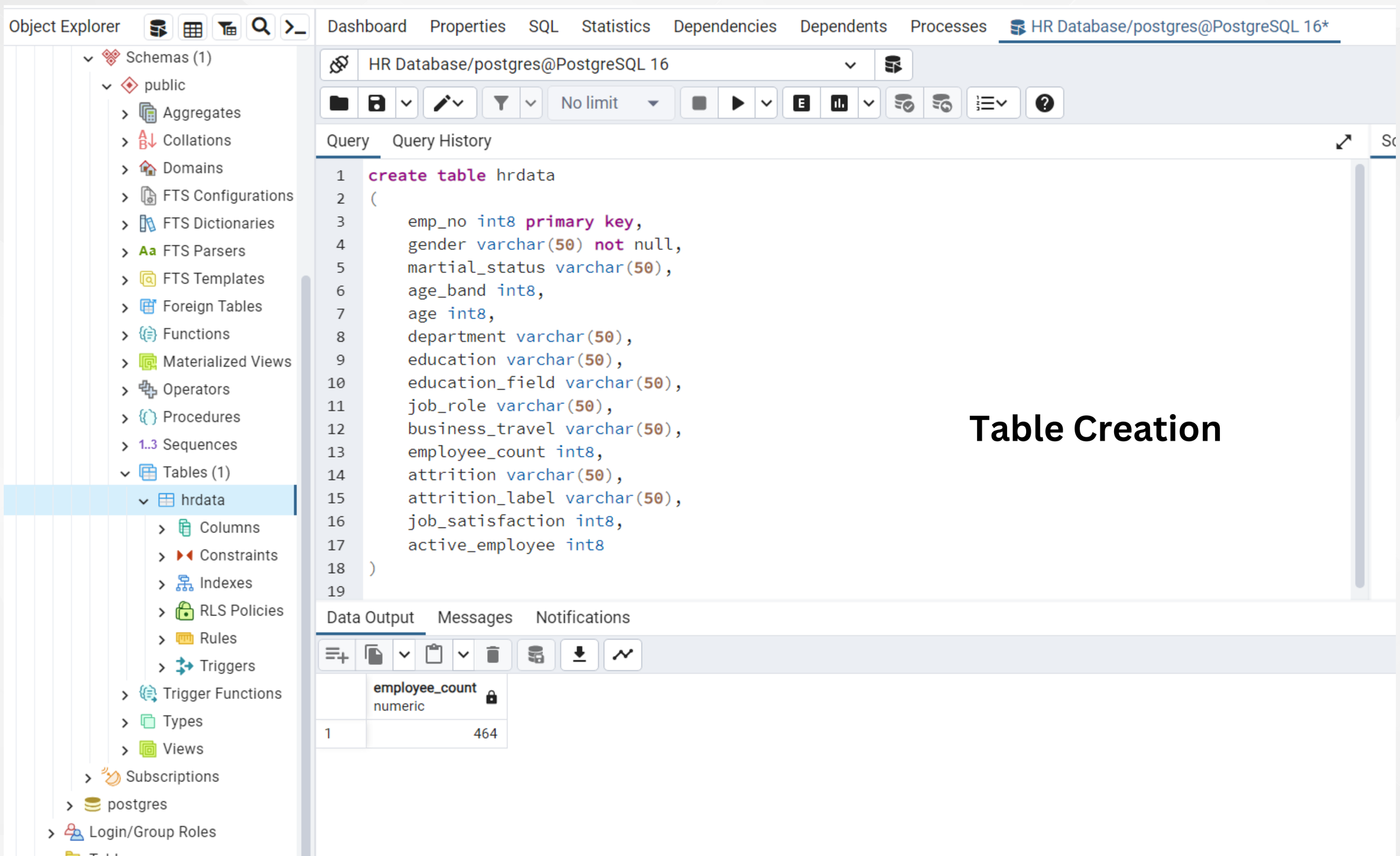
SQL
HR DATA ANALYSIS

PostgreSQL


Object Explorer
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Schemas (1)
public
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Login/Group Roles
HR Database/postgres@PostgreSQL 16
No limit
Query
Query History
1 create table hrdata
2 (
3 emp_no int8 primary key,
4 gender varchar(50) not null,
5 martial_status varchar(50),
6 age_band int8,
7 age int8,
8 department varchar(50),
9 education varchar(50),
10 education_field varchar(50),
11 job_role varchar(50),
12 business_travel varchar(50),
13 employee_count int8,
14 attrition varchar(50),
15 attrition_label varchar(50),
16 job_satisfaction int8,
17 active_employee int8
18)
19
Table Creation
Data Output
Messages
Notifications
employee_count
numeric
1
464

pgAdmin 4

File Object Tools Help

Object Explorer

Dashboard Properties SQL Statistics Dependencies Dependents Processes HR Database/postgres@PostgreSQL 16*

