Title: DB Assignment 3

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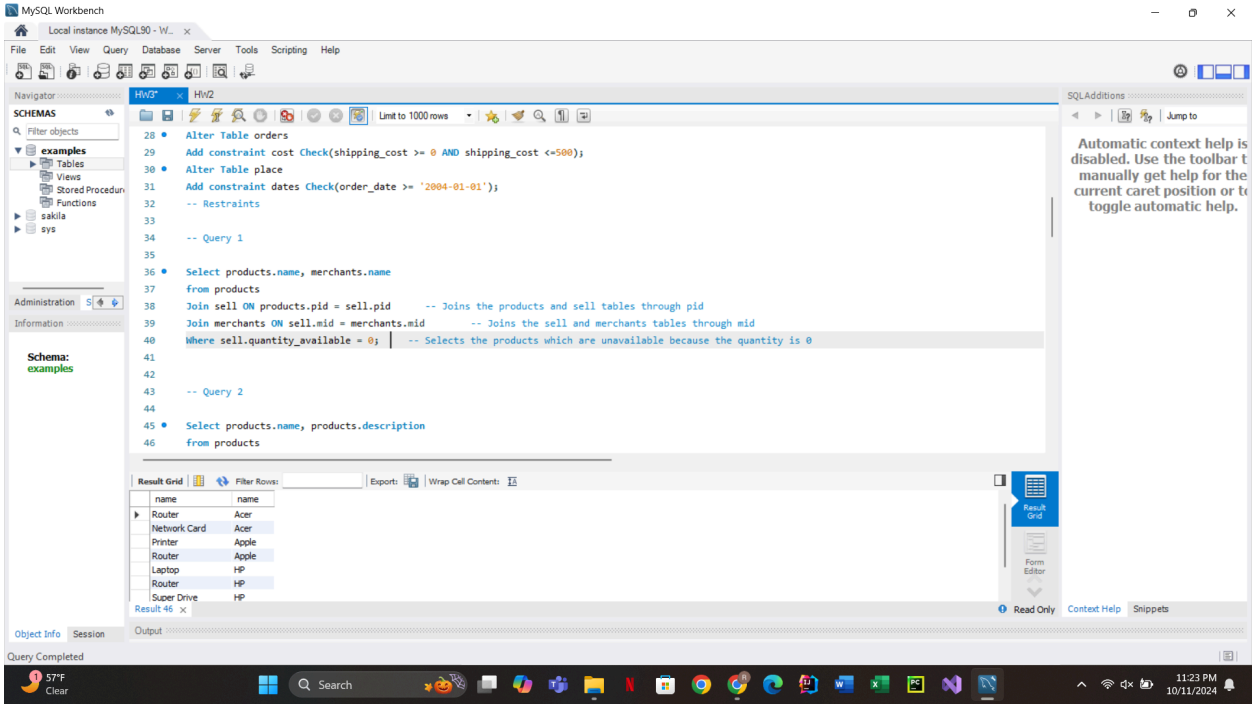
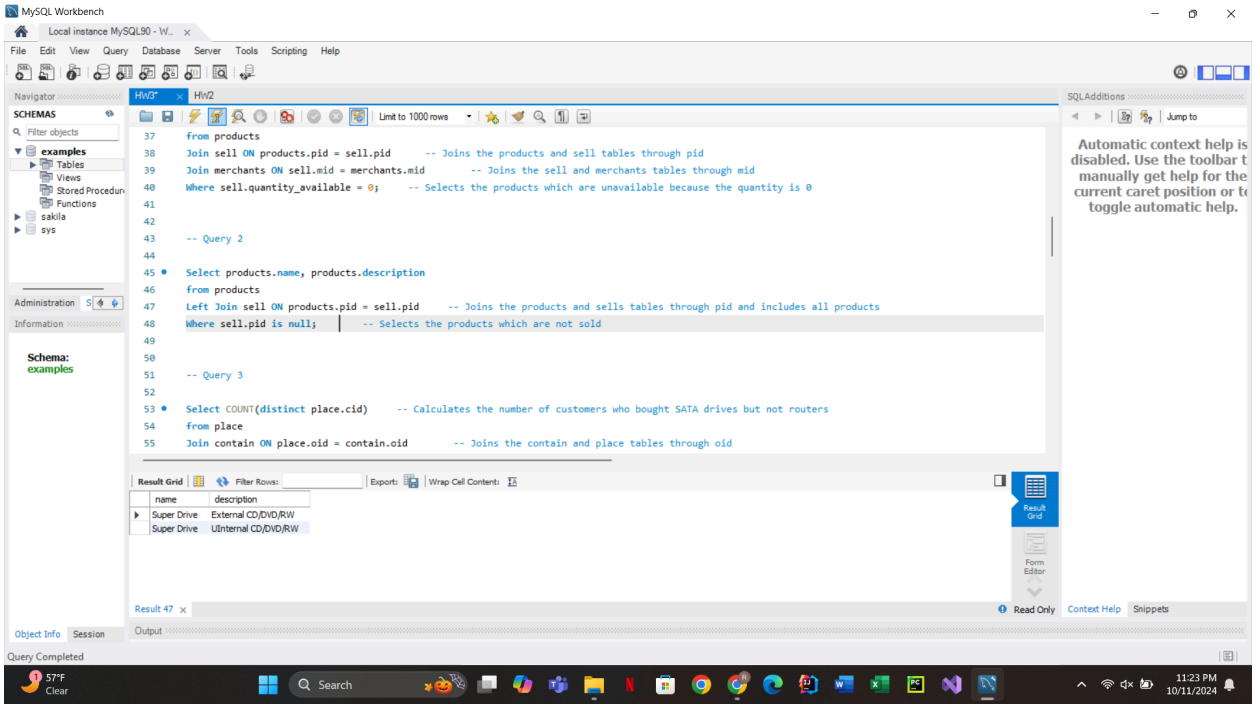
Date: 10/11/2024

