IT214 Lab 3 Report

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1 Relational algebraic expressions for all queries

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Relational Algebraic Expression of Quries

1) $\sigma_{saleprice > 1000}(Items)$

2) $\sigma_{saleprice > 1000 \text{ and } category = 5}(Items)$

3) $\Pi_{invno, invdate}(\sigma_{customerid = 'c05'}(Invoice))$

4) $\Pi_{itemcode, qty, rate}(\sigma_{invno = 1}(Invoicedetails))$

5) $\Pi_{invno, invdate}(\sigma_{name = 'Harsh'}(Invoice \underset{customerid = custid}{\bowtie} Customer))$

6) $\Pi_{inv.invno, inv.invdate, inv.customerid}(\sigma_{invd.itemcode = 1103}(Invoice\ inv \underset{invd.invno = inv.invno}{\bowtie} Invoice\ details\ invd))$

7) $\Pi_{invd.invno, invd.itemcode, invd.qty}(\sigma_{inv.customerid = 'c05'}(Invoice\ inv \underset{invd.invno = inv.invno}{\bowtie} Invoicedetails\ invd))$

8) $\Pi_{cust.custid, cust.name, cust.city}(\sigma_{itemcode = 1101}(Customer\ cust \underset{cust.custid = inv.customerid}{\bowtie} Invoice\ inv \underset{inv.invno = invd.invno}{\bowtie} Invoice\ Details\ invd))$

9) $\Pi_{it.code, it.name}(\sigma_{inv.invdate = '2011-08-23'}(Items\ it \underset{it.code = invd.itemcode}{\bowtie} Invoice\ details\ invd \underset{invd.invno = inv.invno}{\bowtie} Invoice\ inv))$

10) $\Pi_{it.name, it.code}(\sigma_{inv.invdate >= '2011-07-01' \text{ and } inv.invdate <= '2011-07-31' \text{ and } it.category = 3}(Items\ it \underset{it.code = invd.itemcode}{\bowtie} Invoicedetails\ invd \underset{invd.invno = inv.invno}{\bowtie} Invoice\ inv))$

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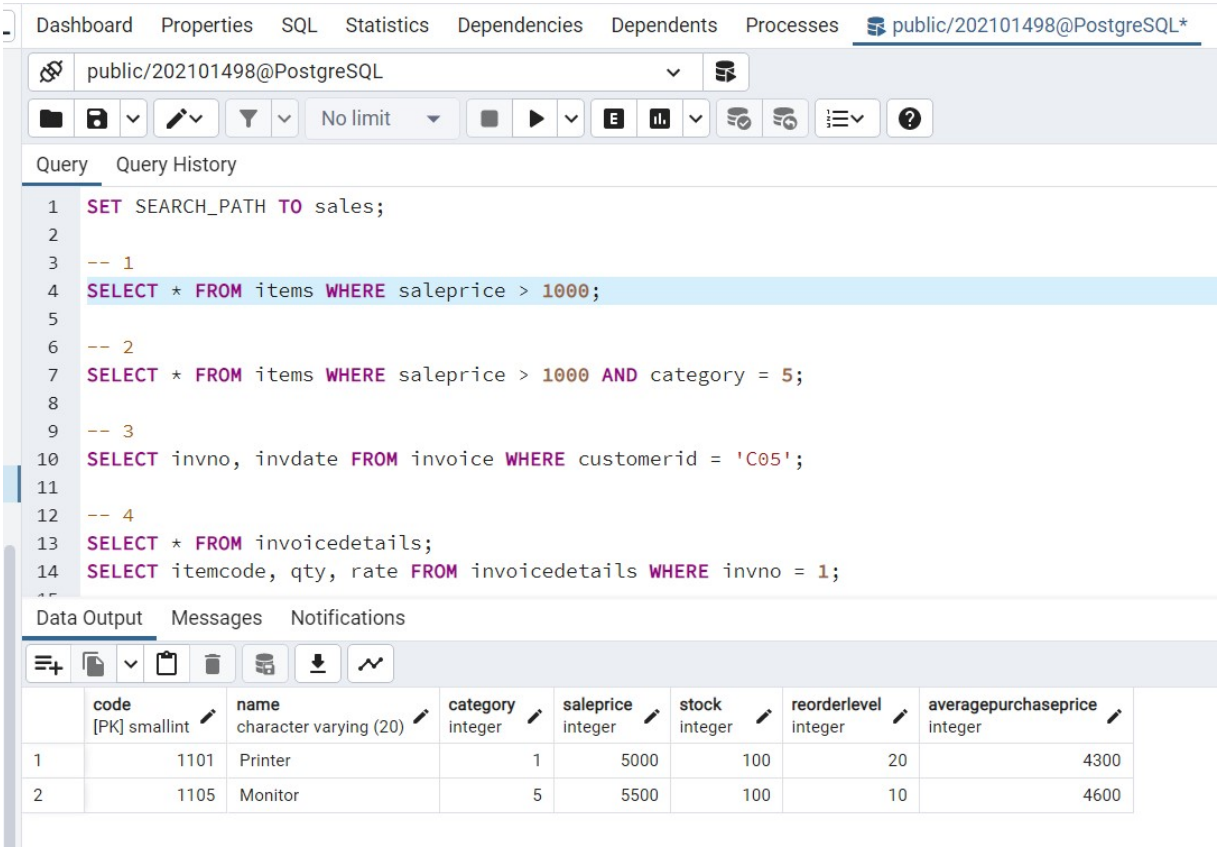
(11) $\Pi_{cust.custid,\ cust.name,\ cust.city}(\sigma_{it.category=3 \text{ and } cust.state='GJ'}($
Customer cust $\bowtie_{cust.custid = inv.customerid}$ Invoice inv $\bowtie_{inv.invno = invd.invno}$
Invoicedetails invd $\bowtie_{invd.itemcode = it.code}$ Items it))

