Homework step 1

Diagrams Text

departments

-

dept_no varchar(10) PK

dept_name" varchar(100)   NOT NULL,

last_updated timestamp

dept_emp

-

id serial PK

emp_no int FK >- employees.emp_no

dept_no varchar(10) FK >- departments.dept_no

last_updated timestamp

dept_manager

-

id serial PK

dept_no varchar(10) FK >- departments.dept_no

emp_no int FK >- employees.emp_no

last_updated timestamp

employees

-

emp_no int PK

emp_title_id varchar(10) FK >- titles.title_id

birth_date date

first_name varchar(100)

last_name varchar(100)

sex varchar(50)

hire_date date

last_update timestamp

titles

-

title_id varchar(50) PK

title varchar(100)

salaries

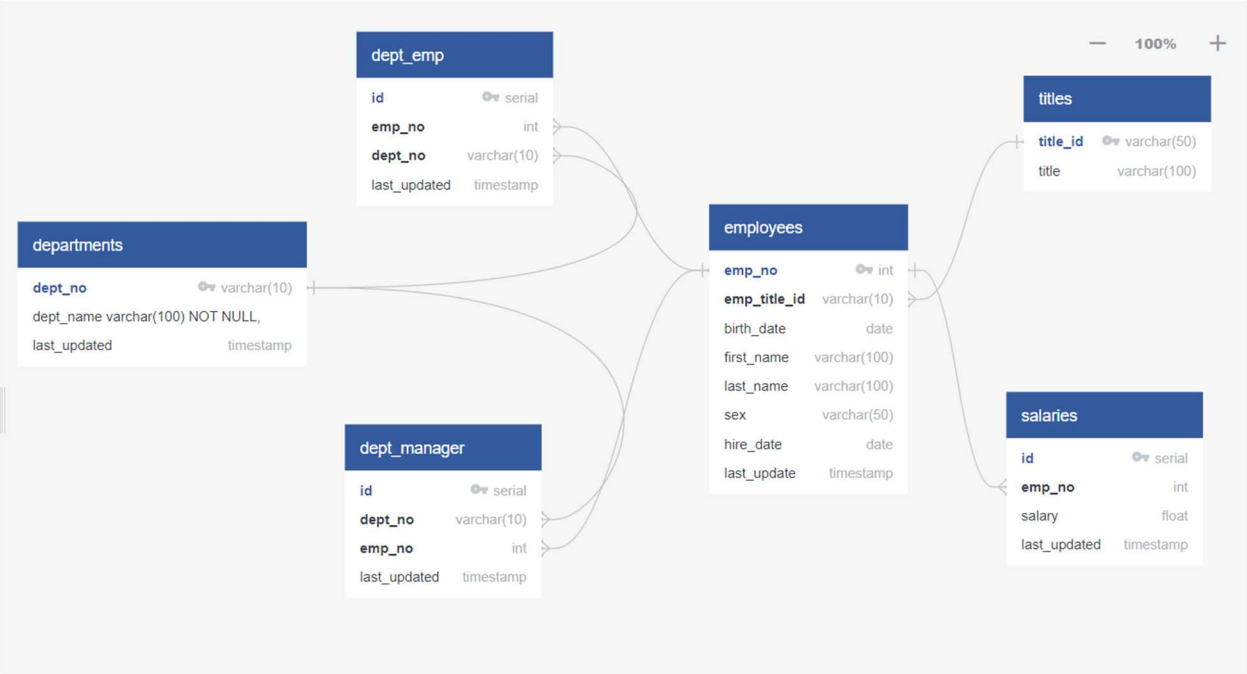
-

id serial PK

emp_no int FK >- employees.emp_no

salary float

last_updated timestamp



Step Export to pgAdmin

```
-- Exported from QuickDBD: https://www.quickdatabasediagrams.com/
-- NOTE! If you have used non-SQL datatypes in your design, you will have to change these here.


CREATE TABLE "departments" (
    "dept_no" varchar(10)   NOT NULL,
    "dept_name" varchar(100)   NOT NULL,
    "last_updated" timestamp   NOT NULL,
    CONSTRAINT "pk_departments" PRIMARY KEY (
        "dept_no"
    )
);

CREATE TABLE "dept_emp" (
    "id" serial   NOT NULL,
    "emp_no" int   NOT NULL,
    "dept_no" varchar(10)   NOT NULL,
    "last_updated" timestamp   NOT NULL,
    CONSTRAINT "pk_dept_emp" PRIMARY KEY (
        "id"
    )
);

CREATE TABLE "dept_manager" (
    "id" serial   NOT NULL,
    "dept_no" varchar(10)   NOT NULL,
    "emp_no" int   NOT NULL,
```

```
    "last_updated" timestamp   NOT NULL,
    CONSTRAINT "pk_dept_manager" PRIMARY KEY (
        "id"
    )
);

CREATE TABLE "employees" (
    "emp_no" int   NOT NULL,
    "emp_title_id" varchar(10)   NOT NULL,