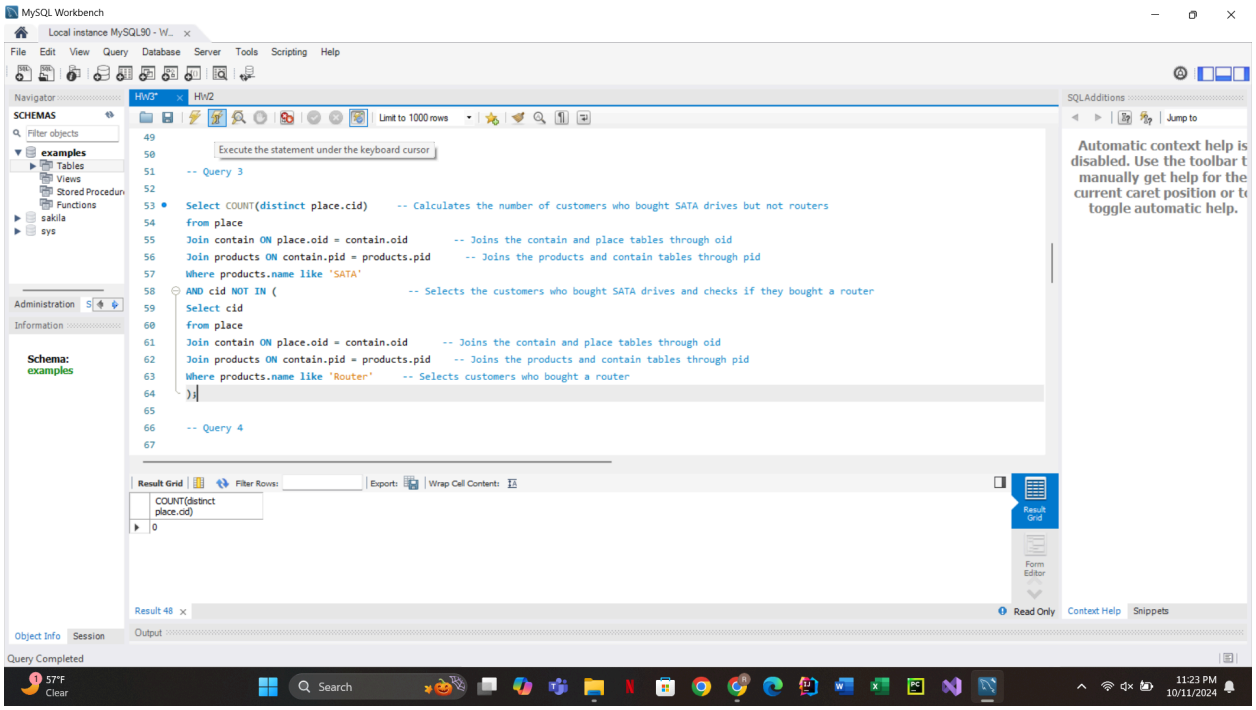
Github link: https://github.com/rsmith1388/Databases.git



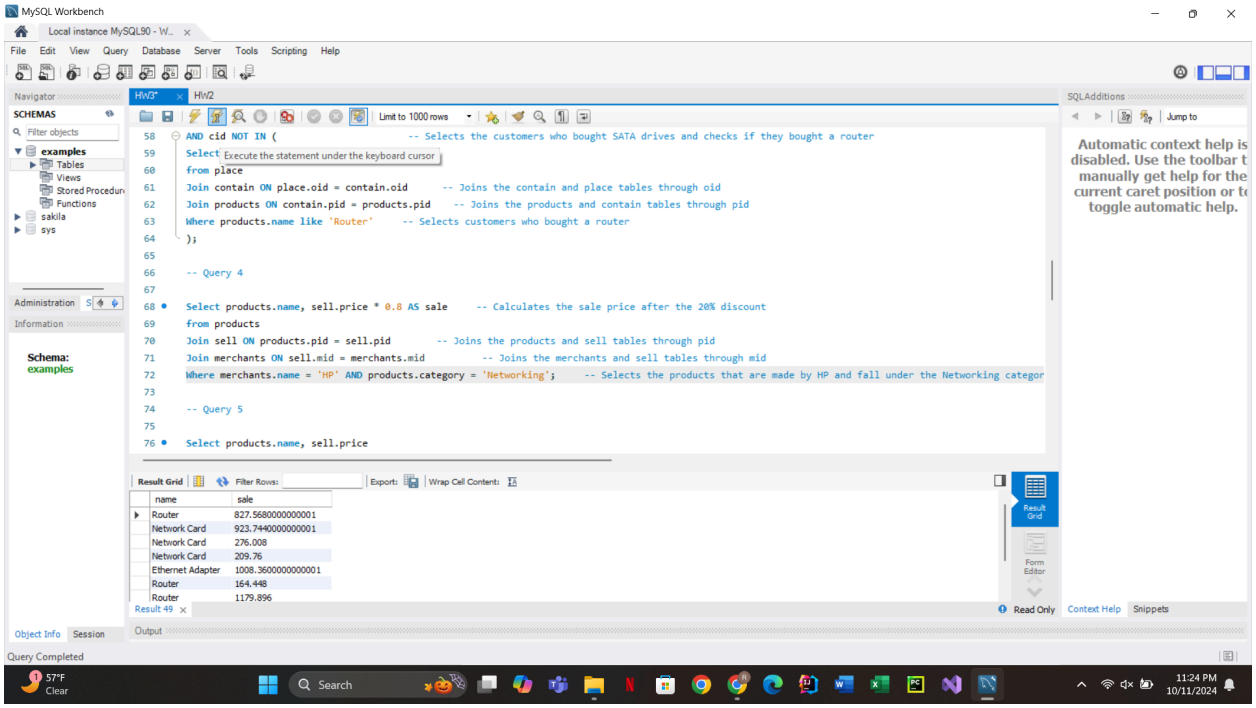
Query 1: Finds products which are out of stock. The query joins tables to access products with a quantity of 0.