HR Database/postgres@PostgreSQL 16

No limit

Query Query History

```
1  select * from hrdata
```

Scratch Pad

Data Output Messages Notifications

- Schemas (1)
  - public
    - Aggregates
    - Collations
    - Domains
    - FTS Configurations
    - FTS Dictionaries
    - FTS Parsers
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    - Foreign Tables
    - Functions
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    - Operators
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    - Tables (1)
      - hrdata
        - Columns
        - Constraints
        - Indexes
        - RLS Policies
        - Rules
        - Triggers
    - Trigger Functions
    - Types
    - Views
  - Subscriptions
- postgres
- Login/Group Roles

	emp_no [PK] bigint	gender character varying (50)	marital_status character varying (50)	age_band character varying (50)	age bigint	department character varying (50)	education character varying (50)	education_field character varying (50)	job_role character varying (50
1	10001	Female	Single	35 - 44	41	Sales	Associates Degree	Life Sciences	Sales Executive
2	10002	Male	Married	45 - 54	49	R&D	High School	Life Sciences	Research Scientist
3	10003	Male	Single	35 - 44	37	R&D	Associates Degree	Other	Laboratory Technicia
4	10004	Female	Married	25 - 34	33	R&D	Master's Degree	Life Sciences	Research Scientist
5	10005	Male	Married	25 - 34	27	R&D	High School	Medical	Laboratory Technicia
6	10006	Male	Single	25 - 34	32	R&D	Associates Degree	Life Sciences	Laboratory Technicia
7	10007	Female	Married	Over 55	59	R&D	Bachelor's Degree	Medical	Laboratory Technicia
8	10008	Male	Divorced	25 - 34	30	R&D	High School	Life Sciences	Laboratory Technicia
9	10009	Male	Single	35 - 44	38	R&D	Bachelor's Degree	Life Sciences	Manufacturing Direc
10	10010	Male	Married	35 - 44	36	R&D	Bachelor's Degree	Medical	Healthcare Represer
11	10011	Male	Married	35 - 44	35	R&D	Bachelor's Degree	Medical	Laboratory Technicia
12	10012	Female	Single	25 - 34	29	R&D	Associates Degree	Life Sciences	Laboratory Technicia
13	10013	Male	Divorced	25 - 34	31	R&D	High School	Life Sciences	Research Scientist
14	10014	Male	Divorced	25 - 34	34	R&D	Associates Degree	Medical	Laboratory Technicia
15	10015	Male	Single	25 - 34	28	R&D	Bachelor's Degree	Life Sciences	Laboratory Technicia
16	10016	Female	Divorced	25 - 34	29	R&D	Master's Degree	Life Sciences	Manufacturing Direc
17	10017	Male	Divorced	25 - 34	32	R&D	Associates Degree	Life Sciences	Research Scientist
18	10018	Male	Divorced	Under 25	22	R&D	Associates Degree	Medical	Laboratory Technicia

Employee Count

Query | Query History

```
1  select * from hrdata
2
3  select sum(employee_count) from hrdata
```

Data Output | Messages | Notifications

	sum numeric
1	1470

Employee Count by Education

```
3  select sum(employee_count) from hrdata
4  where education = 'High School'
```

Data Output | Messages | Notifications

	sum numeric
1	170

Employee Count by Department

```
3  select sum(employee_count) from hrdata
4  --where education = 'High School'
5  where department = 'Sales'
```

ata Output | Messages | Notifications

	sum numeric
	446

```
3  select sum(employee_count) from hrdata
4  --where education = 'High School'
5  where department = 'R&D'
```

ata Output | Messages | Notifications

	sum numeric
	961

Employee Count by Education field

```
3  select sum(employee_count) as Employee_Count from hrdata
4  --where education = 'High School'
5  --where department = 'R&D'
6  where education_field = 'Medical'
```

ata Output | Messages | Notifications

employee_count numeric	
	464

Attrition

```
3  select count(attrition) from hrdata where attrition='Yes';
```

Data Output | Messages | Notifications

count bigint	
	237

Attrition count by Education

```
3  select count(attrition) from hrdata where attrition='Yes'
4  and education = 'Doctoral Degree'
```

