_Project1';
SELECT order_id,(unit_price*quantity) AS totalprice,(unit_price*quantity*(1-discount))
AS totalwithdiscountprice FROM order_details ORDER BY (unit_price*quantity*(1-discount))DESC,
order_id ASC LIMIT 10
```

The 'Data Output' tab is selected, showing a table with 10 rows of data:

	order_id	totalprice	totalwithdiscountprice
1	10981	15810	15810
2	10865	15810	15019.499988220632
3	10417	10540.00015258789	10540.00015258789
4	10889	10540	10540
5	10897	9903.200073242188	9903.200073242188
6	10353	10540.00015258789	8432.000090658665
7	10424	10329.200149536133	8263.36008845491
8	10540	7905	7905
9	10817	7905	7905
10	10816	7905	7509.749994110316

Task A Question 2:

The screenshot shows the pgAdmin 4 interface on a Mac OS X desktop. The left sidebar displays the database structure under 'Servers (1)'. The '19290310' database is selected, showing 'Databases (2)', 'Tables (14)', and 'Tables (1)' for the '19290310_Project1' schema. The main window contains a 'Query Editor' with the following SQL code:

```
-- Task A Question 2 --
set schema '19290310_Project1';
select shipped_date as shippeddate,orders.order_id,
sum(unit_price*quantity) as totalprices,EXTRACT(year from shipped_date) as year
from order_details,orders where order_details.order_id = orders.order_id and
(shipped_date between '1997-12-30' and '1998-1-5')
group by shipped_date,orders.order_id
UNION
select shipped_date as shippeddate,orders.order_id,
sum(unit_price*quantity) as totalprices,EXTRACT(year from shipped_date) as year
from order_details,orders where order_details.order_id = orders.order_id and
(shipped_date is null)
GROUP BY shipped_date,orders.order_id
having sum(unit_price*quantity)>4000
order by shippeddate ASC,order_id ASC
```

The 'Data Output' tab is selected, showing a table with 14 rows of data:

	shippeddate	order_id	totalprices	year
1	1997-12-31	10789	3687.000045776367	1997
2	1997-12-31	10792	399.8499994277954	1997
3	1997-12-31	10801	4035.800018310547	1997
4	1998-01-01	10791	1926.0600051879883	1998
5	1998-01-02	10771	344	1998
6	1998-01-02	10794	393.4499988555908	1998
7	1998-01-02	10802	3923.7499809265137	1998
8	1998-01-05	10797	420	1998
9	1998-01-05	10798	446.5999908472656	1998
10	1998-01-05	10799	1585	1998
11	1998-01-05	10800	1632.149998664856	1998
12	1998-01-05	10806	572.0999984741211	1998
13	[null]	11008	4903.499983188477	[null]
14	[null]	11072	5217.999984741211	[null]

Task A Question 3:

```
-- TASK A QUESTION 3 --
set schema '19290310_Project1';

select category_name,category_id,product_name, product_id,unit_price,
units_in_stock,units_on_order,reorder_level, discontinued
from categories join products on categories.category_id=products.category_id
where reorder_level>=20 and discontinued = 0 and units_on_order=0
order by product_name;
```

category_name	category_id	product_name	product_id	unit_price	units_in_stock	units_on_order	reorder_level	discontinued
Seafood	8	Boston Crab Meat	40	18.4	123	0	30	0
Grains/Cereals	5	Filo Mix	52	7	38	0	25	0
Condiments	2	Grandma's Boysenberry Spread	6	25	120	0	25	0
Grains/Cereals	5	Gustaf's Knäckebroð	22	21	104	0	25	0
Confections	3	NuNuCa Nuß-Nougat-Creme	25	14	76	0	30	0
Beverages	1	Rhönbräu Klosterbier	75	7.75	125	0	25	0
Confections	3	Schoggi Schokolade	27	43.9	49	0	30	0
Condiments	2	Sirup d'éralbe	61	28.5	113	0	25	0
Grains/Cereals	5	Tunnbröd	23	9	61	0	25	0
Confections	3	Valkoinen suklaa	50	16.25	65	0	30	0

Task A Question 4:

```
set schema '19290310_Project1'; -- TASK A QUESTION 4 --
select DISTINCT ship_name,ship_country,orders.customer_id,customers.company_name,
employees.first_name||' '||employees.last_name as salesperson,customers.phone,products.product_name,
order_details.product_id,freight FROM orders
join order_details on orders.order_id = order_details.order_id
join products on order_details.product_id = products.product_id
join employees on orders.employee_id = employees.employee_id
join customers on orders.customer_id = customers.customer_id
where ship_country like 'S%' and freight>70 and orders.customer_id like 'M%' order by customer_id ASC ,product_name
```

ship_name	ship_country	customer_id	company_name	salesperson	phone	product_name	product_id	freight
Magazzini Alimentari Riuniti	Italy	MAGAA	Magazzini Alimentari Riuniti	Andrew Fuller	035-640230	Chang	2	76.33
Magazzini Alimentari Riuniti	Italy	MAGAA	Magazzini Alimentari Riuniti	Margaret Peacock	035-640230	Chartreuse verte	39	70.09
Magazzini Alimentari Riuniti	Italy	MAGAA	Magazzini Alimentari Riuniti	Andrew Fuller	035-640230	Gumbär Gummibärchen	26	155.97
Magazzini Alimentari Riuniti	Italy	MAGAA	Magazzini Alimentari Riuniti	Margaret Peacock	035-640230	Ingard Sill	36	70.09
Magazzini Alimentari Riuniti	Italy	MAGAA	Magazzini Alimentari Riuniti	Andrew Fuller	035-640230	Laughing Lumberjack Lager	67	76.33
Magazzini Alimentari Riuniti	Italy	MAGAA	Magazzini Alimentari Riuniti	Andrew Fuller	035-640230	Maxilaku	49	155.97
Magazzini Alimentari Riuniti	Italy	MAGAA	Magazzini Alimentari Riuniti	Margaret Peacock	035-640230	Mozzarella di Giovanni	72	70.09
Magazzini Alimentari Riuniti	Italy	MAGAA	Magazzini Alimentari Riuniti	Andrew Fuller	035-640230	Singapore Hokkien Fried Mee	42	155.97
Morgenstem Gesundkost	Germany	MORGK	Morgenstem Gesundkost	Steven Buchanan	0342-023176	Lakkaliköri	76	127.34
Morgenstem Gesundkost	Germany	MORGK	Morgenstem Gesundkost	Steven Buchanan	0342-023176	Mozzarella di Giovanni	72	127.34
Morgenstem Gesundkost	Germany	MORGK	Morgenstem Gesundkost	Steven Buchanan	0342-023176	Raclette Courdavault	59	127.34
Morgenstem Gesundkost	Germany	MORGK	Morgenstem Gesundkost	Andrew Fuller	0342-023176	Rössle Sauerkraut	28	125.77
Morgenstem Gesundkost	Germany	MORGK	Morgenstem Gesundkost	Andrew Fuller	0342-023176	Tarte au sucre	62	125.77
Morgenstem Gesundkost	Germany	MORGK	Morgenstem Gesundkost	Steven Buchanan	0342-023176	Vegie-spread	63	127.34

Task A Question 6:

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Query Editor

```

1 set schema '19290310_Project1';
2 select 'Customers' as tablename,customers.city,customers.company_name,customers.contact_name
3 from customers
4 where customers.contact_name like '%w%'
5 union
6 select 'Suppliers' as tablename,suppliers.city,suppliers.company_name,suppliers.contact_name
7 from suppliers
8 where suppliers.contact_name like '%g%'
9 order by contact_name asc

```

Query History Data Output Messages Explain Notifications

tablename	city	company_name	contact_name
1 Customers	Lander	Split Rail Beer & Ale	Art Braunschweiger
2 Customers	Bruxelles	Maison Dewey	Catherine Dewey
3 Customers	London	Consolidated Holdings	Elizabeth Brown
4 Customers	Eugene	Great Lakes Food Market	Howard Snyder
5 Suppliers	Melbourne	Pavlova, Ltd.	Ian Devling
6 Suppliers	Ann Arbor	Grandma Kelly's Homestead	Regina Murphy
7 Customers	London	North/South	Simon Crowther
8 Customers	London	B's Beverages	Victoria Ashworth
9 Suppliers	Tokyo	Tokyo Traders	Yoshi Nagase
10 Customers	Warszawa	Wolski Zajazd	Zbyszek Piestrzeniewicz

Task A Question 7:

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Query Editor

