SQL Project on Books, Customers & Orders

INTRODUCTION

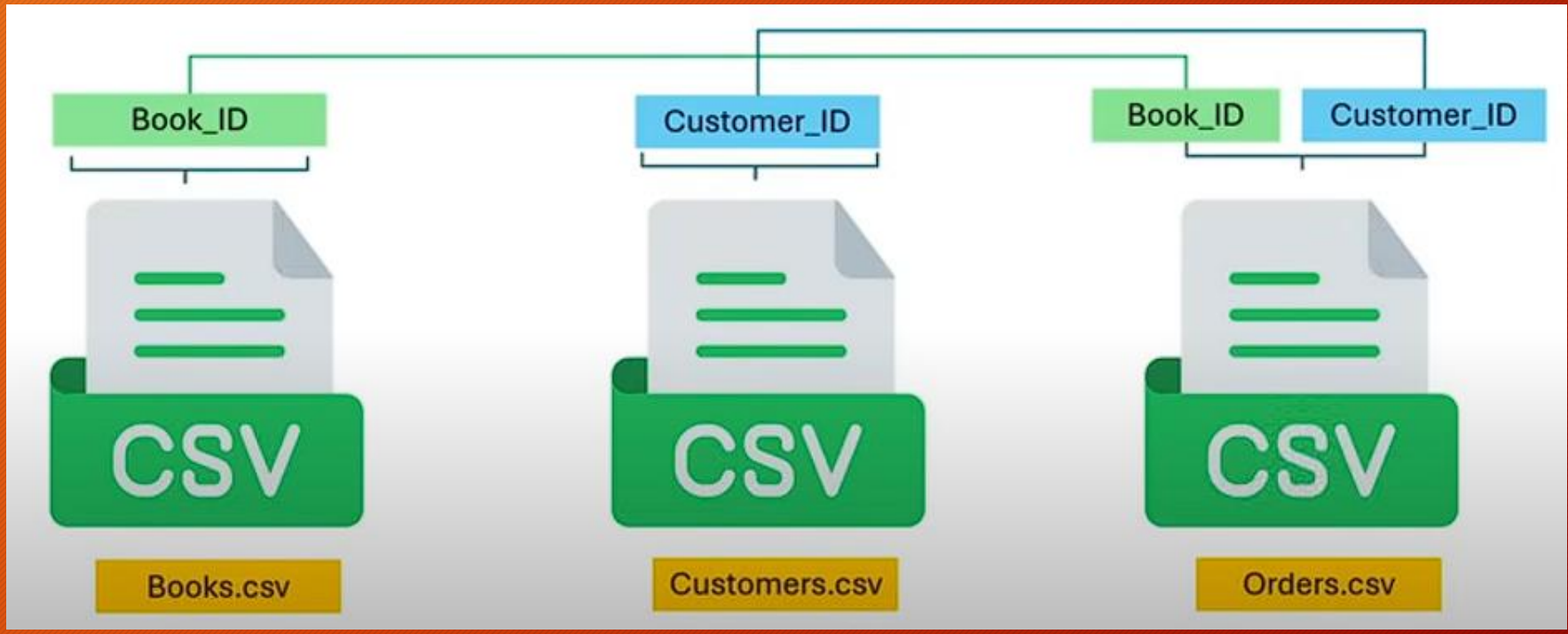
- This SQL project is based on a hospital management dataset containing information about hospitals, departments, patients, and medical records.
- The goal was to analyze healthcare data using SQL queries and extract meaningful insights for better decision-making.
- Key operations included calculating averages, identifying trends, and summarizing data across hospitals, cities, and departments.
- The project highlights the real-world application of SQL through grouping, filtering, date calculations, and performance analysis.

OBJECTIVES

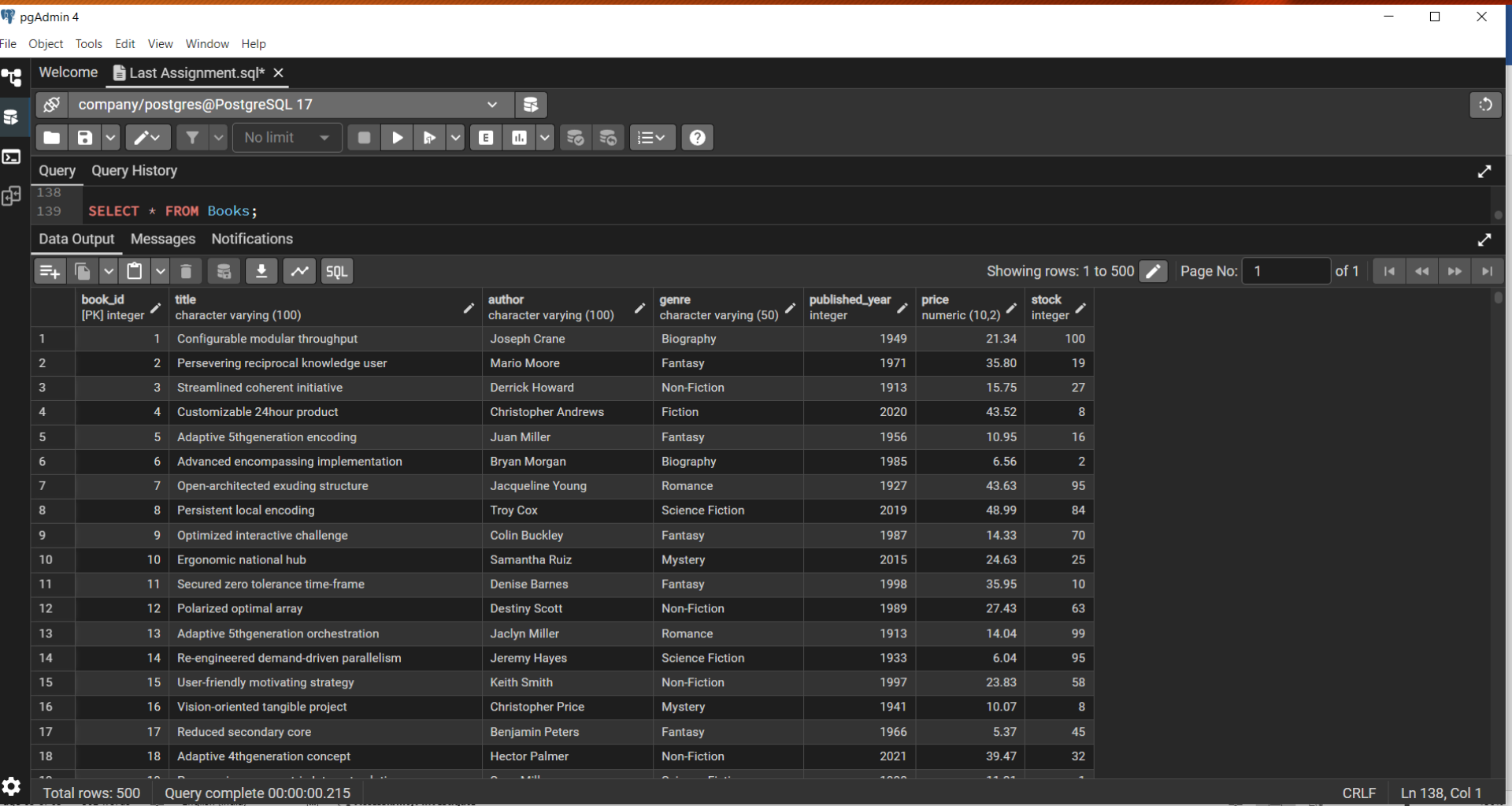
- To analyze hospital-related data using SQL and derive meaningful insights.
- To perform data aggregation and filtering based on departments, cities, and time periods.
- To identify key metrics such as patient count, doctor availability, and medical expenses.
- To enhance data analysis skills by solving real-world business queries using SQL.

For this project, I used these three CSV files.

Tables must have at least one common column with same column name and same data type.