Data Output | Messages | Notifications

	count bigint
1	5

Attrition count by Department

```
3  select count(attrition) from hrdata where attrition='Yes'
4  and department = 'R&D'
```

Data Output | Messages | Notifications

	count bigint
1	133

Attrition count by Education field and Department

```
3  select count(attrition) from hrdata where attrition='Yes'
4  and department = 'R&D'
5  and education_field = 'Medical'
```

Data Output | Messages | Notifications

	count bigint
1	47

Attrition count by Education field , Department and Education

```
3  select count(attrition) from hrdata
4  where attrition='Yes'
5  and department = 'R&D'
6  and education_field = 'Medical'
7  and education = 'High School'
```

Data Output | Messages | Notifications

	count bigint
	9

Attrition rate

```
3  select round(((select count(attrition) from hrdata
4         where attrition = 'Yes')/
5         sum(employee_count))*100,2) from hrdata
```

Data Output | Messages | Notifications

	round numeric
1	16.12

```
select round(((select count(attrition) from hrdata
       where attrition = 'Yes'
              and department = 'Sales')/
       sum(employee_count))*100,2) from hrdata
       where department = 'Sales'
```

a Output | Messages | Notifications

	round numeric
1	20.63

Attrition

```
3  select sum(employee_count) -
4  (select count (attrition) from hrdata where attrition = 'Yes')
5  from hrdata
```

Data Output | Messages | Notifications

	?column? numeric
	1233

```
select sum(employee_count) -
(select count (attrition) from hrdata where attrition = 'Yes' and gender = 'Male')
from hrdata where gender = 'Male'
```

Output | Messages | Notifications

?column? numeric
732

Average Age

```
3  select round(avg(age),0) as Avg_Age from hrdata
```

Data Output | Messages | Notifications

	avg_age numeric
1	37

Gender

```
1  select gender, count(attrition) from hrdata
2  where attrition = 'Yes'
3  group by gender
```

Data Output | Messages | Notifications

	gender character varying (50)	count bigint
	Female	87
	Male	150

Attrition

```sql
select gender, count(attrition) from hrdata
where attrition = 'Yes' and education = 'High School'
group by gender
order by count(attrition) desc
```

Data Output | Messages | Notifications

	gender character varying (50)	count bigint
1	Male	20
2	Female	11

```sql
select department, count(attrition) from hrdata
where attrition = 'Yes'
group by department
```

Output | Messages | Notifications

department character varying (50)	count bigint
HR	12
Sales	92
R&D	133

Attrition rate by department

Query | Query History

```sql
SELECT department,
       COUNT(attrition) as attrition_count,
       round((CAST(COUNT(attrition) AS numeric) /
        (SELECT COUNT(attrition) FROM hrdata WHERE attrition = 'Yes')) * 100,2) as attrition_percentag
FROM hrdata
WHERE attrition = 'Yes'
GROUP BY department
ORDER BY attrition_count DESC;
```

Data Output | Messages | Notifications

	department character varying (50)	attrition_count bigint	attrition_percentage numeric
1	R&D	133	56.12
2	Sales	92	38.82
3	HR	12	5.06

Attrition rate by department and gender

Query | Query History

```sql
SELECT department,
       COUNT(attrition) as attrition_count,
       round((CAST(COUNT(attrition) AS numeric) /
        (SELECT COUNT(attrition) FROM hrdata WHERE attrition = 'Yes' and gender = 'Female')) * 100,2) as attrition_perc
FROM hrdata
WHERE attrition = 'Yes' and gender = 'Female'
GROUP BY department
ORDER BY attrition_count DESC;
```

Data Output | Messages | Notifications

	department character varying (50)	attrition_count bigint	attrition_percentage numeric
1	R&D	43	49.43
2	Sales	38	43.68
3	HR	6	6.90

Age Histogram

Dashboard Properties SQL Statistics Dependencies Dep

HR Database/postgres@PostgreSQL 16

No limit

Query Query History

```
1  select age, sum(employee_count) from hrdata
2  where department = 'R&D'
3  group by age
4  order by age
5
```