(12) $\Pi_{it.code,\ it.name}(\sigma_{inv.invdate='2011\text{-}08\text{-}23' \text{ and } cust.name='Dev'}($
Items it $\bowtie_{it.code = invd.itemcode}$ Invoicedetails invd $\bowtie_{invd.invno = inv.invno}$
Invoice inv $\bowtie_{inv.customerid = cust.custid}$ Customer cust))

2 SQL statements for all queries

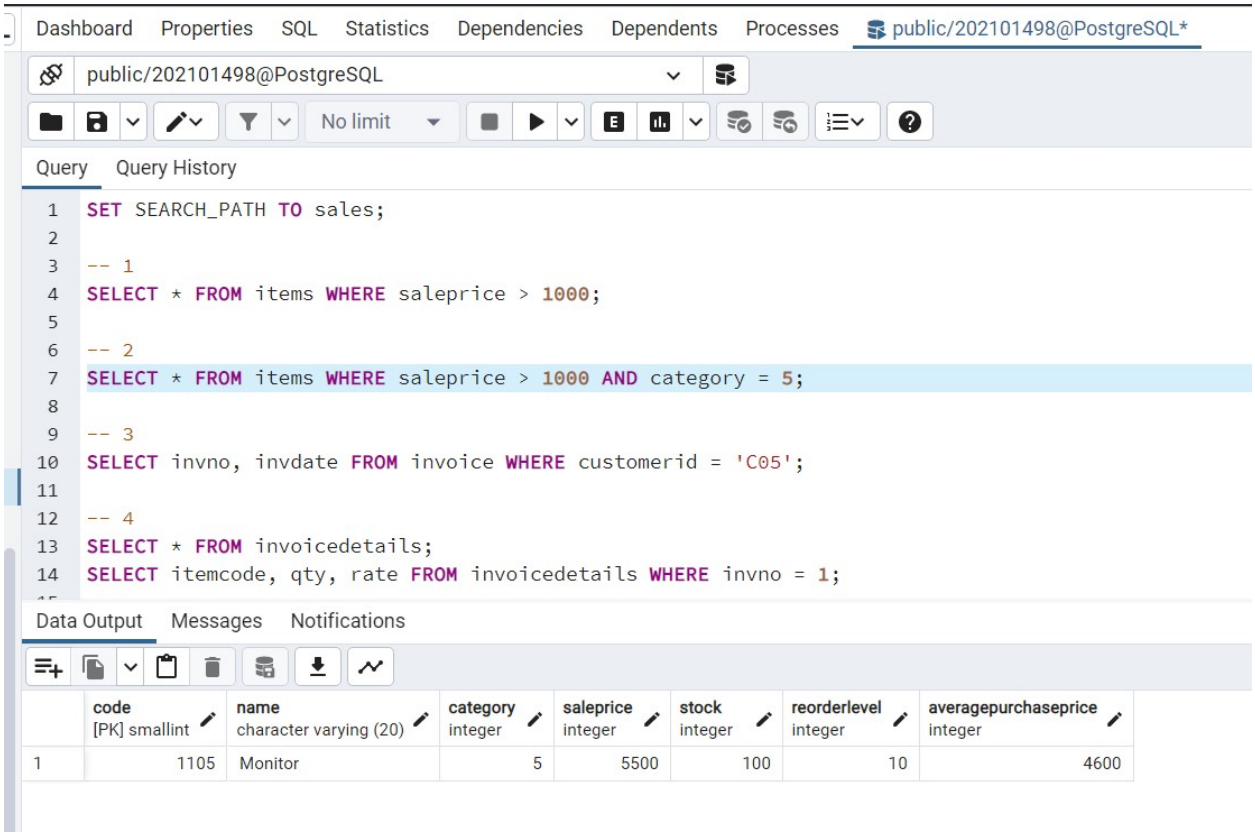
1. Give the details of items having price > 1000

```
SELECT * FROM items WHERE saleprice > 1000;
```