    "birth_date" date   NOT NULL,
    "first_name" varchar(100)   NOT NULL,
    "last_name" varchar(100)   NOT NULL,
    "sex" varchar(50)   NOT NULL,
    "hire_date" date   NOT NULL,
    "last_update" timestamp   NOT NULL,
    CONSTRAINT "pk_employees" PRIMARY KEY (
        "emp_no"
    )
);

CREATE TABLE "titles" (
    "title_id" varchar(50)   NOT NULL,
    "title" varchar(100)   NOT NULL,
    CONSTRAINT "pk_titles" PRIMARY KEY (
        "title_id"
    )
);

CREATE TABLE "salaries" (
```

```
    "id" serial   NOT NULL,
    "emp_no" int   NOT NULL,
    "salary" float   NOT NULL,
    "last_updated" timestamp   NOT NULL,
    CONSTRAINT "pk_salaries" PRIMARY KEY (
        "id"
    )
);

ALTER TABLE "dept_emp" ADD CONSTRAINT "fk_dept_emp_emp_no" FOREIGN KEY("emp_no")
REFERENCES "employees" ("emp_no");

ALTER TABLE "dept_emp" ADD CONSTRAINT "fk_dept_emp_dept_no" FOREIGN KEY("dept_no")
REFERENCES "departments" ("dept_no");

ALTER TABLE "dept_manager" ADD CONSTRAINT "fk_dept_manager_dept_no" FOREIGN KEY("dept_no")
REFERENCES "departments" ("dept_no");

ALTER TABLE "dept_manager" ADD CONSTRAINT "fk_dept_manager_emp_no" FOREIGN KEY("emp_no")
REFERENCES "employees" ("emp_no");

ALTER TABLE "employees" ADD CONSTRAINT "fk_employees_emp_title_id" FOREIGN
KEY("emp_title_id")
REFERENCES "titles" ("title_id");

ALTER TABLE "salaries" ADD CONSTRAINT "fk_salaries_emp_no" FOREIGN KEY("emp_no")
REFERENCES "employees" ("emp_no");
```

Step 4 Codes for Questions

--List the following details of each employee: employee number, last name, first name, sex, and salary.

```
SELECT
        e.emp_no,
        e.first_name,
        e.last_name,
        e.sex,
        s.salary

FROM
        employees e
JOIN
        salaries s
ON e.emp_no = s.emp_no;
```

```
4    e.first_name,
5    e.last_name,
```