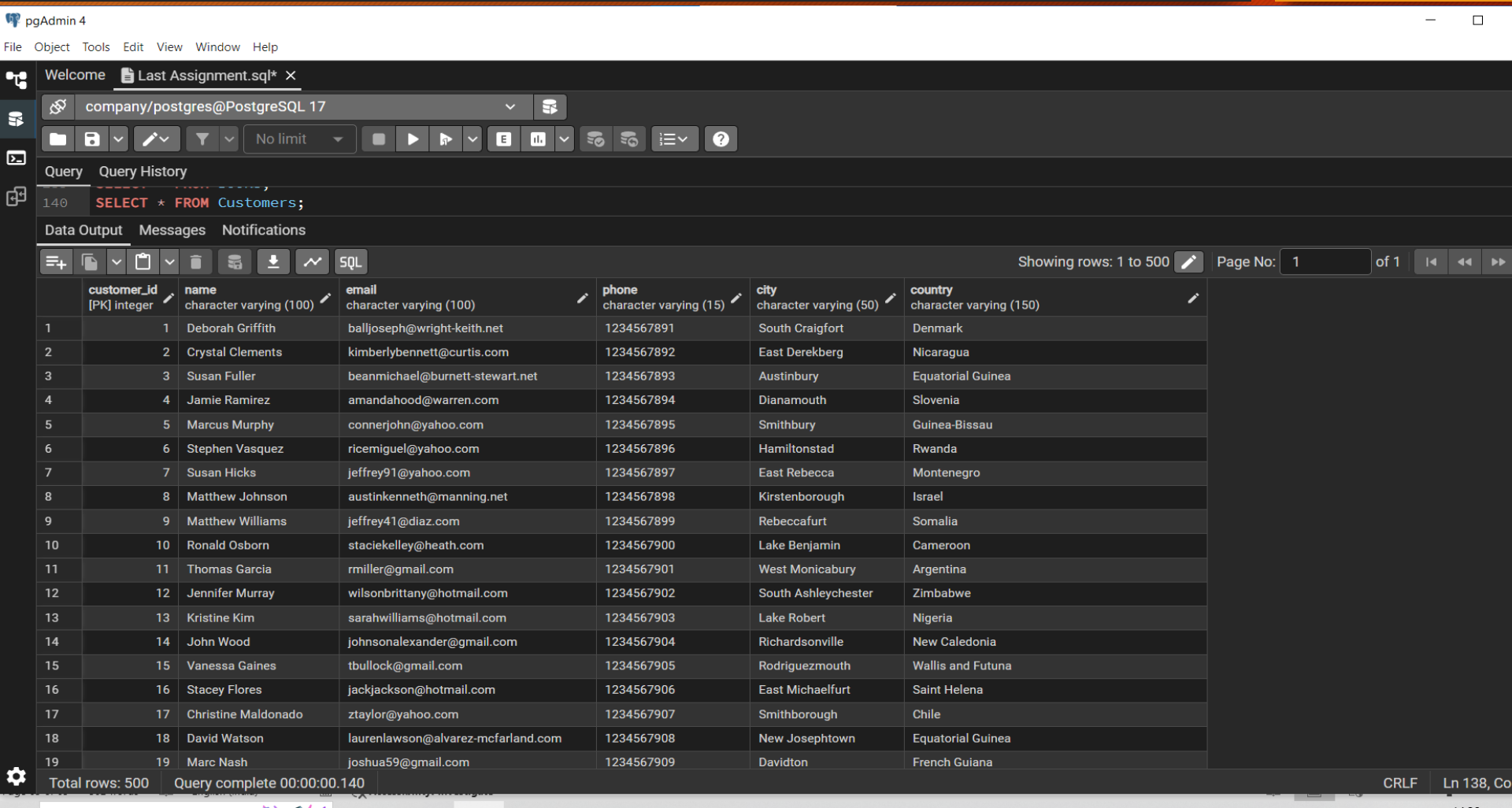


Books



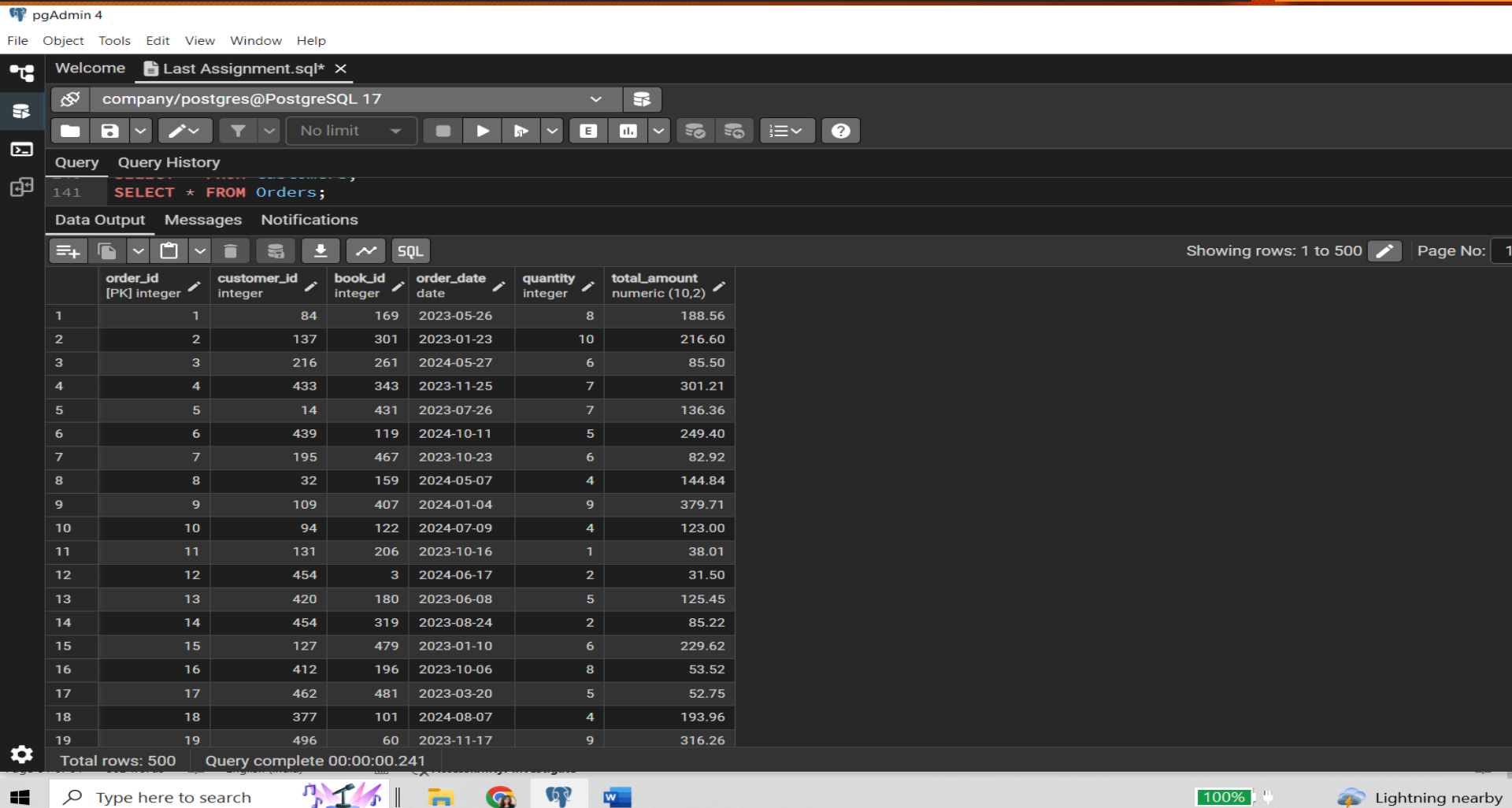
	book_id [PK] integer	title character varying (100)	author character varying (100)	genre character varying (50)	published_year integer	price numeric (10,2)	stock integer
1	1	Configurable modular throughput	Joseph Crane	Biography	1949	21.34	100
2	2	Persevering reciprocal knowledge user	Mario Moore	Fantasy	1971	35.80	19
3	3	Streamlined coherent initiative	Derrick Howard	Non-Fiction	1913	15.75	27
4	4	Customizable 24hour product	Christopher Andrews	Fiction	2020	43.52	8
5	5	Adaptive 5thgeneration encoding	Juan Miller	Fantasy	1956	10.95	16
6	6	Advanced encompassing implementation	Bryan Morgan	Biography	1985	6.56	2
7	7	Open-architected exuding structure	Jacqueline Young	Romance	1927	43.63	95
8	8	Persistent local encoding	Troy Cox	Science Fiction	2019	48.99	84
9	9	Optimized interactive challenge	Colin Buckley	Fantasy	1987	14.33	70
10	10	Ergonomic national hub	Samantha Ruiz	Mystery	2015	24.63	25
11	11	Secured zero tolerance time-frame	Denise Barnes	Fantasy	1998	35.95	10
12	12	Polarized optimal array	Destiny Scott	Non-Fiction	1989	27.43	63
13	13	Adaptive 5thgeneration orchestration	Jaclyn Miller	Romance	1913	14.04	99
14	14	Re-engineered demand-driven parallelism	Jeremy Hayes	Science Fiction	1933	6.04	95
15	15	User-friendly motivating strategy	Keith Smith	Non-Fiction	1997	23.83	58
16	16	Vision-oriented tangible project	Christopher Price	Mystery	1941	10.07	8
17	17	Reduced secondary core	Benjamin Peters	Fantasy	1966	5.37	45
18	18	Adaptive 4thgeneration concept	Hector Palmer	Non-Fiction	2021	39.47	32

Customers

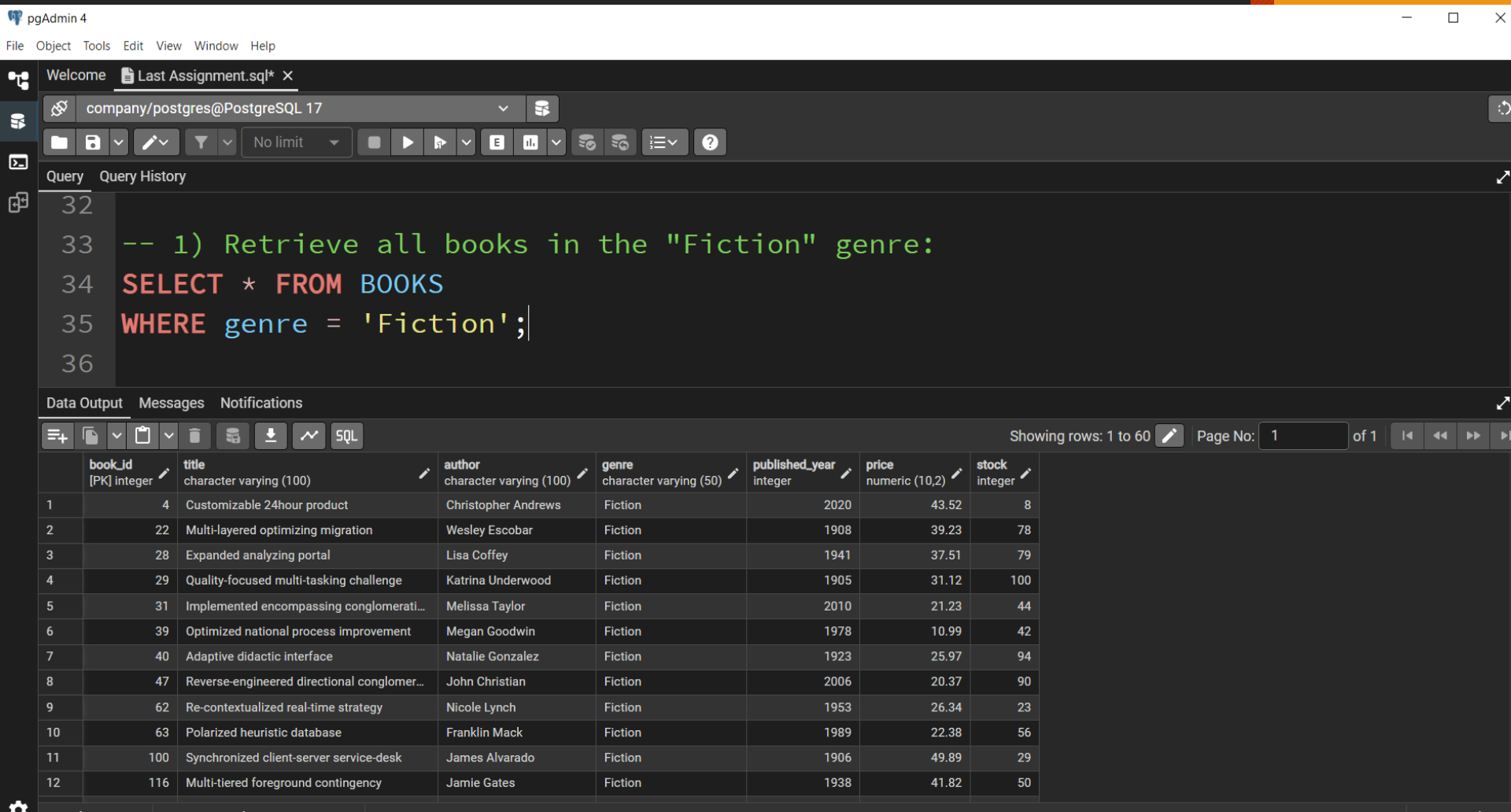


	customer_id [PK] integer	name character varying (100)	email character varying (100)	phone character varying (15)	city character varying (50)	country character varying (150)
1	1	Deborah Griffith	balljoseph@wright-keith.net	1234567891	South Craigfort	Denmark
2	2	Crystal Clements	kimberlybennett@curtis.com	1234567892	East Derekberg	Nicaragua
3	3	Susan Fuller	beanmichael@burnett-stewart.net	1234567893	Austinbury	Equatorial Guinea
4	4	Jamie Ramirez	amandahood@warren.com	1234567894	Dianamouth	Slovenia
5	5	Marcus Murphy	connerjohn@yahoo.com	1234567895	Smithbury	Guinea-Bissau
6	6	Stephen Vasquez	ricemiguel@yahoo.com	1234567896	Hamiltonstad	Rwanda
7	7	Susan Hicks	jeffrey91@yahoo.com	1234567897	East Rebecca	Montenegro
8	8	Matthew Johnson	austinkenneth@manning.net	1234567898	Kirstenborough	Israel
9	9	Matthew Williams	jeffrey41@diaz.com	1234567899	Rebeccafurt	Somalia
10	10	Ronald Osborn	staciekelley@heath.com	1234567900	Lake Benjamin	Cameroon
11	11	Thomas Garcia	rmiller@gmail.com	1234567901	West Monicabury	Argentina
12	12	Jennifer Murray	wilsonbrittany@hotmail.com	1234567902	South Ashleychester	Zimbabwe
13	13	Kristine Kim	sarahwilliams@hotmail.com	1234567903	Lake Robert	Nigeria
14	14	John Wood	johnsonalexander@gmail.com	1234567904	Richardsonville	New Caledonia
15	15	Vanessa Gaines	tbullock@gmail.com	1234567905	Rodriguezmouth	Wallis and Futuna
16	16	Stacey Flores	jackjackson@hotmail.com	1234567906	East Michaelfurt	Saint Helena
17	17	Christine Maldonado	ztaylor@yahoo.com	1234567907	Smithborough	Chile
18	18	David Watson	laurenlawson@alvarez-mcfarland.com	1234567908	New Josephtown	Equatorial Guinea
19	19	Marc Nash	joshua59@gmail.com	1234567909	Davidton	French Guiana