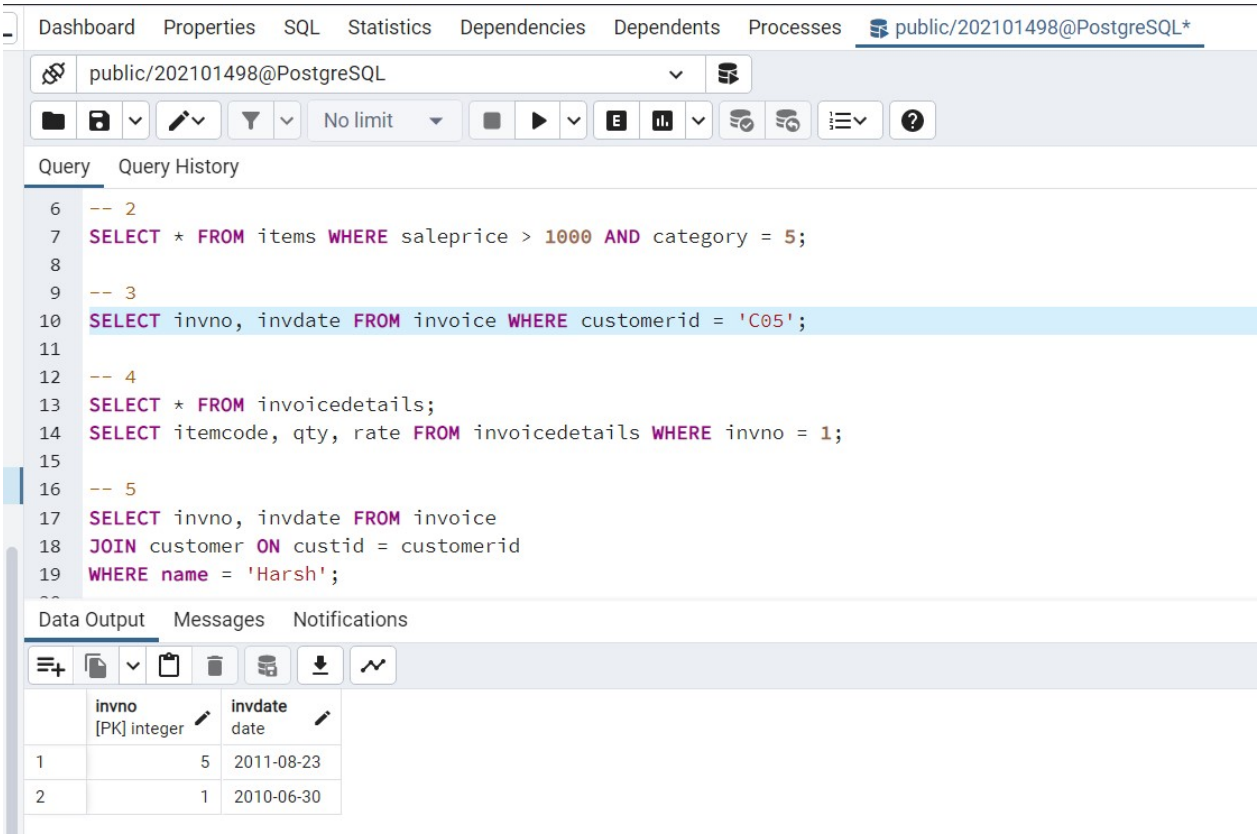
2. Give the details of items having price > 1000 and are belonging to category 5

```
SELECT * FROM items WHERE saleprice > 1000 AND category = 5;
```



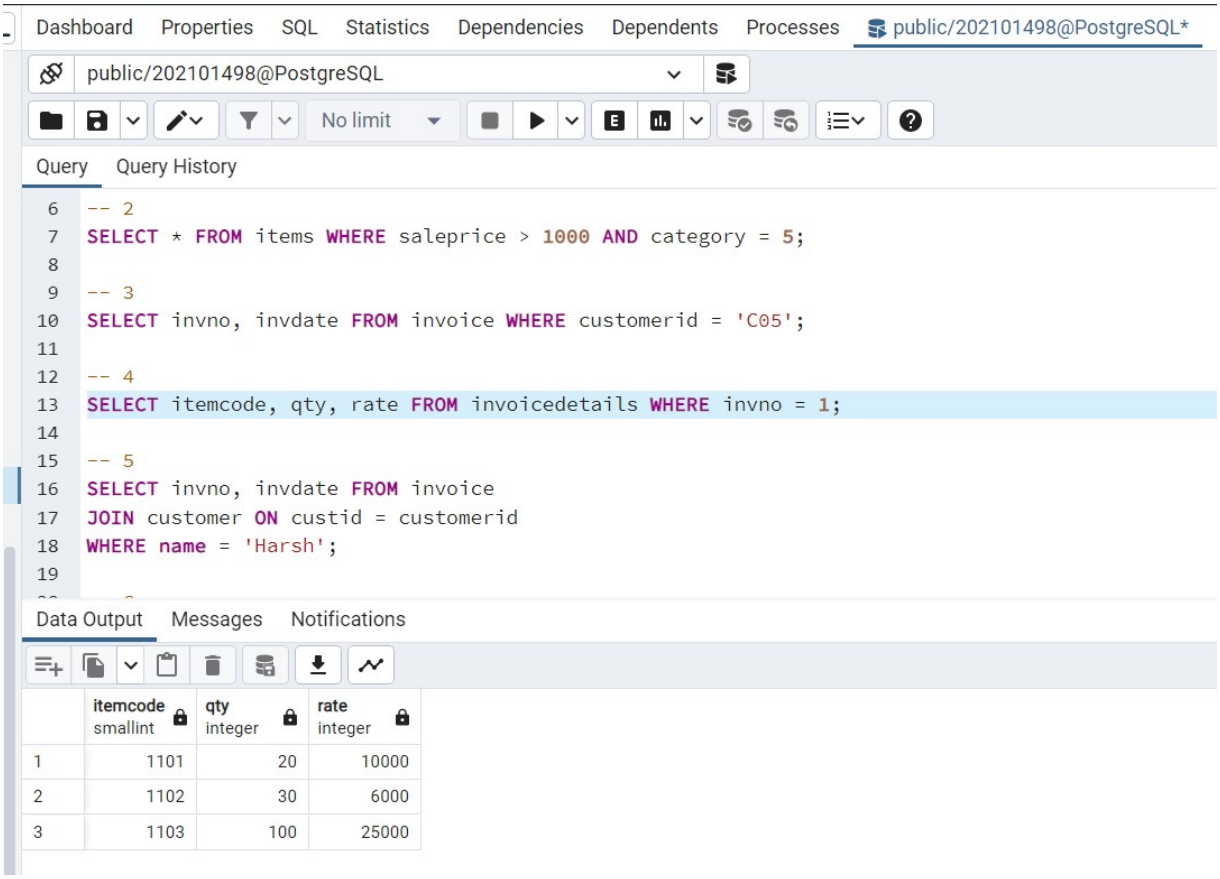
3. List the Invoices (number, date) of a customer id = ‘C05’

```
SELECT invno, invdate FROM invoice WHERE customerid = 'C05';
```