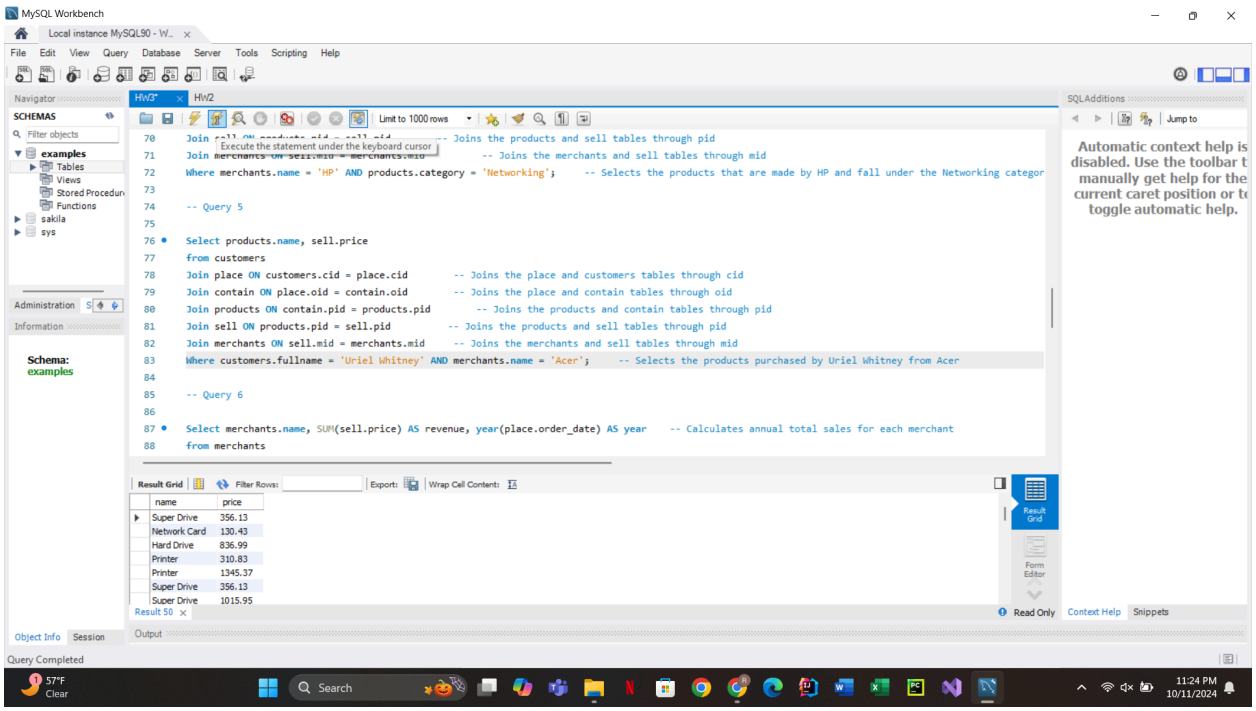
Query 2: Finds products which are not sold. Left join compares all products to products which are sold.