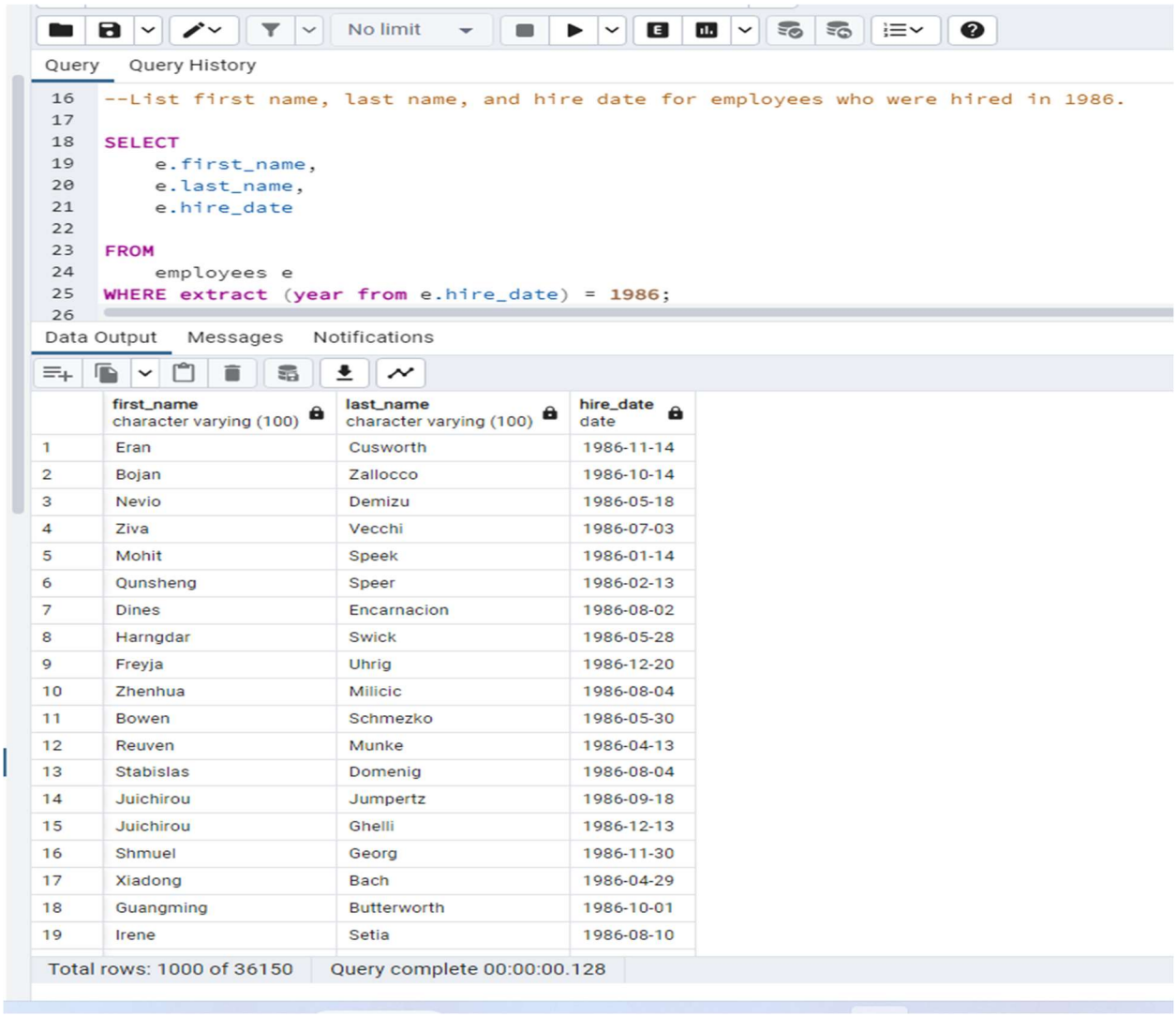
Data Output | Messages | Notifications

	emp_no integer	first_name character varying (100)	last_name character varying (100)	sex character varying (50)	salary double precision
1	10005	Kyoichi	Maliniak	M	78228
2	10010	Duangkaew	Piveteau	F	72488
3	10011	Mary	Sluis	F	42365
4	10013	Eberhardt	Terkki	M	40000
5	10017	Cristinel	Bouloucos	F	71380
6	10035	Alain	Chappelet	M	41538
7	10037	Pradeep	Makrucki	M	40000
8	10045	Moss	Shanbhogue	M	41971
9	10051	Hidefumi	Caine	M	48817
10	10058	Berhard	McFarlin	M	52787
11	10078	Danel	Mondadori	F	47280
12	10085	Kenroku	Malabarba	M	40000
13	10096	Jayson	Mandell	M	61395
14	10117	Kiyotoshi	Blokdijk	F	52284
15	10156	Sumali	Fargier	M	49879
16	10167	Duangkaew	Rassart	M	56990
17	10177	Pragnesh	Iisaka	M	48041
18	10179	Deniz	Duclos	F	40000
19	10219	Genta	Kolvik	M	40000
20	10223	Carrsten	Schmiedel	F	62922
21	10228	Karoline	Cesareni	F	79474
22	10244	Foong	Flasterstein	M	56292
23	10248	Frederique	Tempesti	F	58918
24	10250	Serap	Etalle	M	50330

Total rows: 1000 of 300024 | Query complete 00:00:00.335

--List first name, last name, and hire date for employees who were hired in 1986.