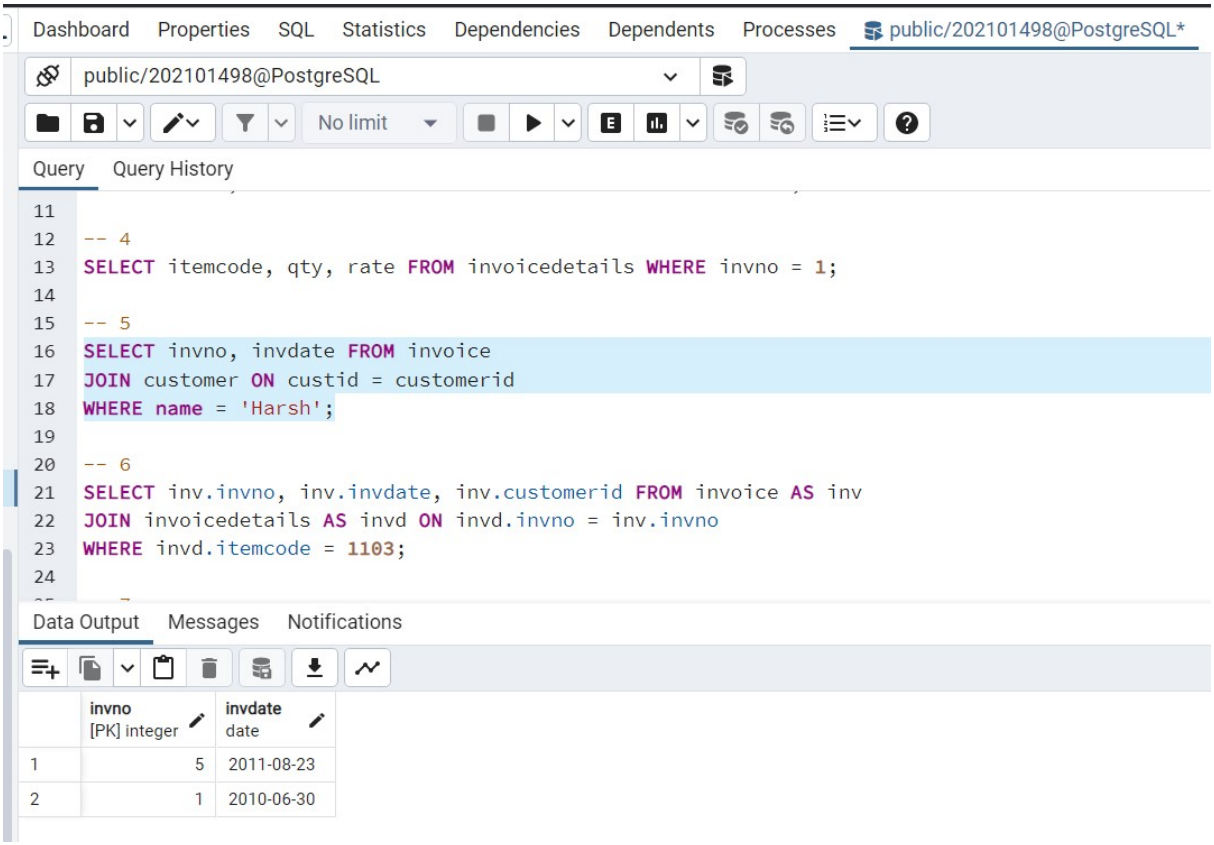
4. List all items (code, qty, rate) for invoice number = 1

```
SELECT itemcode, qty, rate FROM invoicedetails
WHERE invno = 1;
```