Orders

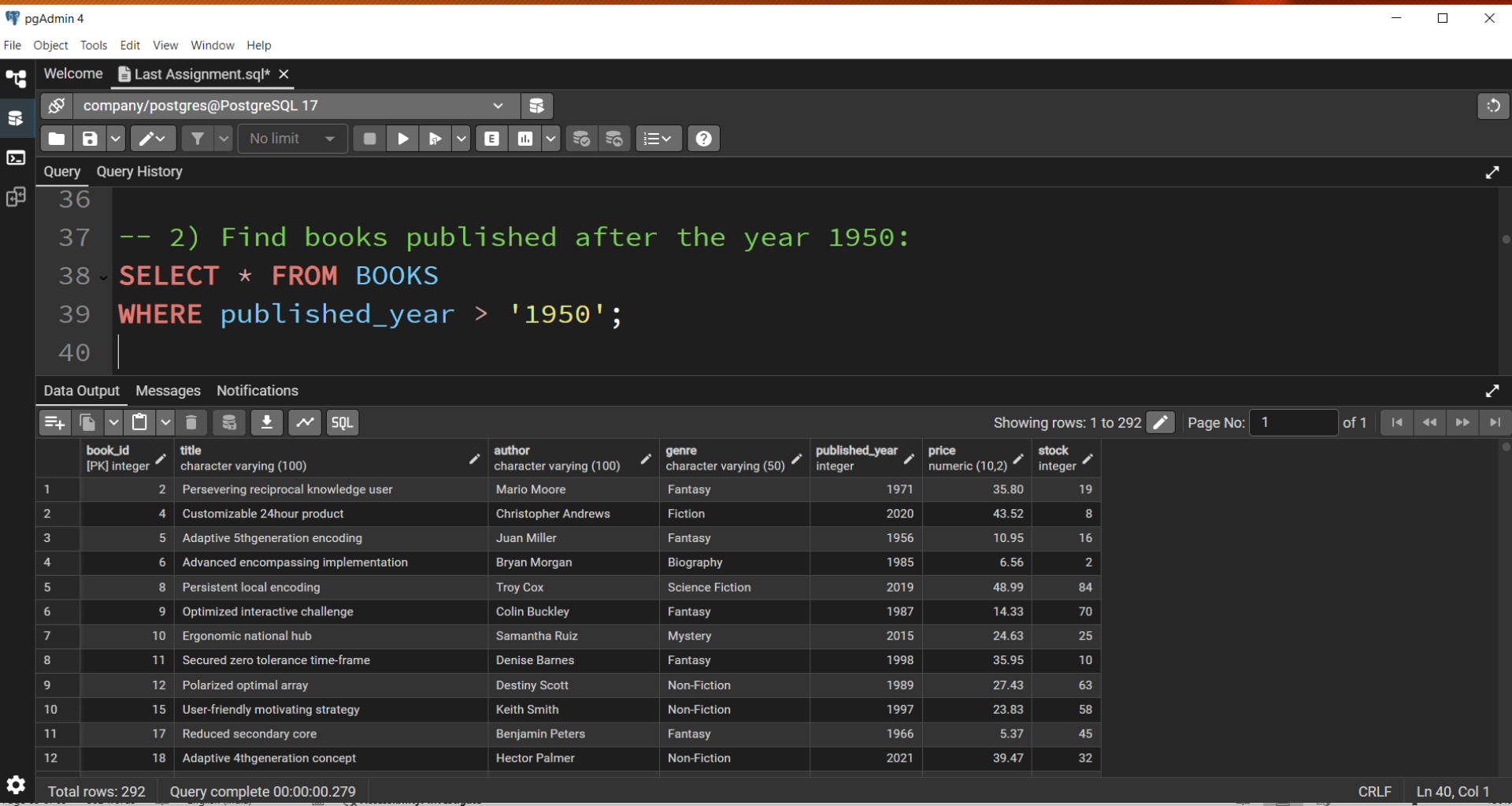

pgAdmin 4
File Object Tools Edit View Window Help
Welcome
Last Assignment.sql*
company/postgres@PostgreSQL 17
No limit
Query
Query History
141
SELECT * FROM Orders;
Data Output
Messages
Notifications
SQL
Showing rows: 1 to 500
Page No:
order_id [PK] integer
customer_id integer
book_id integer
order_date date
quantity integer
total_amount numeric (10,2)
1 1 84 169 2023-05-26 8 188.56
2 2 137 301 2023-01-23 10 216.60
3 3 216 261 2024-05-27 6 85.50
4 4 433 343 2023-11-25 7 301.21
5 5 14 431 2023-07-26 7 136.36
6 6 439 119 2024-10-11 5 249.40
7 7 195 467 2023-10-23 6 82.92
8 8 32 159 2024-05-07 4 144.84
9 9 109 407 2024-01-04 9 379.71
10 10 94 122 2024-07-09 4 123.00
11 11 131 206 2023-10-16 1 38.01
12 12 454 3 2024-06-17 2 31.50
13 13 420 180 2023-06-08 5 125.45
14 14 454 319 2023-08-24 2 85.22
15 15 127 479 2023-01-10 6 229.62
16 16 412 196 2023-10-06 8 53.52
17 17 462 481 2023-03-20 5 52.75
18 18 377 101 2024-08-07 4 193.96
19 19 496 60 2023-11-17 9 316.26
Total rows: 500
Query complete 00:00:00.241
Type here to search
100%
Lightning nearby

Retrieve all books in the “Fiction”

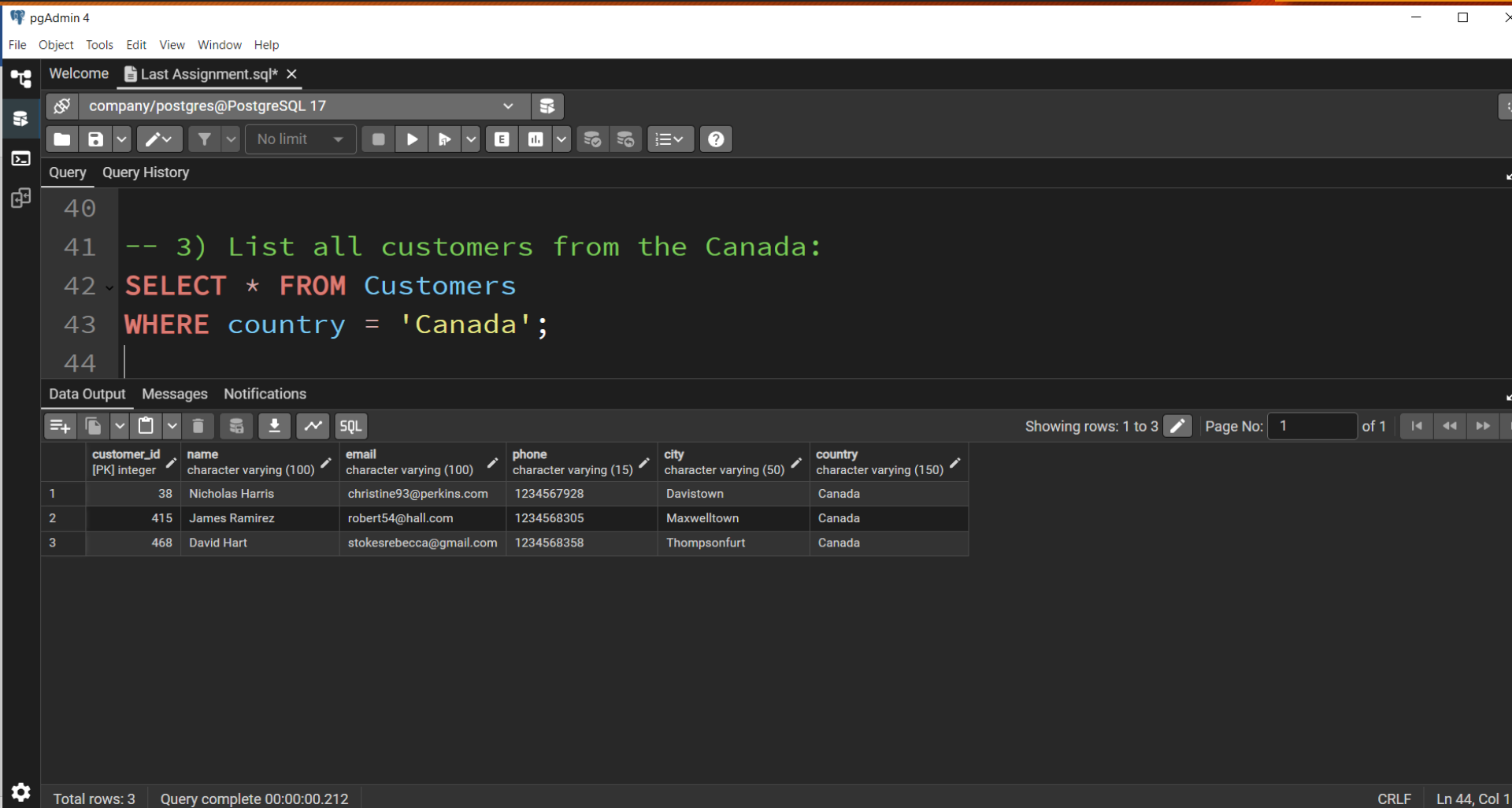


	book_id [PK] integer	title character varying (100)	author character varying (100)	genre character varying (50)	published_year integer	price numeric (10,2)	stock integer
1	4	Customizable 24hour product	Christopher Andrews	Fiction	2020	43.52	8
2	22	Multi-layered optimizing migration	Wesley Escobar	Fiction	1908	39.23	78
3	28	Expanded analyzing portal	Lisa Coffey	Fiction	1941	37.51	79
4	29	Quality-focused multi-tasking challenge	Katrina Underwood	Fiction	1905	31.12	100
5	31	Implemented encompassing conglomerati...	Melissa Taylor	Fiction	2010	21.23	44
6	39	Optimized national process improvement	Megan Goodwin	Fiction	1978	10.99	42
7	40	Adaptive didactic interface	Natalie Gonzalez	Fiction	1923	25.97	94
8	47	Reverse-engineered directional conglomer...	John Christian	Fiction	2006	20.37	90
9	62	Re-contextualized real-time strategy	Nicole Lynch	Fiction	1953	26.34	23
10	63	Polarized heuristic database	Franklin Mack	Fiction	1989	22.38	56
11	100	Synchronized client-server service-desk	James Alvarado	Fiction	1906	49.89	29
12	116	Multi-tiered foreground contingency	Jamie Gates	Fiction	1938	41.82	50

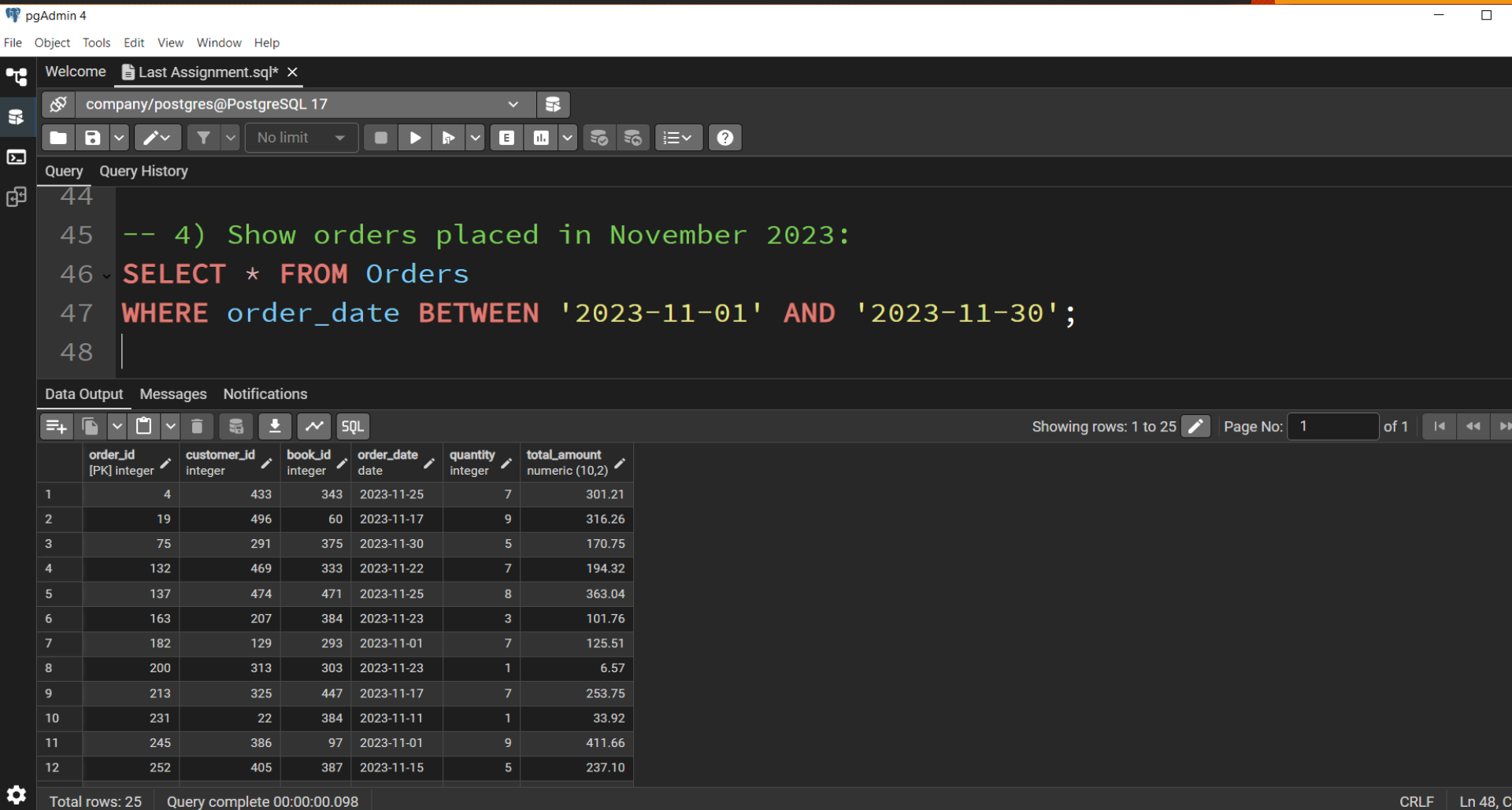
Find books published after the year 1950:



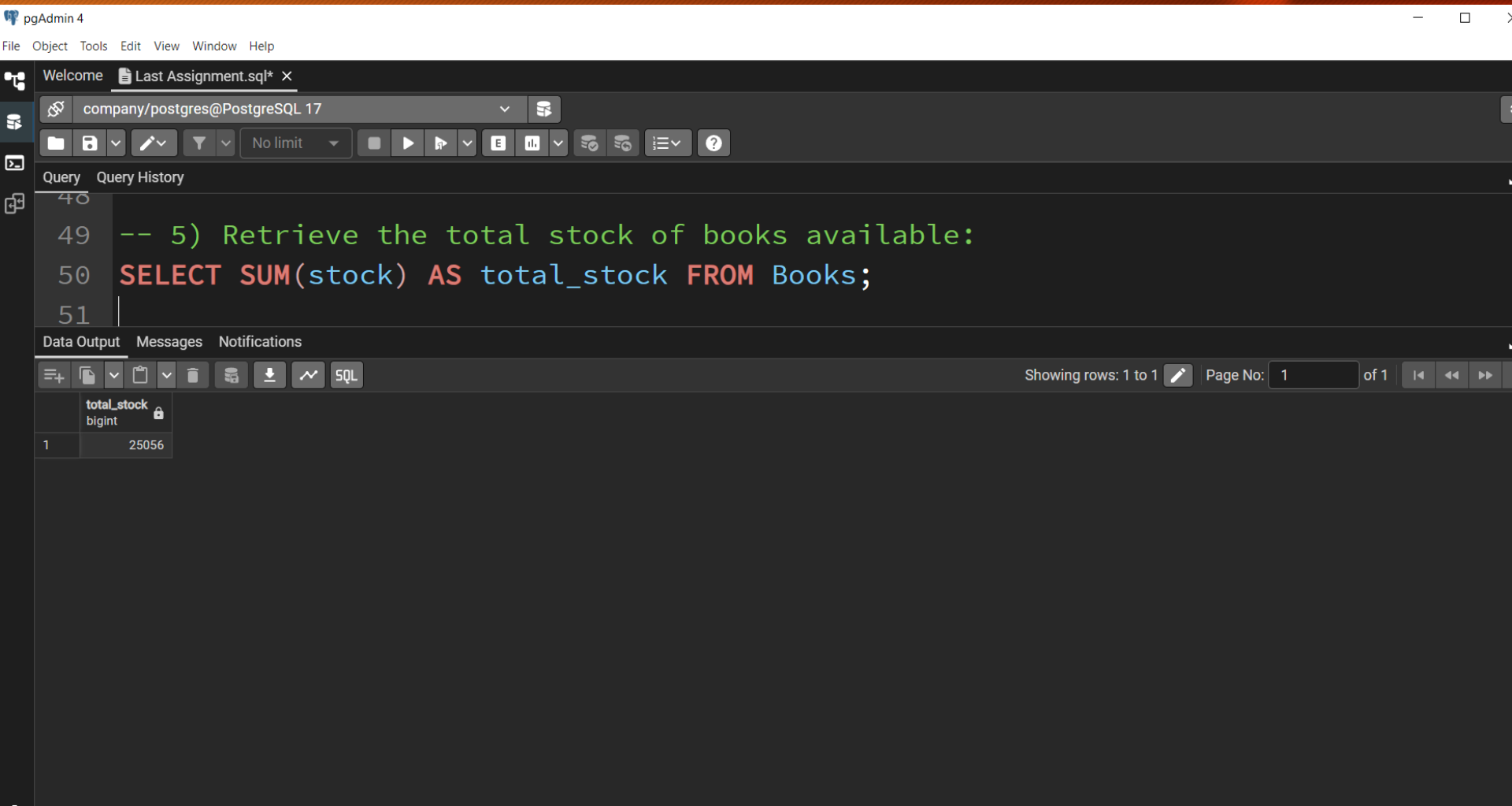
List all customers from the Canada:



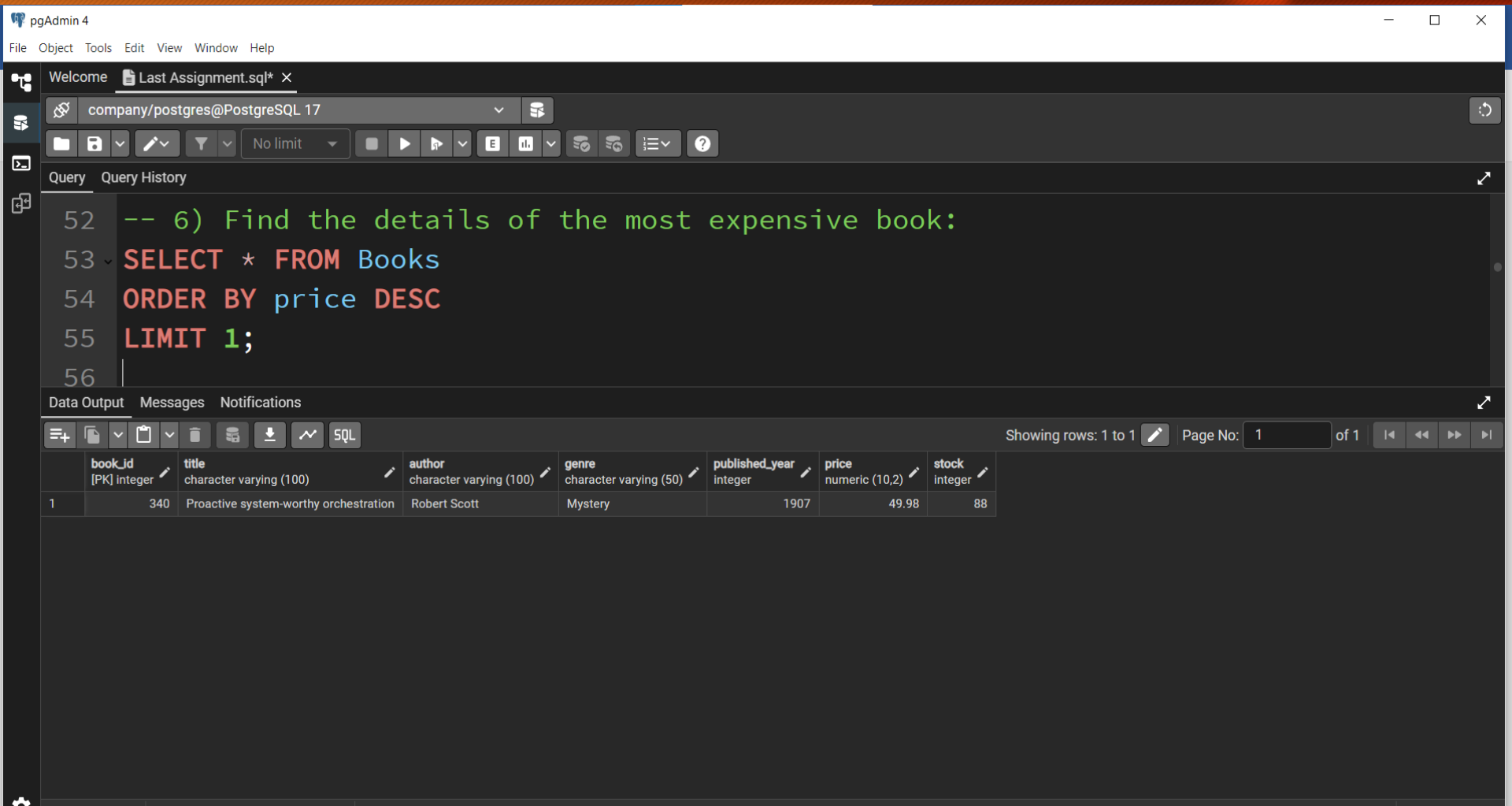
Show orders placed in November 2023:



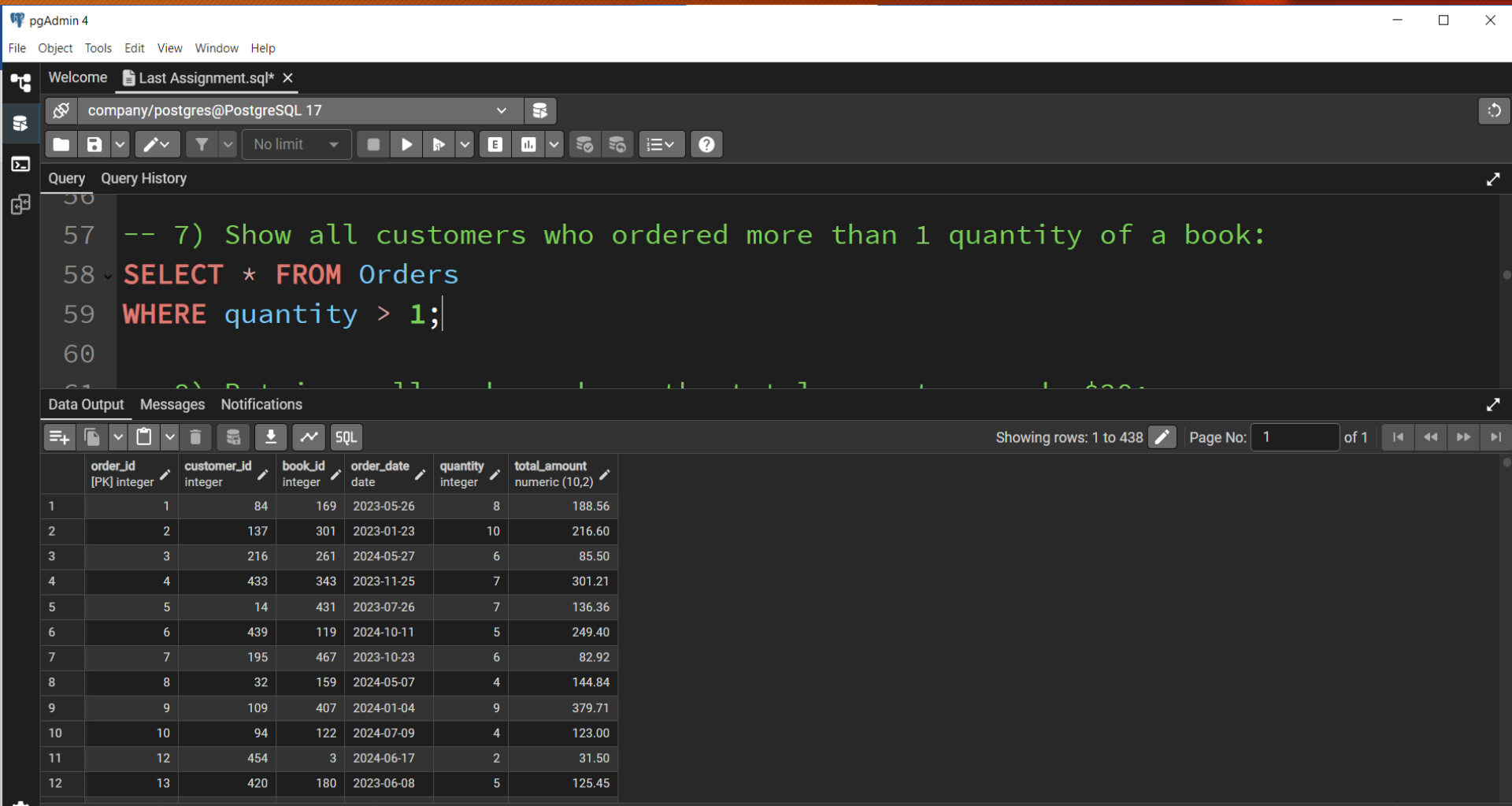
Retrieve the total stock of books available:



Find the details of the most expensive book:

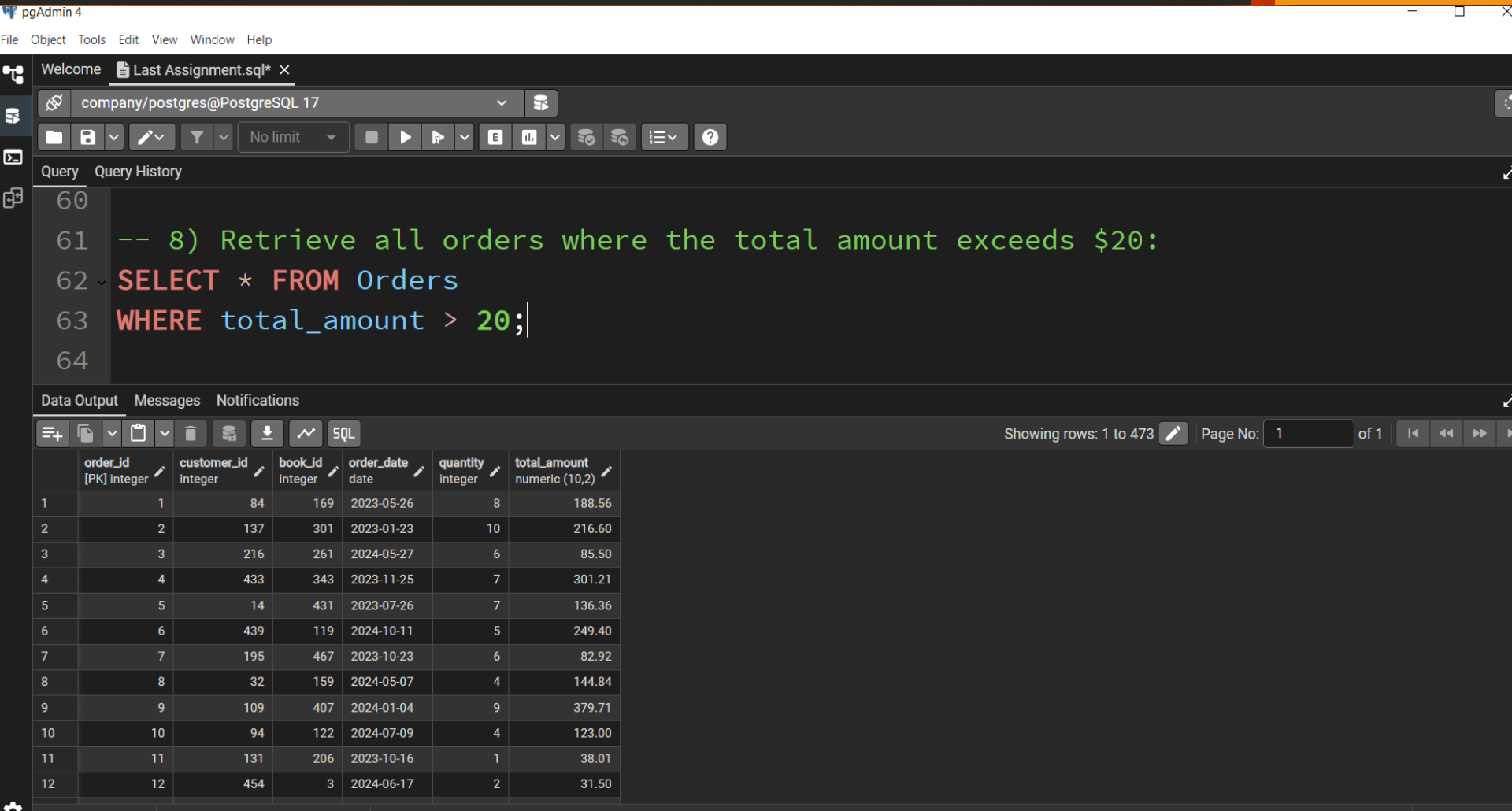


Show all Customers who ordered more than 1 quantity of a book:



	order_id [PK] integer	customer_id integer	book_id integer	order_date date	quantity integer	total_amount numeric (10,2)
1	1	84	169	2023-05-26	8	188.56
2	2	137	301	2023-01-23	10	216.60
3	3	216	261	2024-05-27	6	85.50
4	4	433	343	2023-11-25	7	301.21
5	5	14	431	2023-07-26	7	136.36
6	6	439	119	2024-10-11	5	249.40
7	7	195	467	2023-10-23	6	82.92
8	8	32	159	2024-05-07	4	144.84
9	9	109	407	2024-01-04	9	379.71
10	10	94	122	2024-07-09	4	123.00
11	12	454	3	2024-06-17	2	31.50
12	13	420	180	2023-06-08	5	125.45

Retrieve all orders where the total amount exceeds $20



	order_id [PK] integer	customer_id integer	book_id integer	order_date date	quantity integer	total_amount numeric (10,2)
1	1	84	169	2023-05-26	8	188.56
2	2	137	301	2023-01-23	10	216.60
3	3	216	261	2024-05-27	6	85.50
4	4	433	343	2023-11-25	7	301.21
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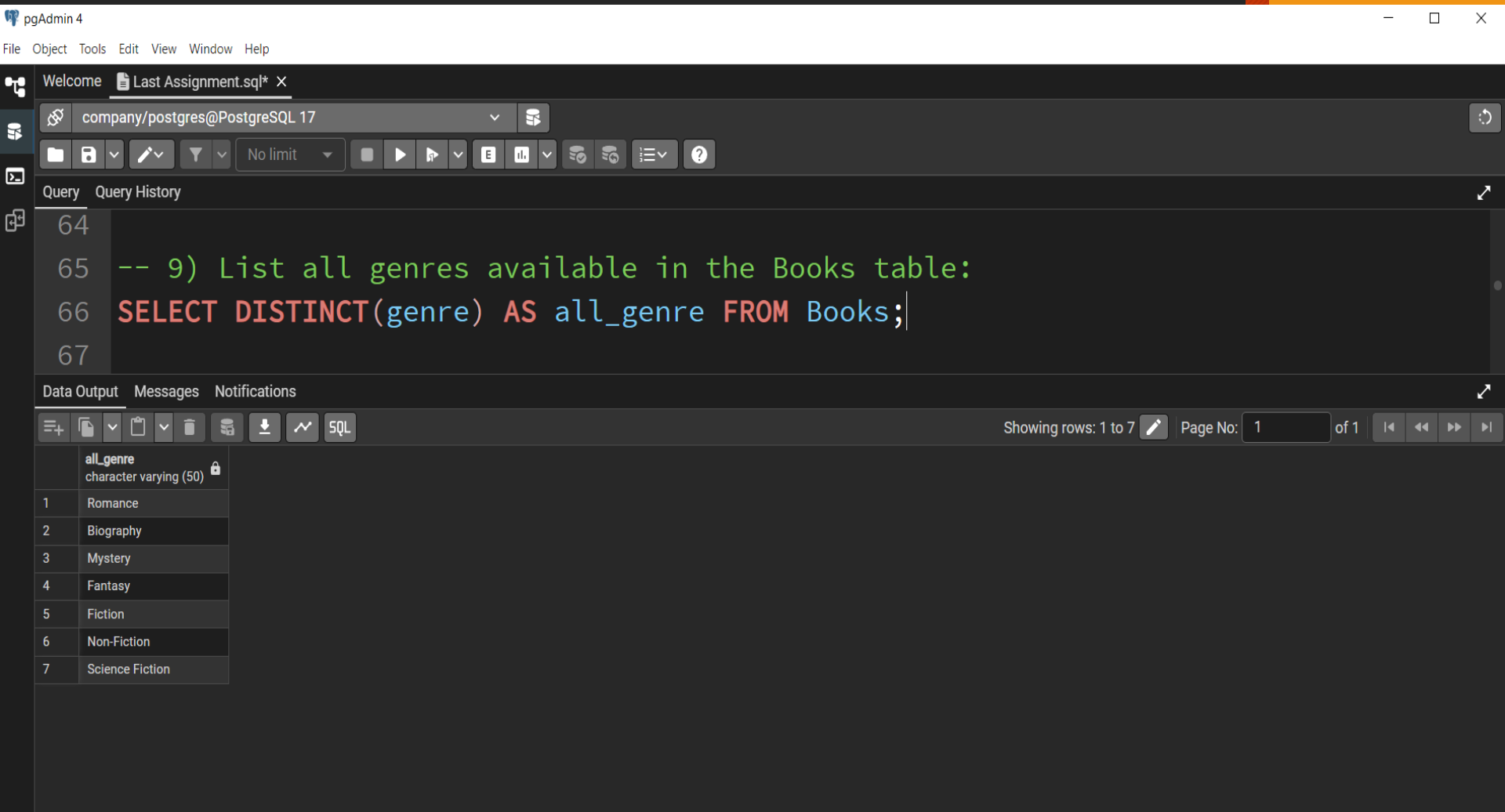
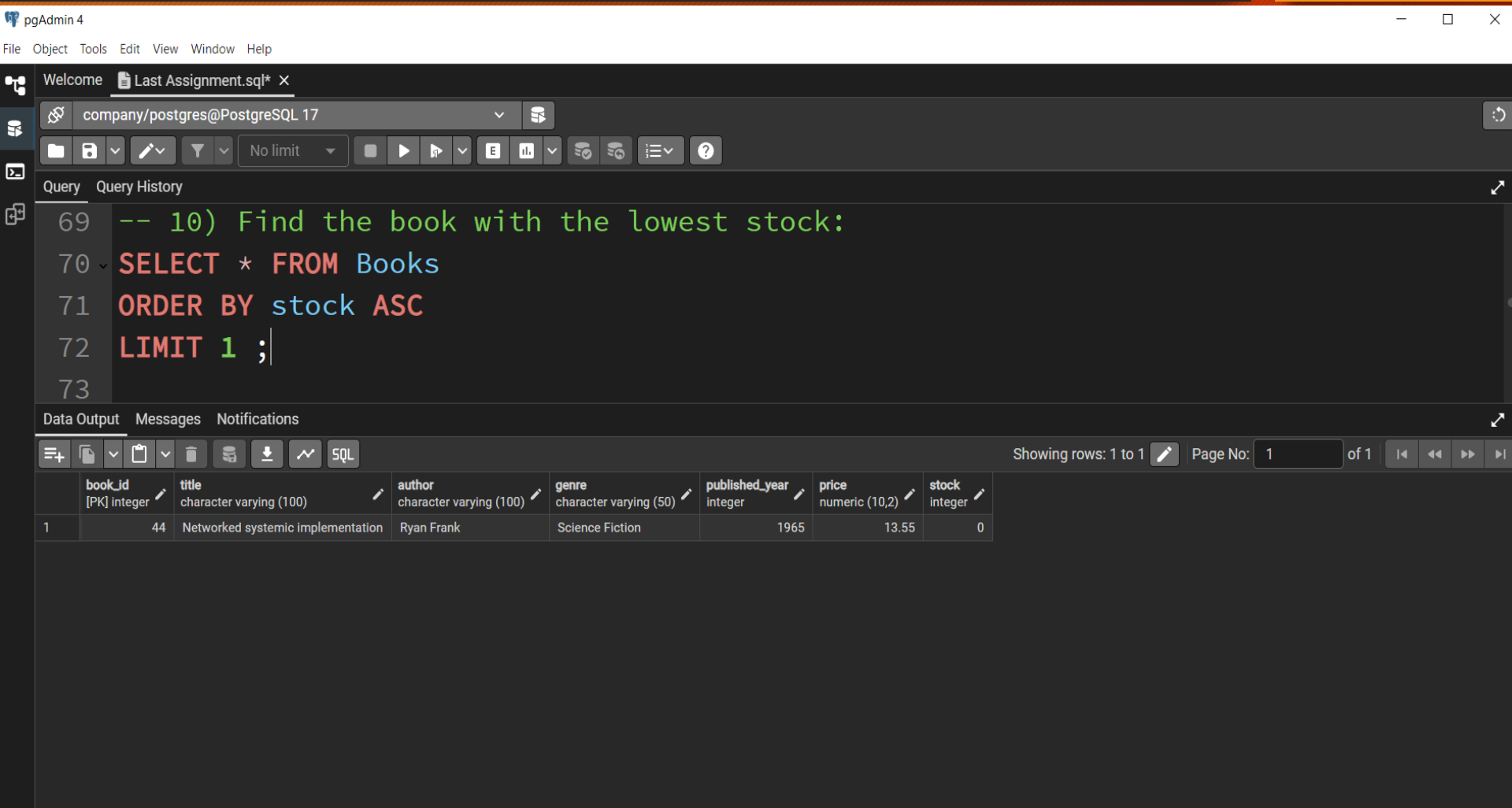
6	6	439	119	2024-10-11	5	249.40
7	7	195	467	2023-10-23	6	82.92
8	8	32	159	2024-05-07	4	144.84
9	9	109	407	2024-01-04	9	379.71
10	10	94	122	2024-07-09	4	123.00
11	11	131	206	2023-10-16	1	38.01
12	12	454	3	2024-06-17	2	31.50