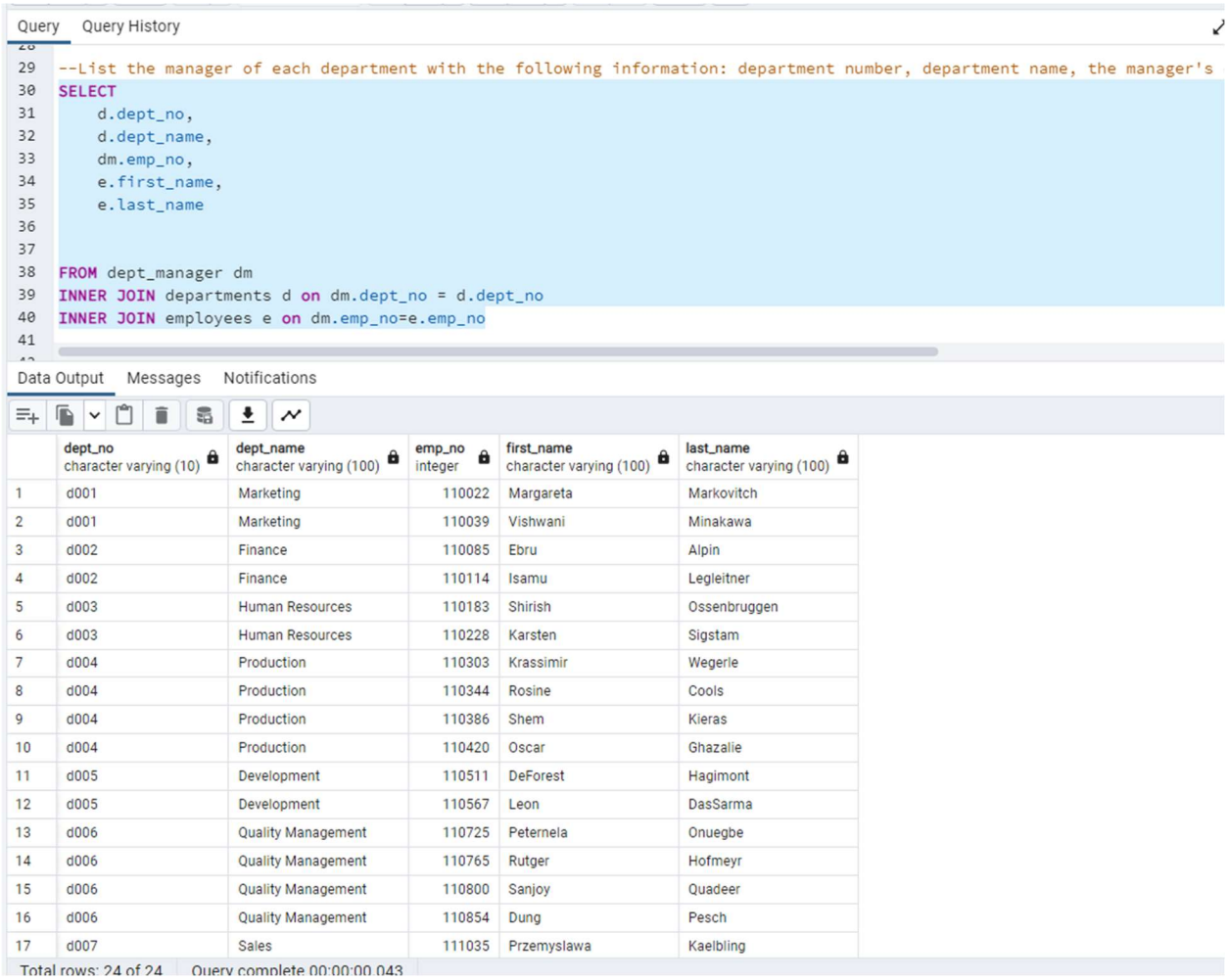
```
SELECT
        e.first_name,
        e.last_name,
        e.hire_date

FROM
        employees e
WHERE extract (year from e.hire_date) = 1986;
```