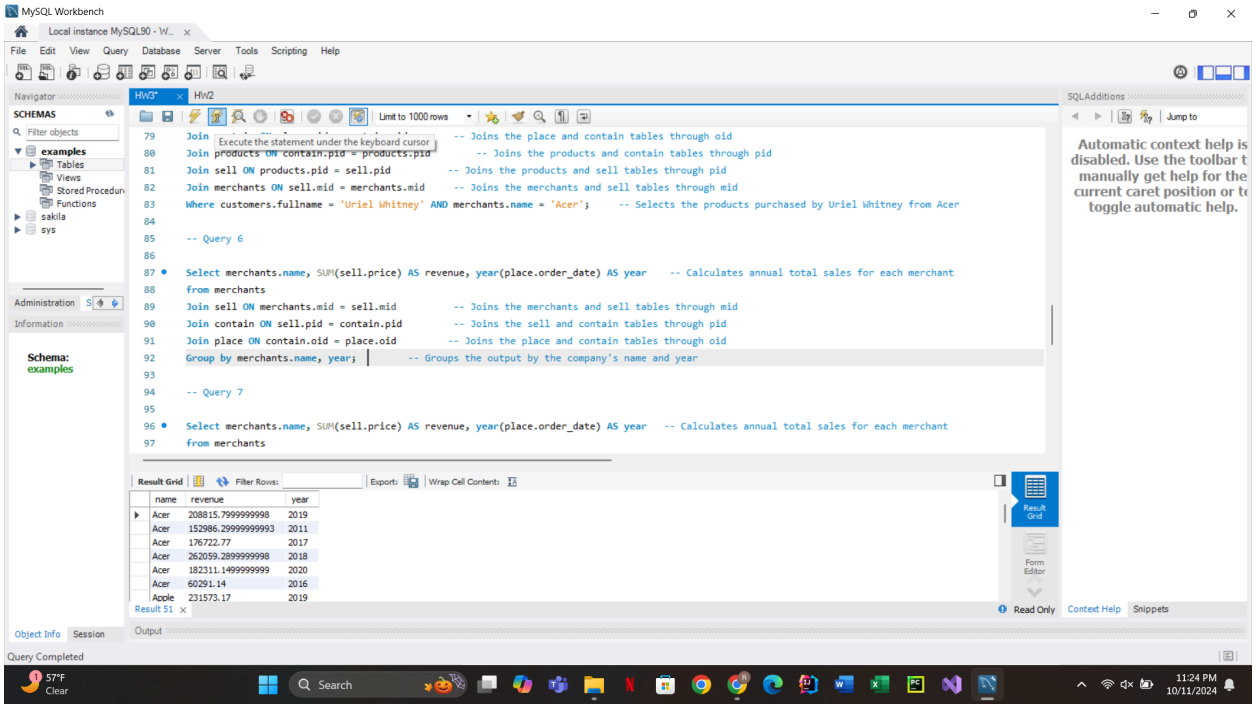
Query 3: Counts how many customers bought SATA drives but not routers. The query uses joins to check if the customer bought a SATA drive and checks if they did not buy a router.



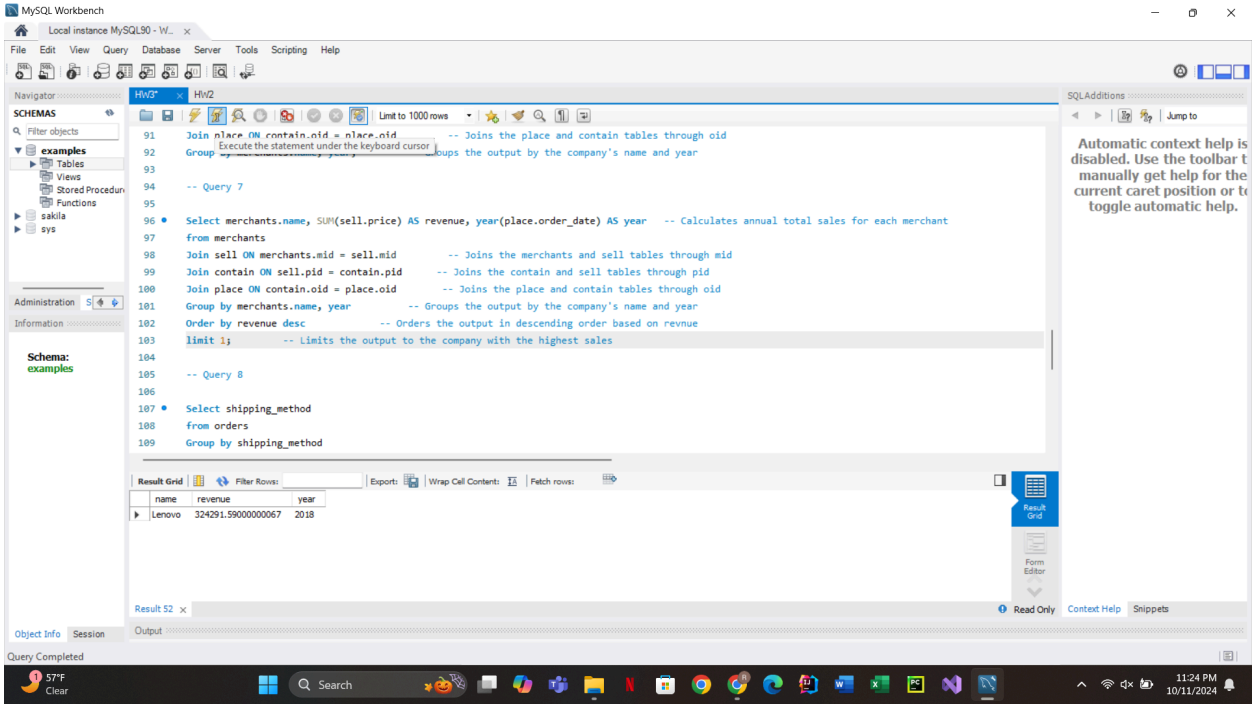
Query 4: Applies a 20% discount on all HP networking products.