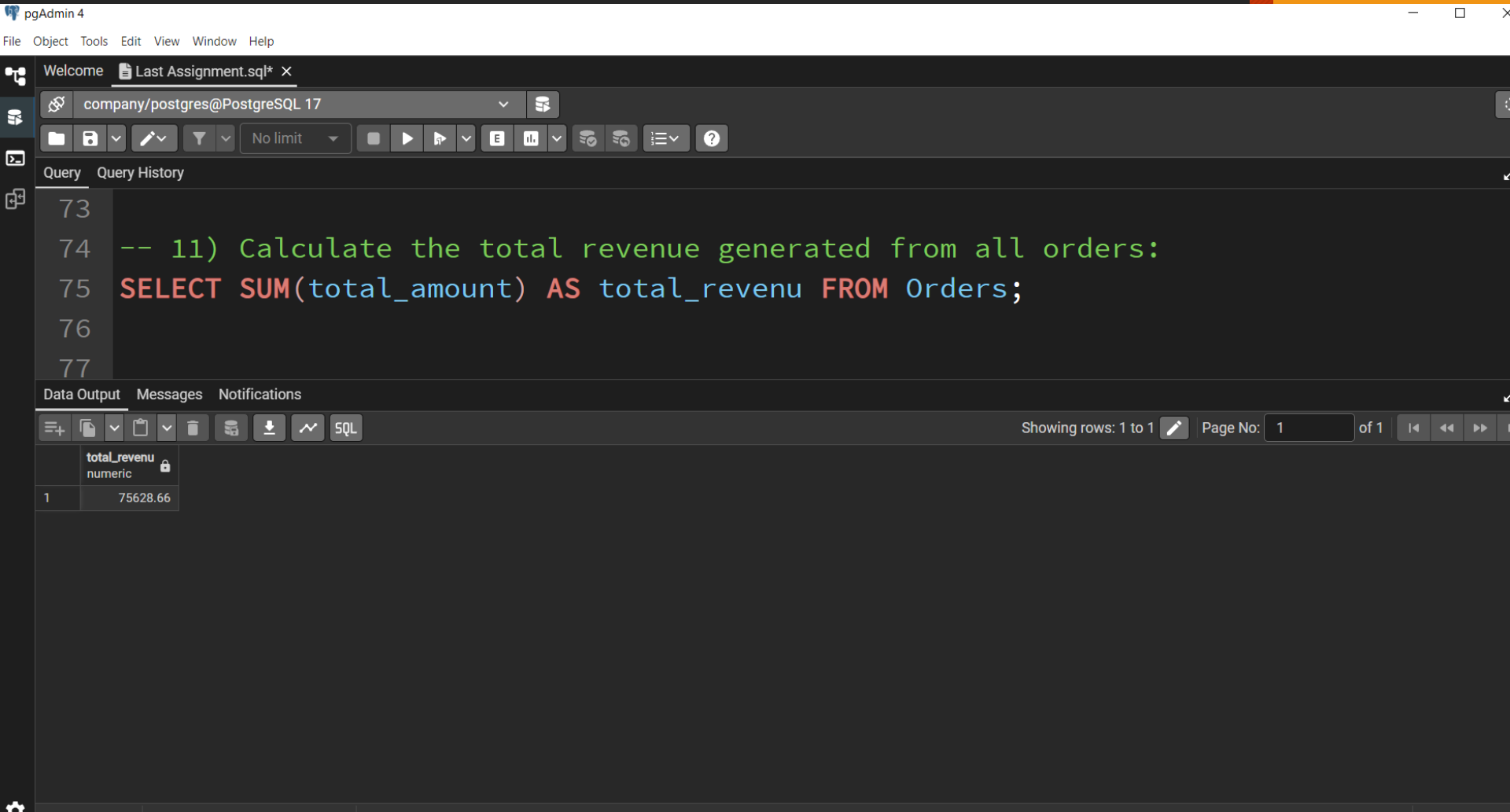
List all genres available in the Books table:



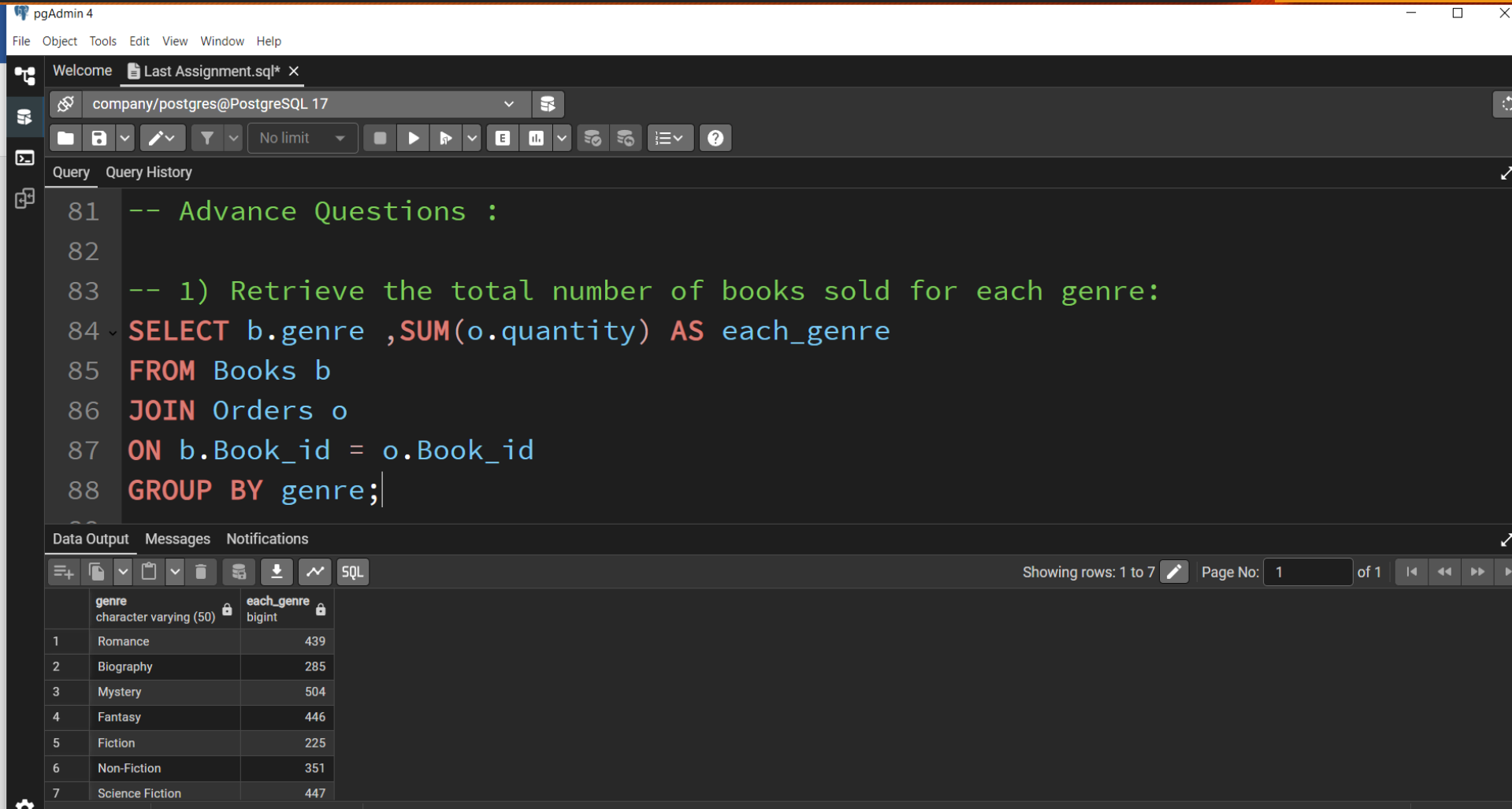
Find the book with the lowest stock:



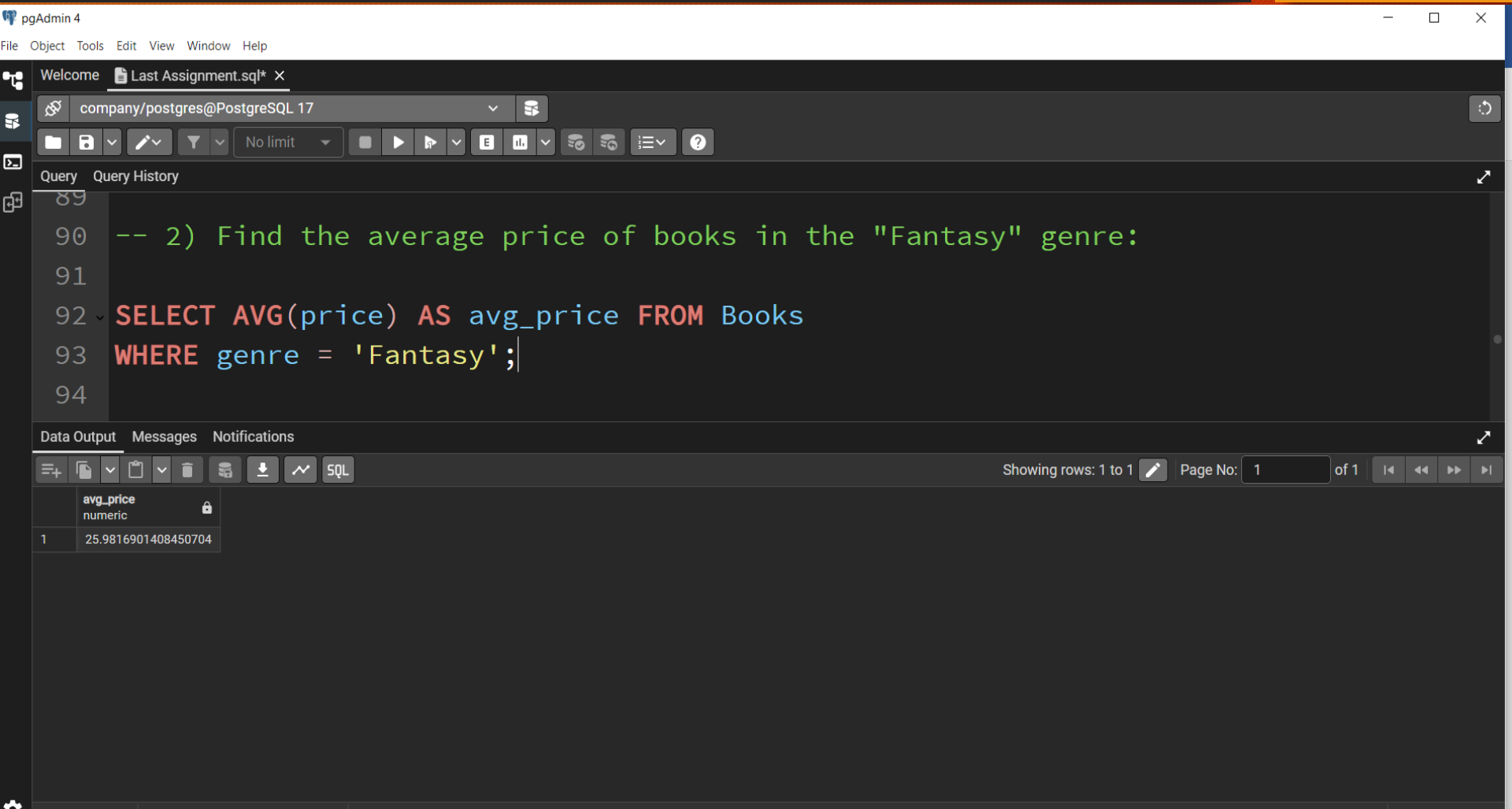
Calculate the total revenue generated from all orders:



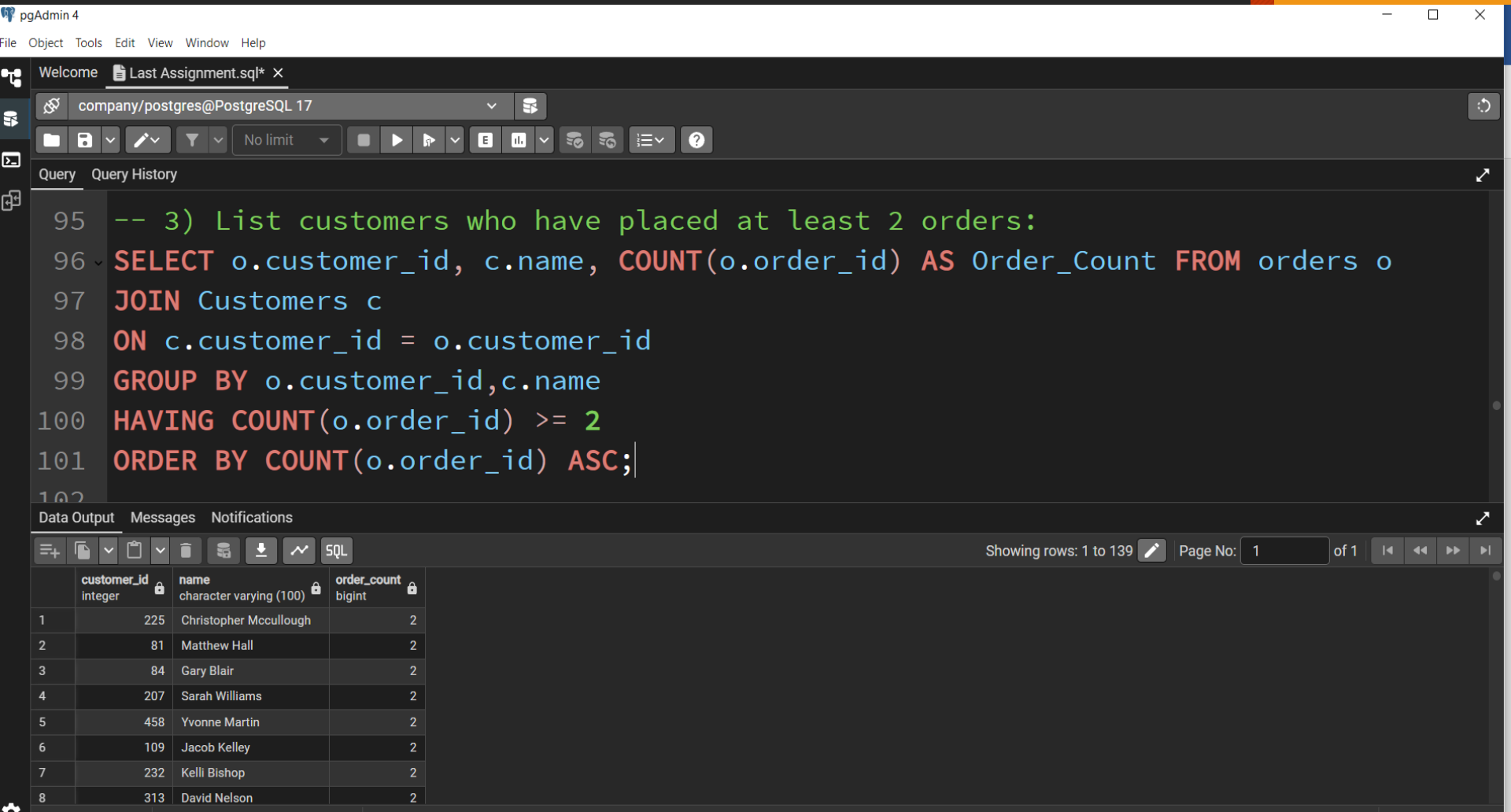
Retrieve the total number of books sold for each genre:



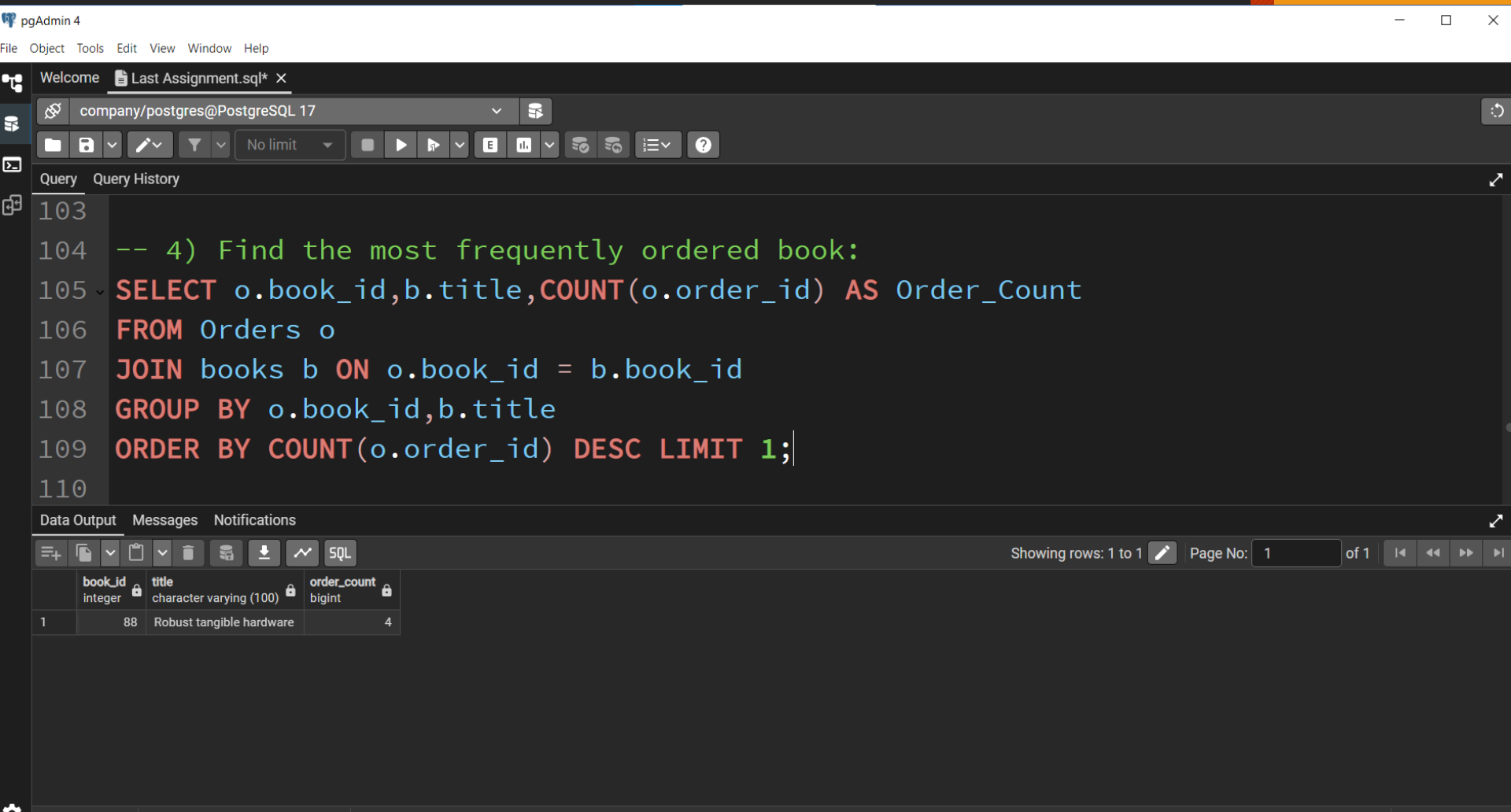
Find the average price of books in the “Fantasy” genre:



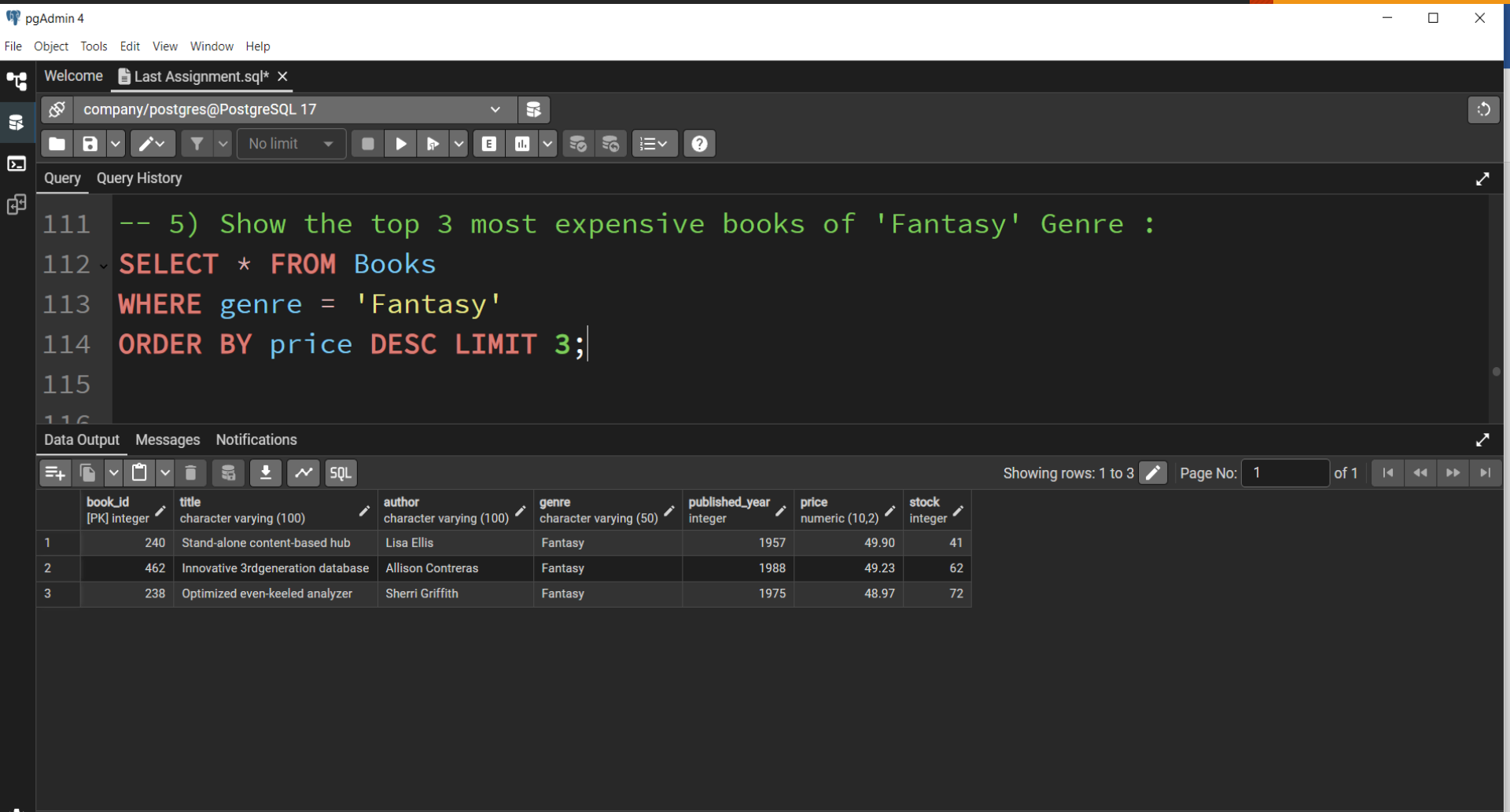
List customers who have placed at least 2 orders:



Find the most frequently ordered book:

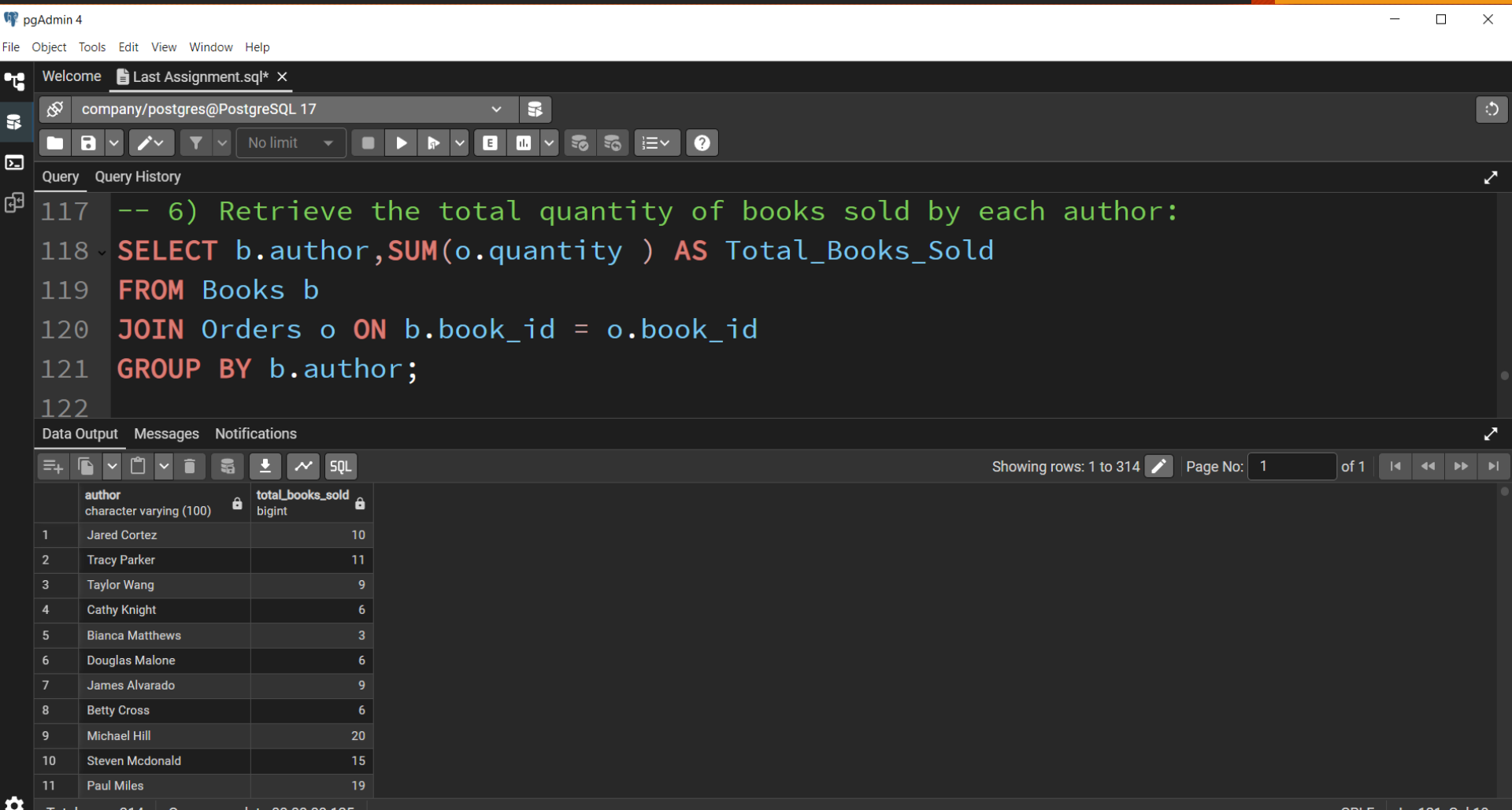


Show the top 3 most expensive books of ‘Fantasy’ Genge:



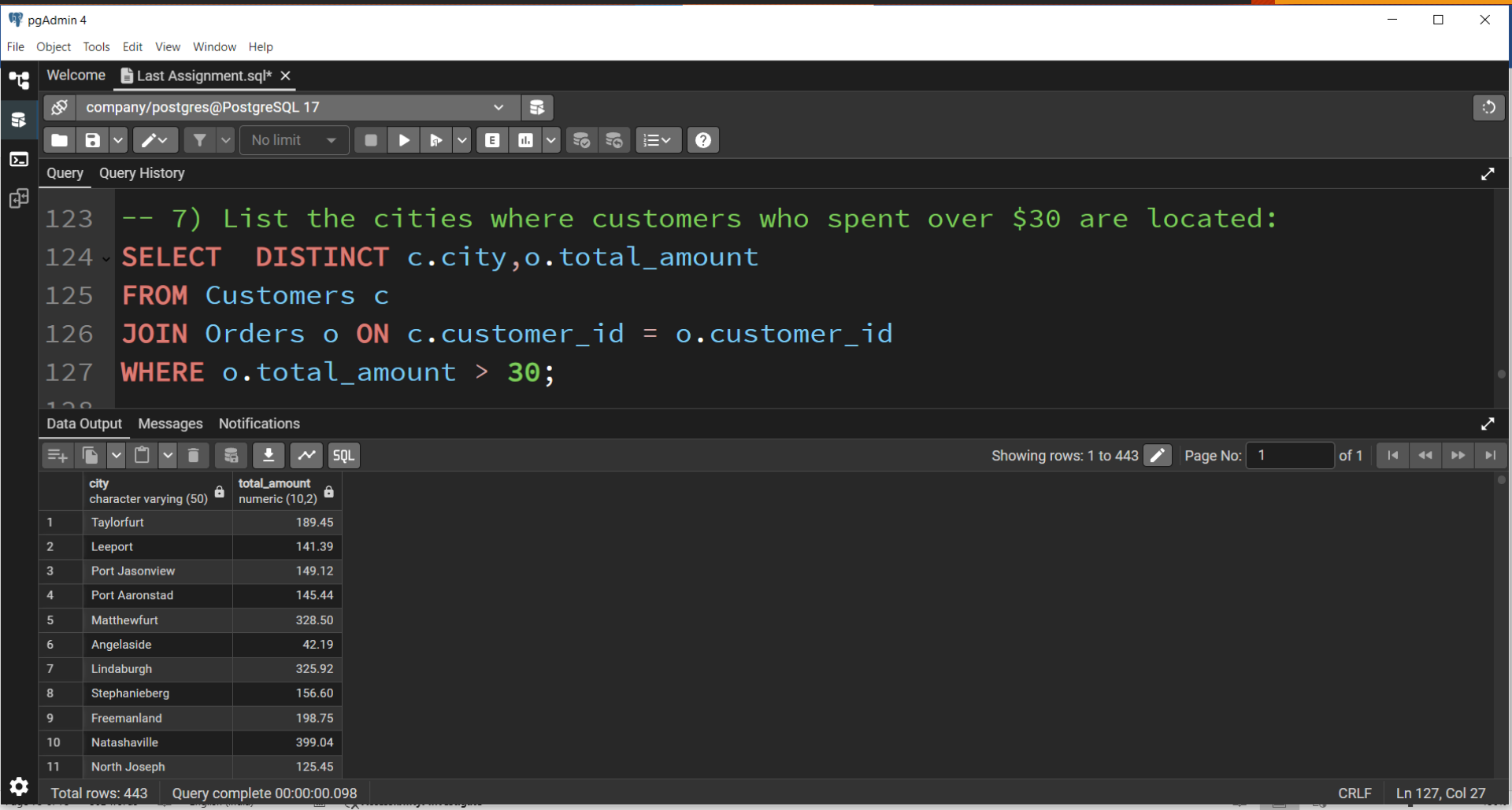
	book_id [PK] integer	title character varying (100)	author character varying (100)	genre character varying (50)	published_year integer	price numeric (10,2)	stock integer
1	240	Stand-alone content-based hub	Lisa Ellis	Fantasy	1957	49.90	41
2	462	Innovative 3rdgeneration database	Allison Contreras	Fantasy	1988	49.23	62
3	238	Optimized even-keeled analyzer	Sherri Griffith	Fantasy	1975	48.97	72

Retrieve the total quantity of books sold by each author:

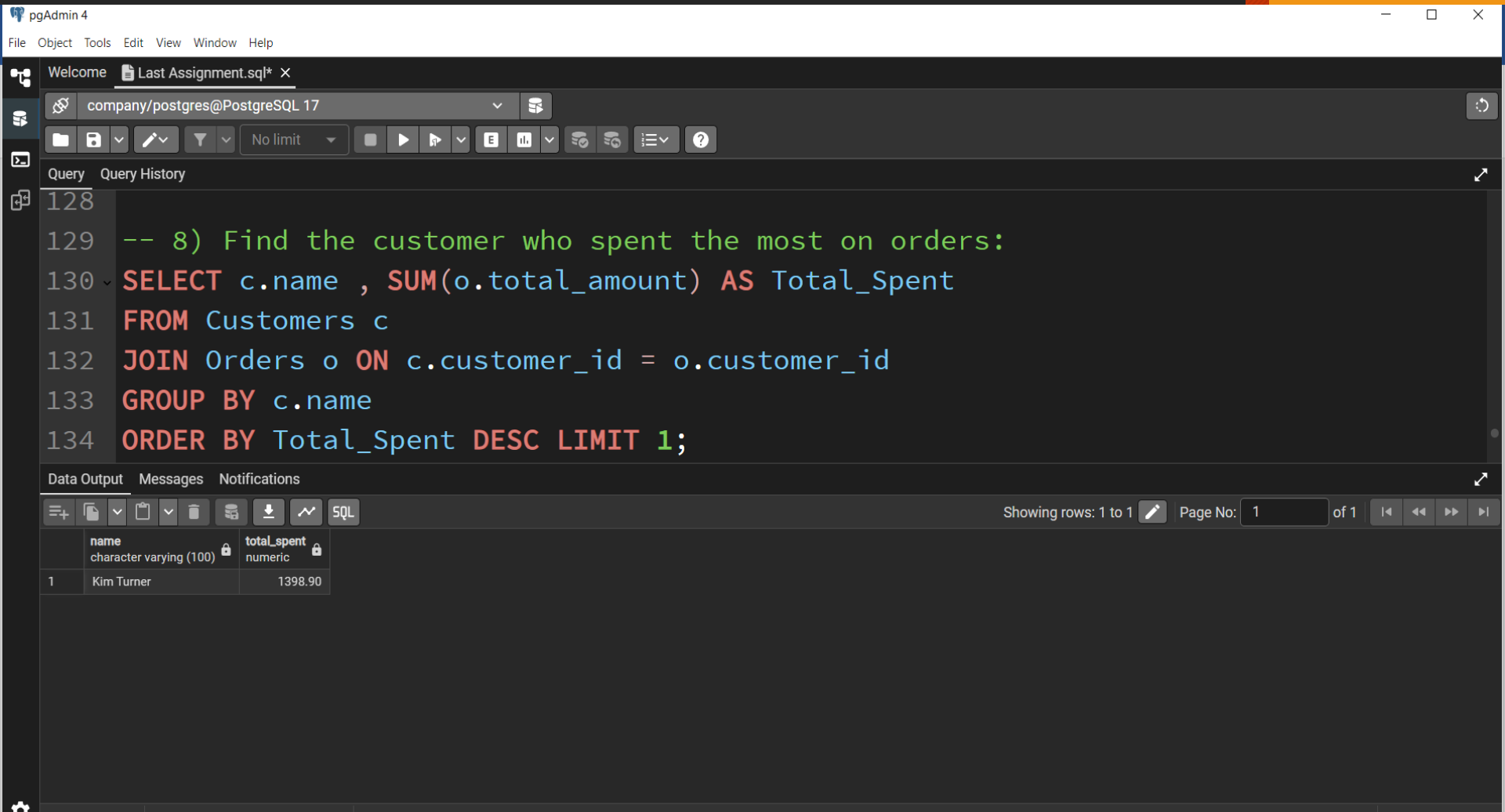


	author character varying (100)	total_books_sold bigint
1	Jared Cortez	10
2	Tracy Parker	11
3	Taylor Wang	9
4	Cathy Knight	6
5	Bianca Matthews	3
6	Douglas Malone	6
7	James Alvarado	9
8	Betty Cross	6
9	Michael Hill	20
10	Steven Mcdonald	15
11	Paul Miles	19

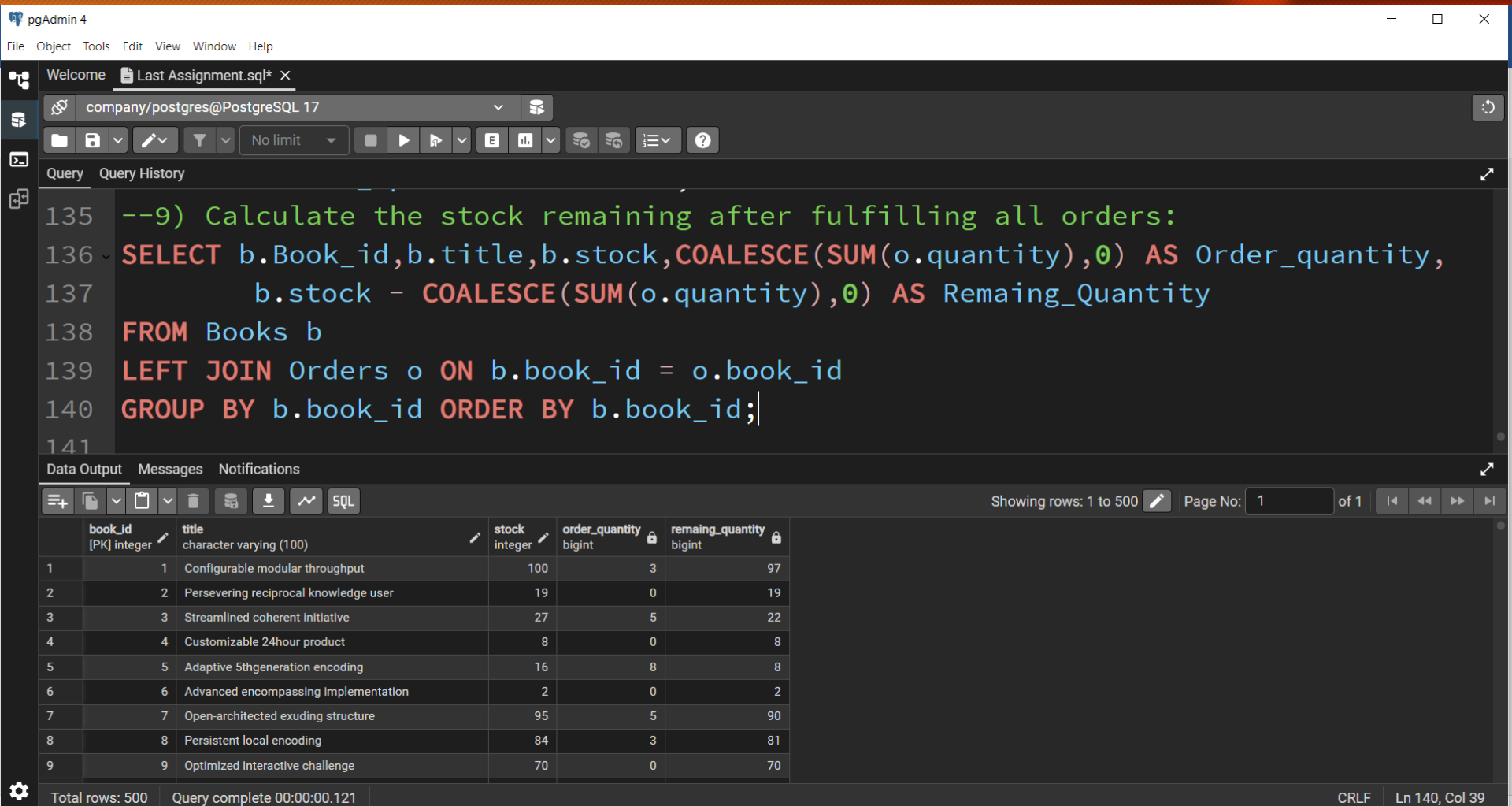
List the cities where customers who spent over $30 are located:



Find the customer who spent the most on orders:



Calculate the stock remaining after fulfilling all orders:



ADVANTAGE

- It improves practical SQL skills by applying queries to real-world hospital data.
- Helps in understanding how data-driven decisions can be made in healthcare.
- Strengthens knowledge of joins, grouping, filtering, and date functions.
- Builds confidence in solving business problems through structured queries.

THANK YOU