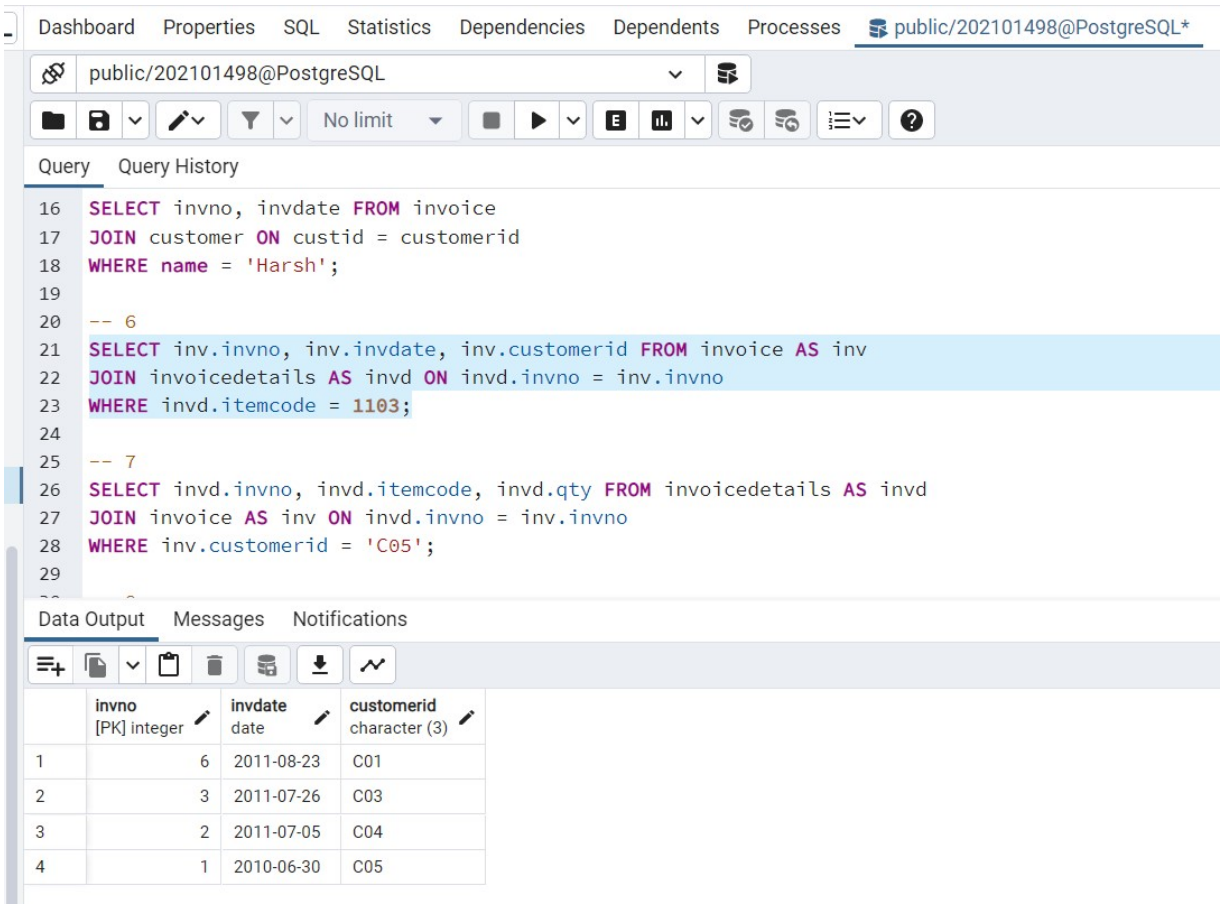
5. List the Invoices (number, date) of the customer named Harsh

```
SELECT invno, invdate FROM invoice
JOIN customer ON custid = customerid
WHERE name = 'Harsh';
```



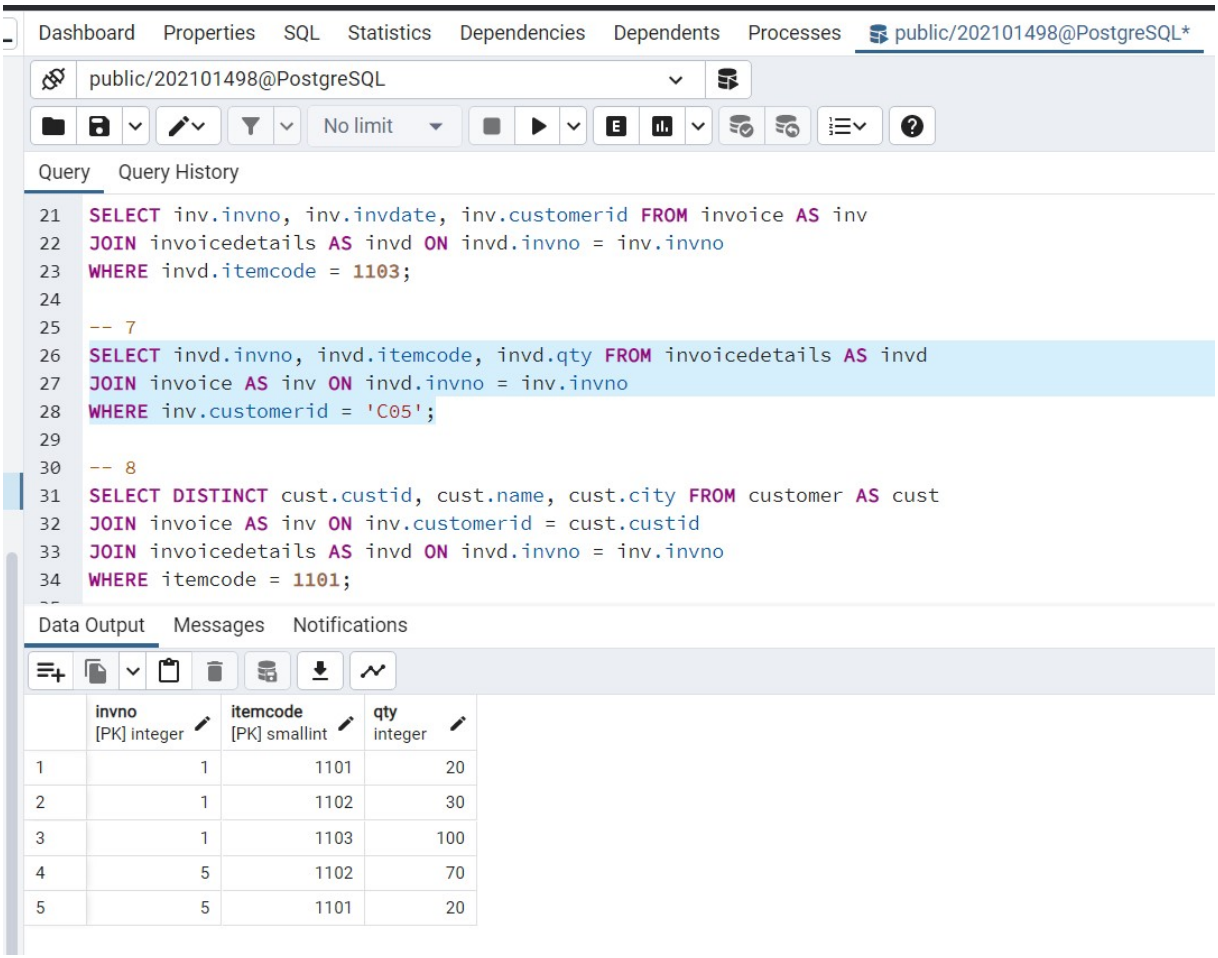
6. List all invoices (inv no, date, customer rid) that have item code = 1103

```
SELECT inv.invno, inv.invdate, inv.customerid
FROM invoice AS inv
JOIN invoicedetails AS invd ON invd.invno = inv.invno
WHERE invd.itemcode = 1103;
```