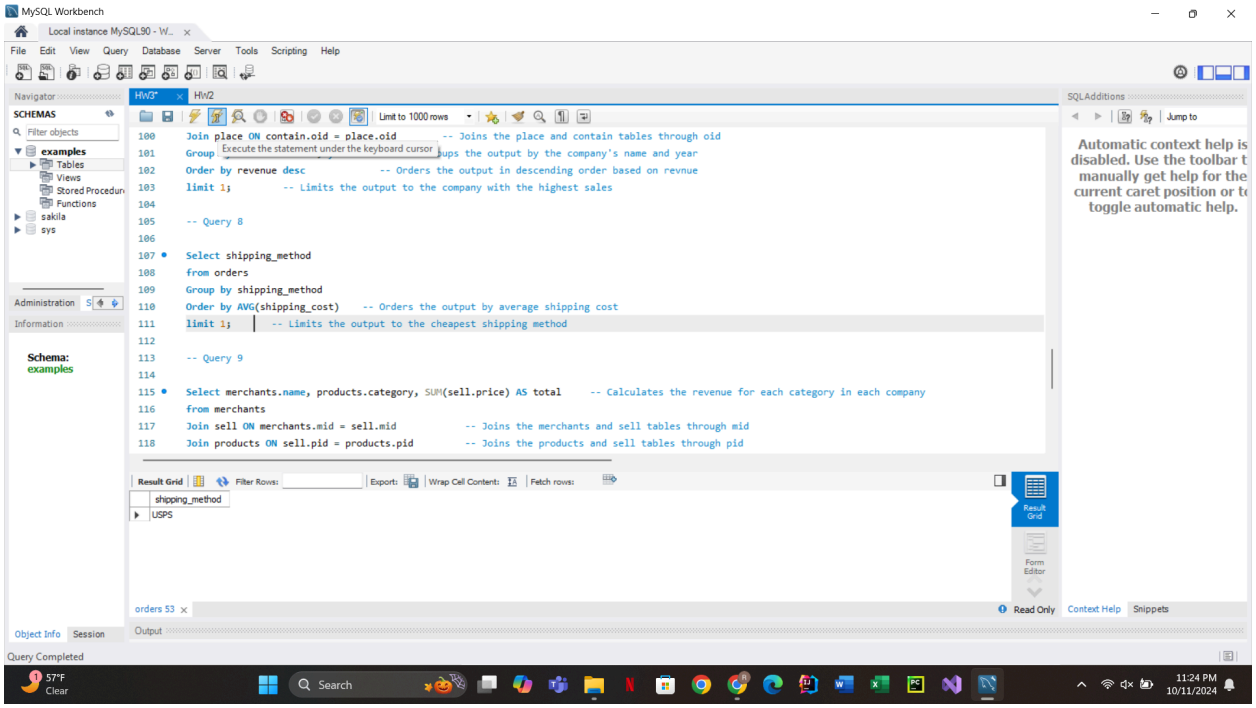
Query 5: Checks what Uriel Whitney ordered from Acer. The query uses joins to access Uriel's order history with Acer.



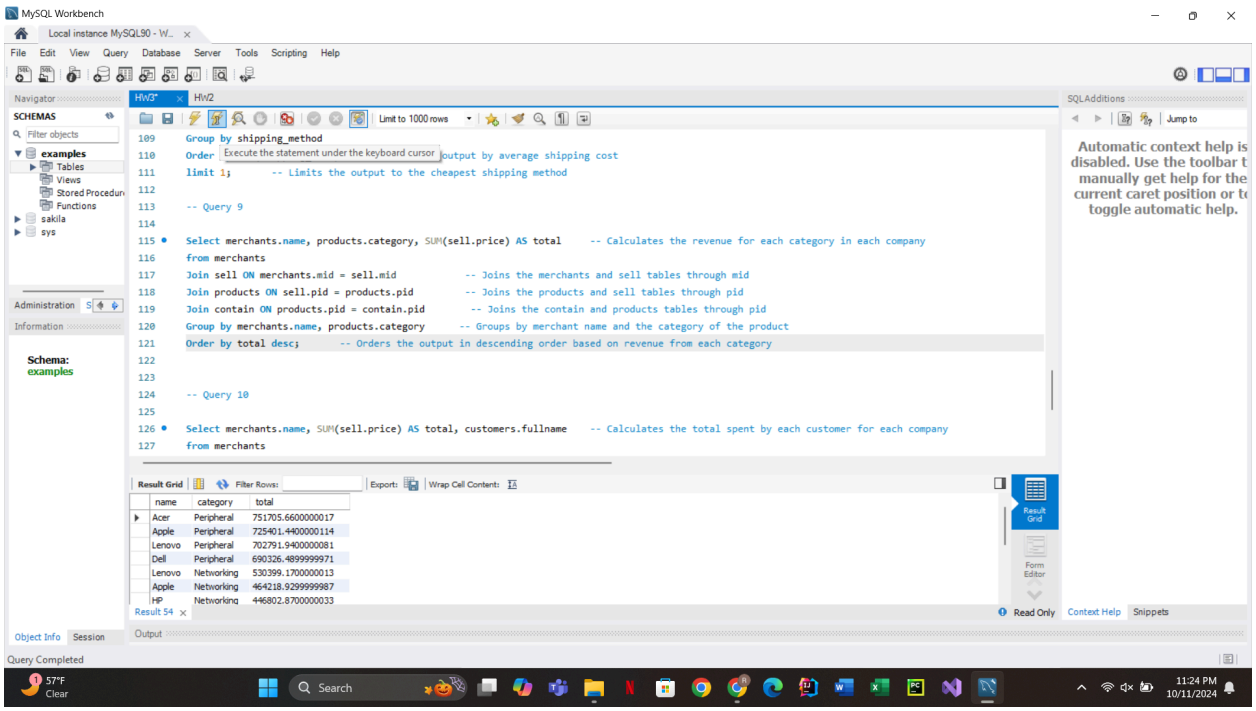
Query 6: Calculates the annual total sales of each company and lists them by company name and year.



