TechMart Project Using MySQL

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1. Display all products that cost more than $500 and have at least 50 items in stock, sorted by price from highest to lowest.

```sql
-- 1. Display all products that cost more than $500 and have at least 50 items in stock,
-- sorted by price from highest to lowest.

select * from products where
price > 500 and stock_quantity >= 50
order by price desc;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

product_id	product_name	description	category_id	price	stock_quantity	manufacturer	release_date	is_active
101	UltraBook Pro	15-inch laptop with high performance	2	1299.99	50	TechCorp	2023-03-15	1
102	SmartPhone X	Latest smartphone with advanced features	3	899.99	120	MobiTech	2023-05-20	1
115	Smartphone Y	Mid-range smartphone with excellent camera	3	599.99	65	MobiTech	2023-10-25	1
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

5. Calculate the average price of products in each category, but only include categories where the average price is greater than $200.

```
select productcategories.category_name, avg(products.price) as avg_price from productcategories
join products
on productcategories.category_id = products.category_id
group by productcategories.category_name
having avg_price >= 200;
```

category_name	avg_price
Electronics	343.323333
Computers	842.490000
Smartphones	516.656667
Consoles	499.990000

8. For each product, show its name, price, and the average rating it has received.

```
select products.product_name, products.price, avg(reviews.rating) as avg_rating from products
left join
reviews
on products.product_id = reviews.product_id
group by products.product_name, products.price
order by avg_rating desc;
```

product_name	price	avg_rating
Noise Cancelling Headphones	249.99	5.0000
Bluetooth Speaker	129.99	5.0000
Tablet Pro	699.99	5.0000
Coffee Maker	149.99	5.0000
Gaming Keyboard	129.99	5.0000
Ultra HD Monitor	349.99	5.0000
UltraBook Pro	1299.99	4.5000
SmartPhone X	899.99	4.5000
Desktop Computer	1599.99	4.0000
Wireless Gaming Mouse	89.99	4.0000
Wireless Earbuds	159.99	4.0000
Gaming Console Pro	499.99	3.5000

12. Identify customers who have purchased products from at least 3 different product categories.

```
select customers.full_name, count(productcategories.category_id) as category from customers
left join orders on customers.customer_id = orders.customer_id
join orderitems on orders.order_id = orderitems.order_id
join products on orderitems.product_id = products.product_id
join productcategories on products.category_id = productcategories.category_id
group by customers.full_name
having   category >= 3
order by category desc;
```

full_name	category
Robert Jones	5
Olivia Garcia	5
John Smith	4
Emma Johnson	4

13. Find all products that are not currently part of any active promotion.

```
select products.product_id, products.product_name, promotions.is_active from products
left join productpromotions
on products.product_id = productpromotions.product_id
join promotions
on productpromotions.promotion_id = promotions.promotion_id
where promotions.is_active = 0;
```

product_id	product_name	is_active
102	SmartPhone X	0
103	Noise Cancelling Headphones	0
105	Smart Watch	0
114	External Hard Drive	0
101	UltraBook Pro	0
106	Bluetooth Speaker	0
109	Wireless Gaming Mouse	0

17. Find the most popular product category based on the number of orders placed.

```
select productcategories.category_name, count(orders.order_id) as total_order from productcategories
left join products on productcategories.category_id = products.category_id
join orderitems on orderitems.product_id = products.product_id
join orders on orderitems.order_id = orders.order_id
group by productcategories.category_name
order by total_order desc limit 1;
```

	category_name	total_order
▶	Smartphones	11

19. Calculate the percentage of reviews that are 4 stars or higher for each product that has at least 2 reviews.

```
select products.product_name, count(*) as total_rating,
sum(case when reviews.rating >= 4 then 1 else 0 end) as high_rating,
round(100.0 * sum(case when reviews.rating >= 4 then 1 else 0 end) / count(*), 2) as rating_percentage
from products
left join reviews
    on products.product_id = reviews.product_id
group by products.product_name
having count(*) >= 2;
```

product_name	total_rating	high_rating	rating_percentage
UltraBook Pro	2	2	100.00
SmartPhone X	2	2	100.00
Gaming Console Pro	2	1	50.00
Smart Watch	2	1	50.00
Tablet Pro	2	2	100.00
Wireless Earbuds	2	2	100.00

21. Create a query to analyze which day of the week has the highest number of orders.

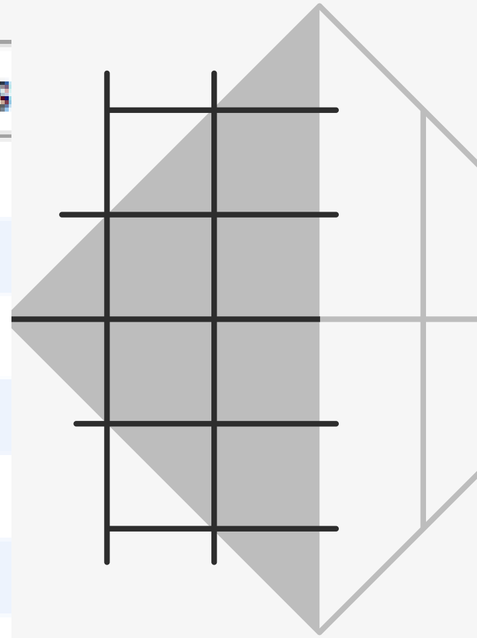
```
select dayname(orders.order_date) as day_name, count(*) as total_order from orders
group by day_name
order by total_order desc;
```

day_name	total_order
Monday	4
Friday	4
Tuesday	3
Sunday	3
Wednesday	2
Saturday	2
Thursday	2

22. Generate a report showing the quarterly sales trends for 2023, broken down by product category.

```sql
select
    pc.category_name as category,
    quarter(o.order_date) as quater,
    sum(oi.quantity * oi.unit_price) as total_sales
from products p
join productcategories pc
    on pc.category_id = p.category_id
join orderitems oi
    on oi.product_id = p.product_id
join orders o
    on o.order_id = oi.order_id
where year(o.order_date) = 2023
group by pc.category_name, quater
order by pc.category_name, quater;
```

category	quater	total_sales
Audio	2	629.97
Audio	3	539.97
Audio	4	159.99
Computers	2	1299.99
Computers	3	1719.98
Computers	4	699.98
Consoles	2	499.99
Electronics	3	899.98
Electronics	4	129.99



25. Analyze the correlation between product price and customer review ratings. Do more expensive products tend to get higher ratings?

```
select p.product_id,  p.product_name as product_name, p.price, avg(r.rating) as avg_rating,
count(r.review_id) as total_reviews from products p
join reviews r
    on p.product_id = r.product_id
group by p.product_id, p.product_name, p.price
having  total_reviews >= 2
order by price;
```

product_id	product_name	price	avg_rating	total_reviews
113	Wireless Earbuds	159.99	4.0000	2
105	Smart Watch	199.99	3.5000	2
104	Gaming Console Pro	499.99	3.5000	2
108	Tablet Pro	699.99	5.0000	2
102	SmartPhone X	899.99	4.5000	2
101	UltraBook Pro	1299.99	4.5000	2