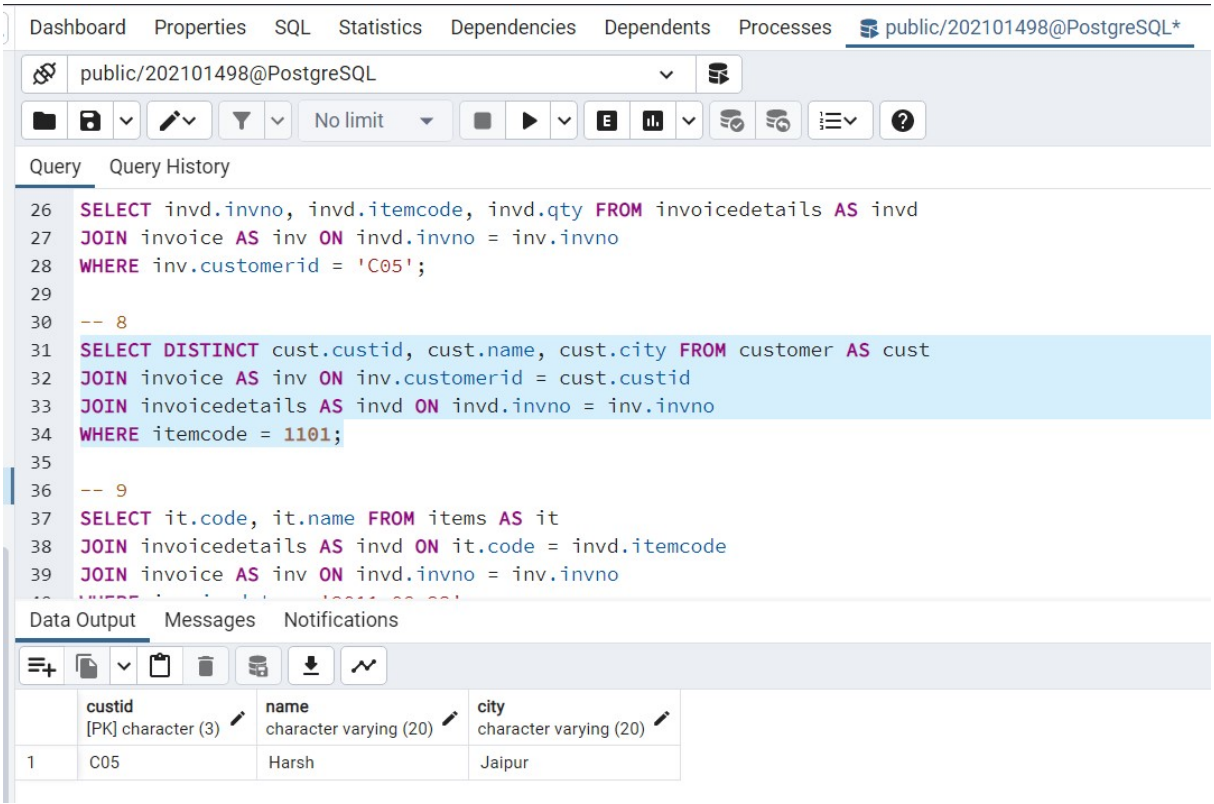
7. List all items (inv no, item code, qty) that customer 'C05' has bought

```
SELECT invd.invno, invd.itemcode, invd.qty
FROM invoicedetails AS invd
JOIN invoice AS inv ON invd.invno = inv.invno
WHERE inv.customerid = 'C05';
```