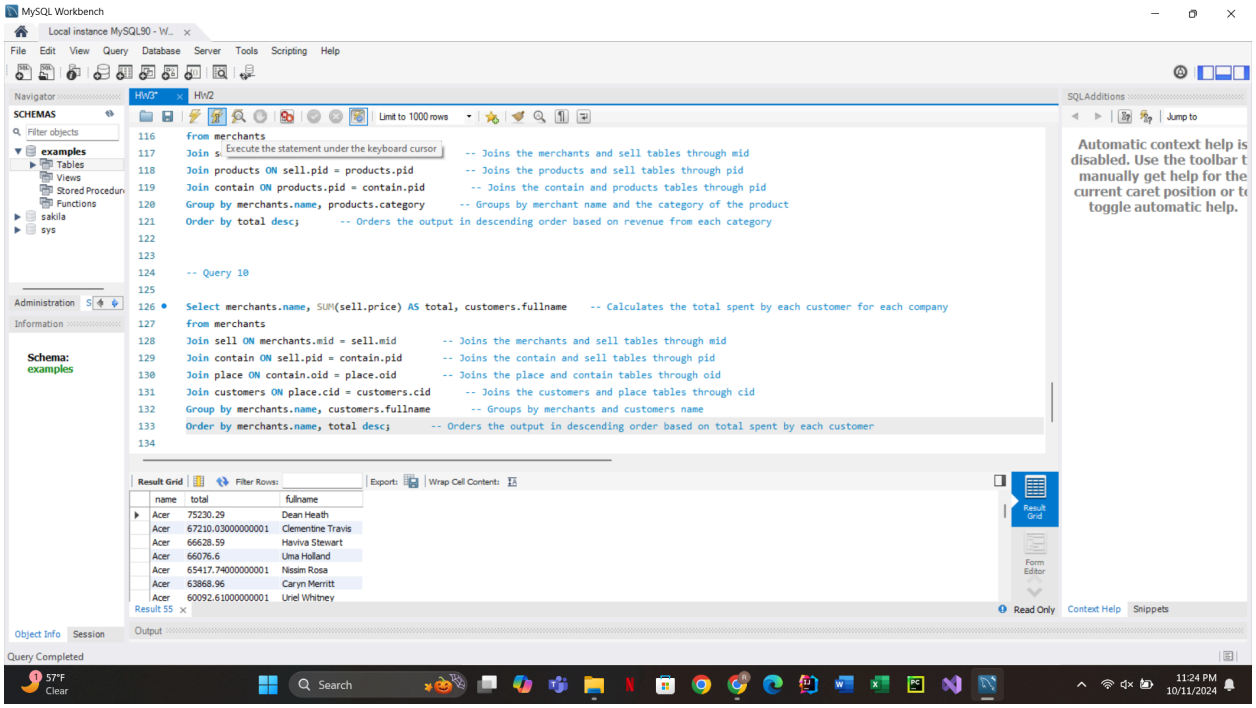
Query 7: Finds which company had the highest revenue and in which year. The query orders the data in descending order to locate the company with the highest revenue.



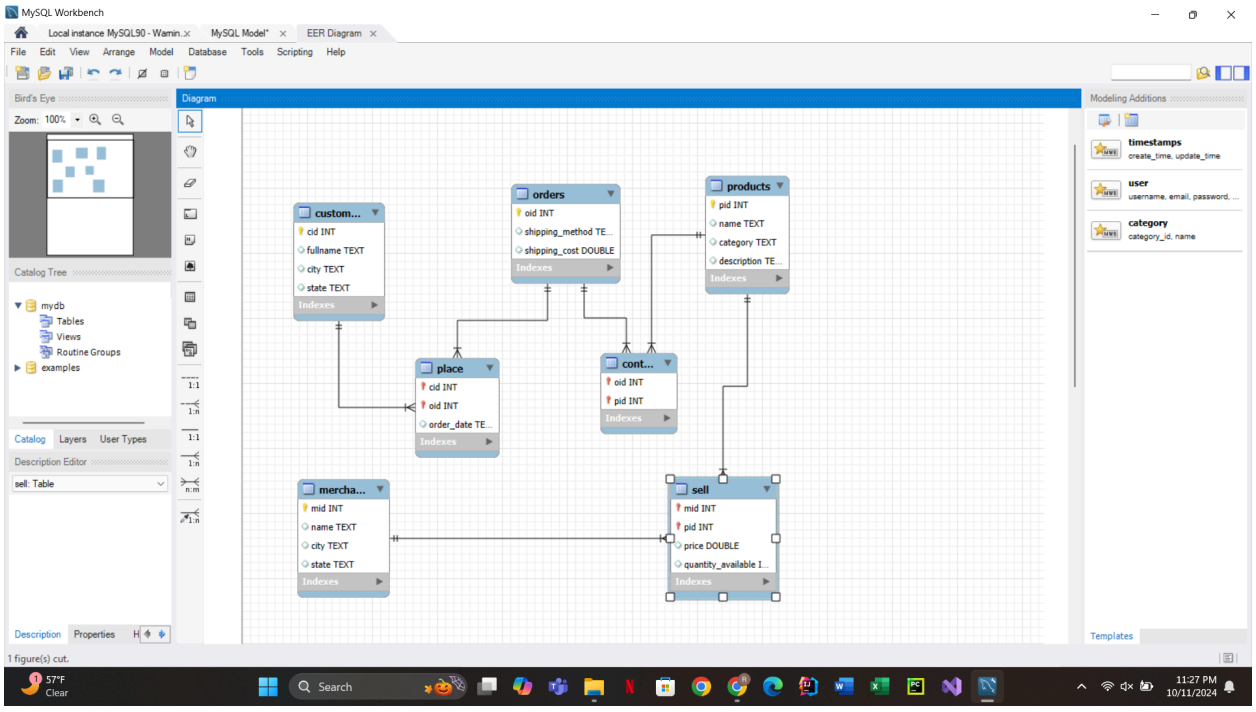
Query 8: Finds which shipping method has been the cheapest on average.