```

1 SELECT first.*
2   from (
3     SELECT product_name as products_name,unit_price FROM products order by unit_price asc LIMIT 5
4   ) AS first
5 UNION
6 SELECT second.*
7   from (
8     SELECT product_name as products_name,unit_price FROM products order by unit_price desc LIMIT 5
9   ) AS second
10    order by unit_price desc
11
12

```

Query History Data Output Messages Explain Notifications

products_name	unit_price
1 Côte de Blaye	263.5
2 Thüringer Rostbratwurst	123.79
3 Mish Kobe Niku	97
4 Sir Rodney's Marmalade	81
5 Carnarvon Tigers	62.5
6 Tourtière	7.45
7 Filo Mix	7
8 Konbu	6
9 Guaraná Fantástica	4.5
10 Geitost	2.5

Relational Algebras:

Query 1

$\tau_{\text{unit-price} * \text{quantity} * (1 - \text{discount}) \downarrow, \text{order-id}}$

$\pi_{\text{order-id}, \text{unit-price} * \text{quantity} \rightarrow \text{totalprice}, \text{unit-price} * \text{quantity} *}$

$(1 - \text{discount}) \rightarrow \text{totalwith discountprice Order-details}$

$\tau = \text{Order by}$
 $\sigma = \text{Selection}$
 $\rightarrow, \rho = \text{rename}$
 $\pi = \text{projection}$
 $\gamma = \text{group by}$
 $\wedge, \cup = \text{and/or}$
 $\cup = \text{union}$
 $\bowtie = \text{join}$
 $\times = \text{cross product}$

Query 2

$\tau_{\text{shipped-date} \rightarrow \text{shippeddate}, \text{years}, \text{ordess.order-id}, \text{sum}(\text{unit-price} * \text{quantity}) \rightarrow \text{totalprices}}$

$\gamma_{\text{Shipped-date}, \text{order-id}, \text{sum}(\text{unit-price} * \text{quantity})}$

$\sigma_{\text{order-details.order-id} = \text{orders.order-id} \text{ and } ('1997-12-30' \leq \text{shipped-date} \text{ and } \text{shipped-date} < '1998-1-5')) (\text{order-details} \times \text{ordess}) \cup$

$\tau_{\text{shipped-date}, \text{order-id}}$

$\tau_{\text{shipped-date} \rightarrow \text{shippeddate}, \text{ordess.order-id}, \text{sum}(\text{unit-price} * \text{quantity}) \rightarrow \text{totalprices}}$

$\sigma_{\text{sum}(\text{unit-price} * \text{quantity}) > 4000}$

$\gamma_{\text{Shipped-date}, \text{order-id}, \text{sum}(\text{unit-price} * \text{quantity})}$

$\sigma_{\text{order-details.order-id} = \text{ordess.order-id} \text{ and } \text{shipped-date} = \text{null} (\text{order-details} \times \text{ordess})}$

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Query 3

T product-name

T category-name, categories.category-id, product-name, product-id, unit-price, units-in-stock, units-on-order, reorder-level, discontinued

$\sigma_{\text{discontinued} = 0 \text{ And reorder-level} > 20 \text{ And units-on-order} = 0}$ (categories \bowtie categories, category-id = products.category-id Products)

Query 4:

T orders.customer-id, product-name

T ship-name, ship-country, orders.customer-id, customers.company-name, employees.first-name |||| employees.last-name → salesperson, customer, phone, products.product-name, order-details.product-id, freight

$\sigma_{\text{ship-country like 'M%y'} \text{ and freight} > 70 \text{ and orders.customer-id like 'M%o'}}$ (orders \times order-details
orders \times products
orders \times employees
orders \times customers)

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sunil

Query 6

Tr "Customers" → tablename, customers.city, customers.company-name, customers.contact-name

ɔ customers.contact-name Like "%owyo%" Customers

U

T contact-name

Tr "Suppliers" → tablename, suppliers.city, suppliers.company-name, suppliers.contact-name

ɔ suppliers.contact-name Like "%g%" suppliers

Query 7,8,5 → Yapmadım.

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