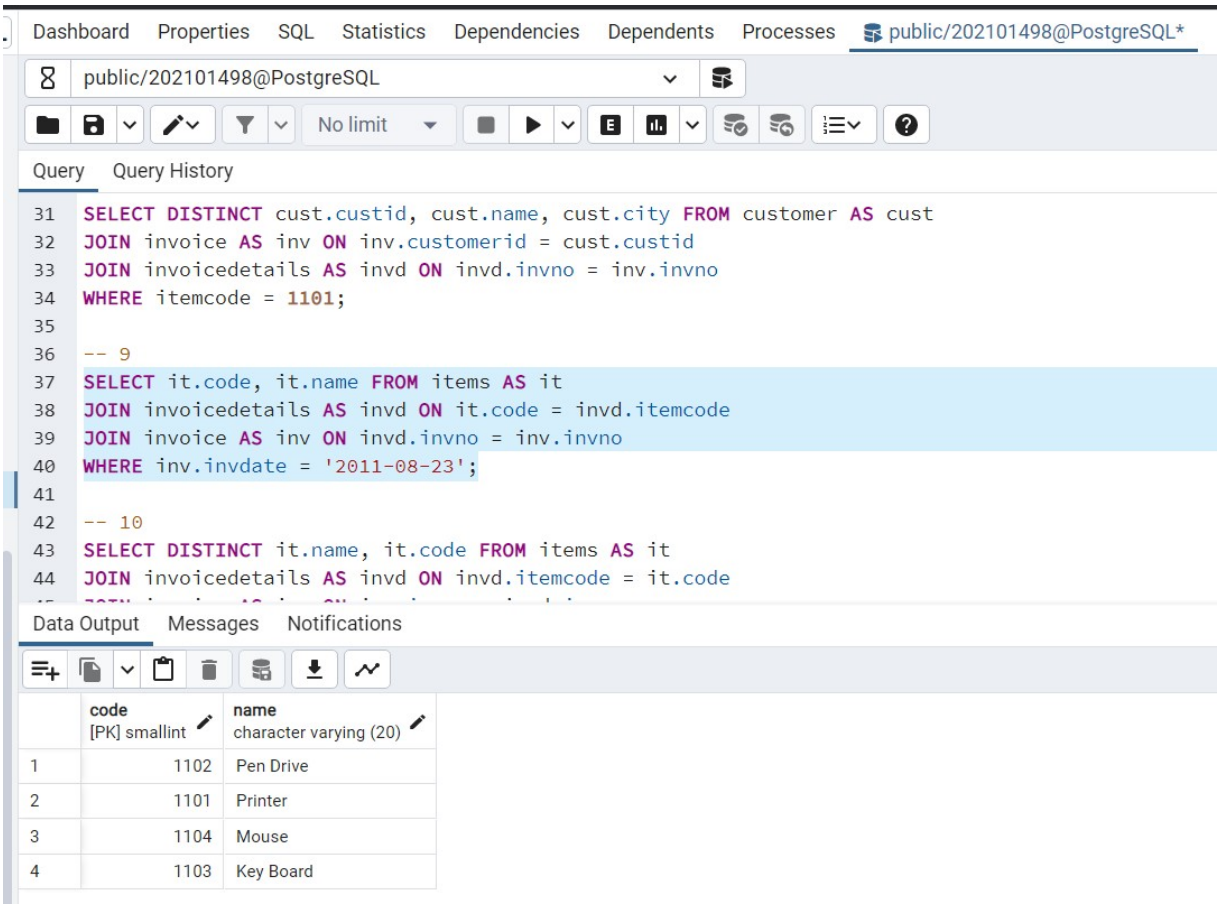
8. List all customers (customer id, name, city) that have bought item 1101

```
SELECT DISTINCT cust.custid, cust.name, cust.city
FROM customer AS cust
JOIN invoice AS inv ON inv.customerid = cust.custid
JOIN invoicedetails AS invd ON invd.invno = inv.invno
WHERE itemcode = 1101;
```



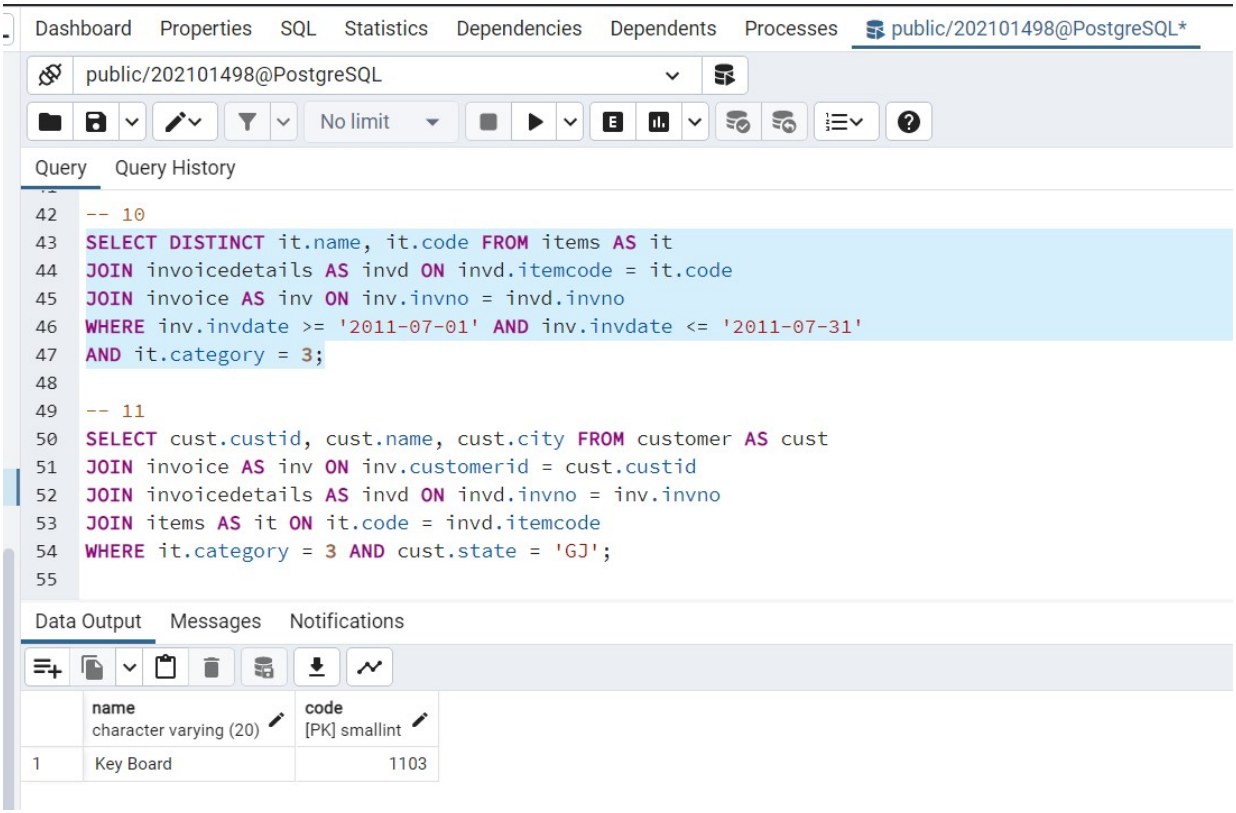
9. List all items (item code, item name) sold on 2011-08-23

```
SELECT it.code, it.name FROM items AS it
JOIN invoicedetails AS invd ON it.code = invd.itemcode
JOIN invoice AS inv ON invd.invno = inv.invno
WHERE inv.invdate = '2011-08-23';
```