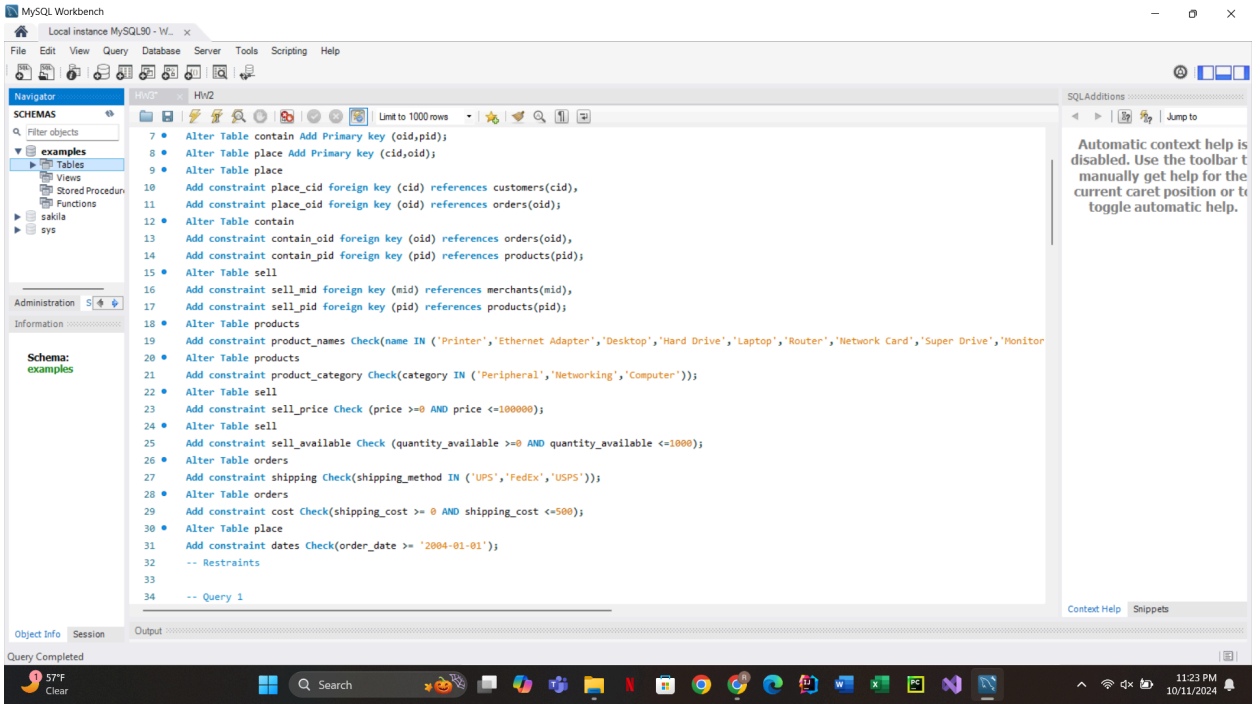


Query 9: Calculate the highest selling category for each company. The query uses joins to access each company's sales information.



Query 10: Finds out which have spent the most and least amount with each company. The query orders the data in descending order with the most spent by customers at the top of the list.





-- Restraints

Alter Table merchants Add Primary key (mid);

Alter Table products Add Primary key (pid);

Alter Table orders Add Primary key (oid);

Alter Table customers Add Primary key (cid);

Alter Table sell Add Primary key (mid,pid);

Alter Table contain Add Primary key (oid,pid);

Alter Table place Add Primary key (cid,oid);

Alter Table place

Add constraint place_cid foreign key (cid) references customers(cid),

Add constraint place_oid foreign key (oid) references orders(oid);

Alter Table contain

Add constraint contain_oid foreign key (oid) references orders(oid),

Add constraint contain_pid foreign key (pid) references products(pid);

Alter Table sell

Add constraint sell_mid foreign key (mid) references merchants(mid),

Add constraint sell_pid foreign key (pid) references products(pid);