Data Output Messages Notifications

	age bigint	sum numeric
1	18	5
2	19	5
3	20	6
4	21	7
5	22	16
6	23	11
7	24	17
8	25	11
9	26	26
10	27	33
11	28	34
12	29	46
13	30	37
14	31	40
15	32	39
16	33	35

Attrition Count by Education Field

Query Query History

```
1  select education_field, count(attrition) from hrdata
2  where attrition = 'Yes'
3  group by education_field
4  order by count(attrition) desc
5
```

Data Output Messages Notifications

	education_field character varying (50)	count bigint
1	Life Sciences	89
2	Medical	63
3	Marketing	35
4	Technical Degree	32
5	Other	11
6	Human Resources	7

Attrition Count by department and Education Field

Query | Query History

```
1  select education_field, count(attrition) from hrdata
2  where attrition = 'Yes' and department = 'Sales'
3  group by education_field
4  order by count(attrition) desc
5
```

Data Output | Messages | Notifications

	education_field character varying (50)	count bigint
1	Marketing	35
2	Life Sciences	29
3	Medical	14
4	Technical Degree	10
5	Other	4

Attrition Count by age band and Gender

Dashboard | Properties | SQL | Statistics | Dependencies | Dependents

HR Database/postgres@PostgreSQL 16

No limit

Query | Query History

```
1  select age_band,gender, count(attrition) from hrdata
2  where attrition = 'Yes'
3  group by age_band,gender
4  order by age_band,gender
5
```

Data Output | Messages | Notifications

	age_band character varying (50)	gender character varying (50)	count bigint
1	25 - 34	Female	43
2	25 - 34	Male	69
3	35 - 44	Female	14
4	35 - 44	Male	37
5	45 - 54	Female	9
6	45 - 54	Male	16
7	Over 55	Female	3
8	Over 55	Male	8
9	Under 25	Female	18
10	Under 25	Male	20

Attrition Rate by age band and Gender

Query | Query History

```sql
SELECT age_band,
       gender,
       COUNT(attrition) as attrition_count,
       round ((CAST(COUNT(attrition) AS numeric) /
        (SELECT COUNT(attrition) FROM hrdata WHERE attrition = 'Yes')) * 100,2) as attrition_percentage
FROM hrdata
WHERE attrition = 'Yes'
GROUP BY age_band, gender
ORDER BY age_band, gender
```

Data Output | Messages | Notifications

	age_band character varying (50)	gender character varying (50)	attrition_count bigint	attrition_percentage numeric
1	25 - 34	Female	43	18.14
2	25 - 34	Male	69	29.11
3	35 - 44	Female	14	5.91
4	35 - 44	Male	37	15.61
5	45 - 54	Female	9	3.80
6	45 - 54	Male	16	6.75
7	Over 55	Female	3	1.27
8	Over 55	Male	8	3.38
9	Under 25	Female	18	7.59
10	Under 25	Male	20	8.44

Job Satisfaction Rating

Query | Query History

```sql
SELECT *
FROM crosstab(
  'SELECT job_role, job_satisfaction, sum(employee_count)
   FROM hrdata
   GROUP BY job_role, job_satisfaction
   ORDER BY job_role, job_satisfaction'
    ) AS ct(job_role varchar(50), one numeric, two numeric, three numeric, four numeric)
ORDER BY job_role;
```

Data Output | Messages | Notifications

	job_role character varying (50)	one numeric	two numeric	three numeric	four numeric
1	Healthcare Representative	26	19	43	43
2	Human Resources	10	16	13	13
3	Laboratory Technician	56	48	75	80
4	Manager	21	21	27	33
5	Manufacturing Director	26	32	49	38
6	Research Director	15	16	27	22
7	Research Scientist	54	53	90	95
8	Sales Executive	69	54	91	112
9	Sales Representative	12	21	27	23

Employee Count by Age Group and Gender

Query | Query History

```
1  select age_band, gender, sum(employee_count) from hrdata
2  group by age_band, gender
3  order by age_band, gender desc
```

Data Output | Messages | Notifications

	age_band character varying (50)	gender character varying (50)	sum numeric
1	25 - 34	Male	337
2	25 - 34	Female	217
3	35 - 44	Male	309
4	35 - 44	Female	196
5	45 - 54	Male	132
6	45 - 54	Female	113
7	Over 55	Male	44
8	Over 55	Female	25
9	Under 25	Male	60
10	Under 25	Female	37

THANK YOU