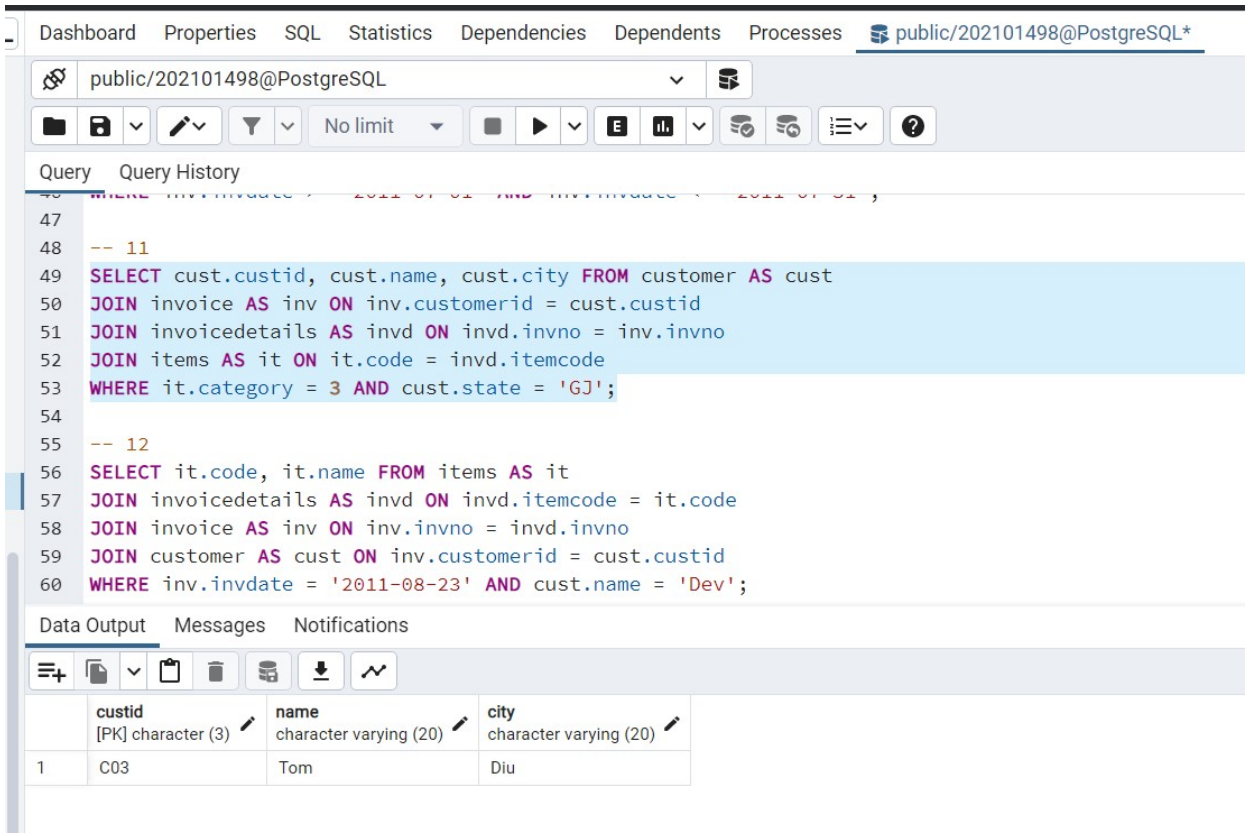
10. List all items (item code, item name) sold in month '2011-07' from category=3

```
SELECT DISTINCT it.name, it.code FROM items AS it
JOIN invoicedetails AS invd ON invd.itemcode = it.code
JOIN invoice AS inv ON inv.invno = invd.invno
WHERE inv.invdate >= '2011-07-01' AND inv.invdate <= '2011-07-31'
AND it.category = 3;
```



11. List customers (customer id, name, city) who are from Gujarat and have bought item items from category=3

```
SELECT cust.custid, cust.name, cust.city
FROM customer AS cust
JOIN invoice AS inv ON inv.customerid = cust.custid
JOIN invoicedetails AS invd ON invd.invno = inv.invno
JOIN items AS it ON it.code = invd.itemcode
WHERE it.category = 3 AND cust.state = 'GJ';
```



12. List the items (code, name) of items purchased by customer named 'Dev' on date 2011-08-23

```
SELECT it.code, it.name FROM items AS it
JOIN invoicedetails AS invd ON invd.itemcode = it.code
JOIN invoice AS inv ON inv.invno = invd.invno
JOIN customer AS cust ON inv.customerid = cust.custid
WHERE inv.invdate = '2011-08-23' AND cust.name = 'Dev';
```