Alter Table products

```
Add constraint product_names Check(name IN ('Printer','Ethernet
Adapter','Desktop','Hard Drive','Laptop','Router','Network Card','Super Drive','Monitor'));

Alter Table products

Add constraint product_category Check(category IN
('Peripheral','Networking','Computer'));

Alter Table sell

Add constraint sell_price Check (price >=0 AND price <=100000);

Alter Table sell

Add constraint sell_available Check (quantity_available >=0 AND quantity_available
<=1000);

Alter Table orders

Add constraint shipping Check(shipping_method IN ('UPS','FedEx','USPS'));

Alter Table orders

Add constraint cost Check(shipping_cost >= 0 AND shipping_cost <=500);

Alter Table place

Add constraint dates Check(order_date >= '2004-01-01');

-- Restraints


-- Query 1


Select products.name, merchants.name

from products

Join sell ON products.pid = sell.pid      -- Joins the products and sell tables through pid

Join merchants ON sell.mid = merchants.mid        -- Joins the sell and merchants tables
through mid

Where sell.quantity_available = 0;     -- Selects the products which are unavailable
because the quantity is 0



-- Query 2


Select products.name, products.description
```

```
from products
Left Join sell ON products.pid = sell.pid      -- Joins the products and sells tables through pid and includes all products
Where sell.pid is null;         -- Selects the products which are not sold


-- Query 3

Select COUNT(distinct place.cid)      -- Calculates the number of customers who bought SATA drives but not routers
from place
Join contain ON place.oid = contain.oid         -- Joins the contain and place tables through oid
Join products ON contain.pid = products.pid       -- Joins the products and contain tables through pid
Where products.name like 'SATA'
AND cid NOT IN (                        -- Selects the customers who bought SATA drives and checks if they bought a router
Select cid
from place
Join contain ON place.oid = contain.oid       -- Joins the contain and place tables through oid
Join products ON contain.pid = products.pid     -- Joins the products and contain tables through pid
Where products.name like 'Router'      -- Selects customers who bought a router
);


-- Query 4

Select products.name, sell.price * 0.8 AS sale      -- Calculates the sale price after the 20% discount
from products
Join sell ON products.pid = sell.pid         -- Joins the products and sell tables through pid
```

```
Join merchants ON sell.mid = merchants.mid          -- Joins the merchants and sell tables through mid
Where merchants.name = 'HP' AND products.category = 'Networking';     -- Selects the products that are made by HP and fall under the Networking category

-- Query 5

Select products.name, sell.price
from customers
Join place ON customers.cid = place.cid        -- Joins the place and customers tables through cid
Join contain ON place.oid = contain.oid        -- Joins the place and contain tables through oid
Join products ON contain.pid = products.pid        -- Joins the products and contain tables through pid
Join sell ON products.pid = sell.pid          -- Joins the products and sell tables through pid
Join merchants ON sell.mid = merchants.mid     -- Joins the merchants and sell tables through mid
Where customers.fullname = 'Uriel Whitney' AND merchants.name = 'Acer';     -- Selects the products purchased by Uriel Whitney from Acer

-- Query 6

Select merchants.name, SUM(sell.price) AS revenue, year(place.order_date) AS year
-- Calculates annual total sales for each merchant
from merchants
Join sell ON merchants.mid = sell.mid          -- Joins the merchants and sell tables through mid
Join contain ON sell.pid = contain.pid         -- Joins the sell and contain tables through pid
Join place ON contain.oid = place.oid         -- Joins the place and contain tables through oid
```

```
Group by merchants.name, year;          -- Groups the output by the company's name and year

-- Query 7

Select merchants.name, SUM(sell.price) AS revenue, year(place.order_date) AS year
-- Calculates annual total sales for each merchant
from merchants
Join sell ON merchants.mid = sell.mid          -- Joins the merchants and sell tables through mid
Join contain ON sell.pid = contain.pid       -- Joins the contain and sell tables through pid
Join place ON contain.oid = place.oid          -- Joins the place and contain tables through oid
Group by merchants.name, year          -- Groups the output by the company's name and year
Order by revenue desc              -- Orders the output in descending order based on revnue
limit 1;          -- Limits the output to the company with the highest sales

-- Query 8

Select shipping_method
from orders
Group by shipping_method
Order by AVG(shipping_cost)     -- Orders the output by average shipping cost
limit 1;        -- Limits the output to the cheapest shipping method

-- Query 9

Select merchants.name, products.category, SUM(sell.price) AS total      -- Calculates the revenue for each category in each company
from merchants
```

Join sell ON merchants.mid = sell.mid -- Joins the merchants and sell tables through mid

Join products ON sell.pid = products.pid -- Joins the products and sell tables through pid

Join contain ON products.pid = contain.pid -- Joins the contain and products tables through pid

Group by merchants.name, products.category -- Groups by merchant name and the category of the product

Order by total desc; -- Orders the output in descending order based on revenue from each category

-- Query 10

Select merchants.name, SUM(sell.price) AS total, customers.fullname -- Calculates the total spent by each customer for each company

from merchants

Join sell ON merchants.mid = sell.mid -- Joins the merchants and sell tables through mid

Join contain ON sell.pid = contain.pid -- Joins the contain and sell tables through pid

Join place ON contain.oid = place.oid -- Joins the place and contain tables through oid

Join customers ON place.cid = customers.cid -- Joins the customers and place tables through cid

Group by merchants.name, customers.fullname -- Groups by merchants and customers name

Order by merchants.name, total desc; -- Orders the output in descending order based on total spent by each customer