	first_name character varying (100)	last_name character varying (100)	hire_date date
1	Eran	Cusworth	1986-11-14
2	Bojan	Zallocco	1986-10-14
3	Nevio	Demizu	1986-05-18
4	Ziva	Vecchi	1986-07-03
5	Mohit	Speek	1986-01-14
6	Qunsheng	Speer	1986-02-13
7	Dines	Encarnacion	1986-08-02
8	Harngdar	Swick	1986-05-28
9	Freyja	Uhrig	1986-12-20
10	Zhenhua	Milicic	1986-08-04
11	Bowen	Schmezko	1986-05-30
12	Reuven	Munke	1986-04-13
13	Stabislas	Domenig	1986-08-04
14	Juichirou	Jumpertz	1986-09-18
15	Juichirou	Ghelli	1986-12-13
16	Shmuel	Georg	1986-11-30
17	Xiadong	Bach	1986-04-29
18	Guangming	Butterworth	1986-10-01
19	Irene	Setia	1986-08-10

--List the manager of each department with the following information: department number, department name, the manager's employee number, last name, first name.

```
SELECT
        d.dept_no,
        d.dept_name,
        dm.emp_no,
        e.first_name,
        e.last_name
FROM dept_manager dm
INNER JOIN departments d on dm.dept_no = d.dept_no
INNER JOIN employees e on dm.emp_no=e.emp_no;
```



Query | Query History

```
29  --List the manager of each department with the following information: department number, department name, the manager's
30  SELECT
31      d.dept_no,
32      d.dept_name,
33      dm.emp_no,
34      e.first_name,
35      e.last_name
36
37
38  FROM dept_manager dm
39  INNER JOIN departments d on dm.dept_no = d.dept_no
40  INNER JOIN employees e on dm.emp_no=e.emp_no
41
```

Data Output | Messages | Notifications

	dept_no character varying (10)	dept_name character varying (100)	emp_no integer	first_name character varying (100)	last_name character varying (100)
1	d001	Marketing	110022	Margareta	Markovitch
2	d001	Marketing	110039	Vishwani	Minakawa
3	d002	Finance	110085	Ebru	Alpin
4	d002	Finance	110114	Isamu	Legleitner
5	d003	Human Resources	110183	Shirish	Ossenbruggen
6	d003	Human Resources	110228	Karsten	Sigstam
7	d004	Production	110303	Krassimir	Wegerle
8	d004	Production	110344	Rosine	Cools
9	d004	Production	110386	Shem	Kieras
10	d004	Production	110420	Oscar	Ghazalie
11	d005	Development	110511	DeForest	Hagimont
12	d005	Development	110567	Leon	DasSarma
13	d006	Quality Management	110725	Peternela	Onuegbe
14	d006	Quality Management	110765	Rutger	Hofmeyr
15	d006	Quality Management	110800	Sanjoy	Quadeer
16	d006	Quality Management	110854	Dung	Pesch
17	d007	Sales	111035	Przemyslawa	Kaelbling

Total rows: 24 of 24 | Query complete 00:00:00.043

--List the department of each employee with the following information: employee number, last name, first name, and department name.

SELECT

e.emp_no,

e.first_name,

e.last_name,

d.dept_name

FROM employees e

INNER JOIN dept_emp de on e.emp_no = de.emp_no

INNER JOIN departments d on d.dept_no=de.dept_no;

```
--List the department of each employee with the following information: employee number, last name, first name, and dep

SELECT
    e.emp_no,
    e.first_name,
    e.last_name,
    d.dept_name


FROM employees e
INNER JOIN dept_emp de on e.emp_no = de.emp_no
INNER JOIN departments d on d.dept_no=de.dept_no
--List first name, last name, and sex for employees whose first name is "Hercules" and last names begin with "B."
```

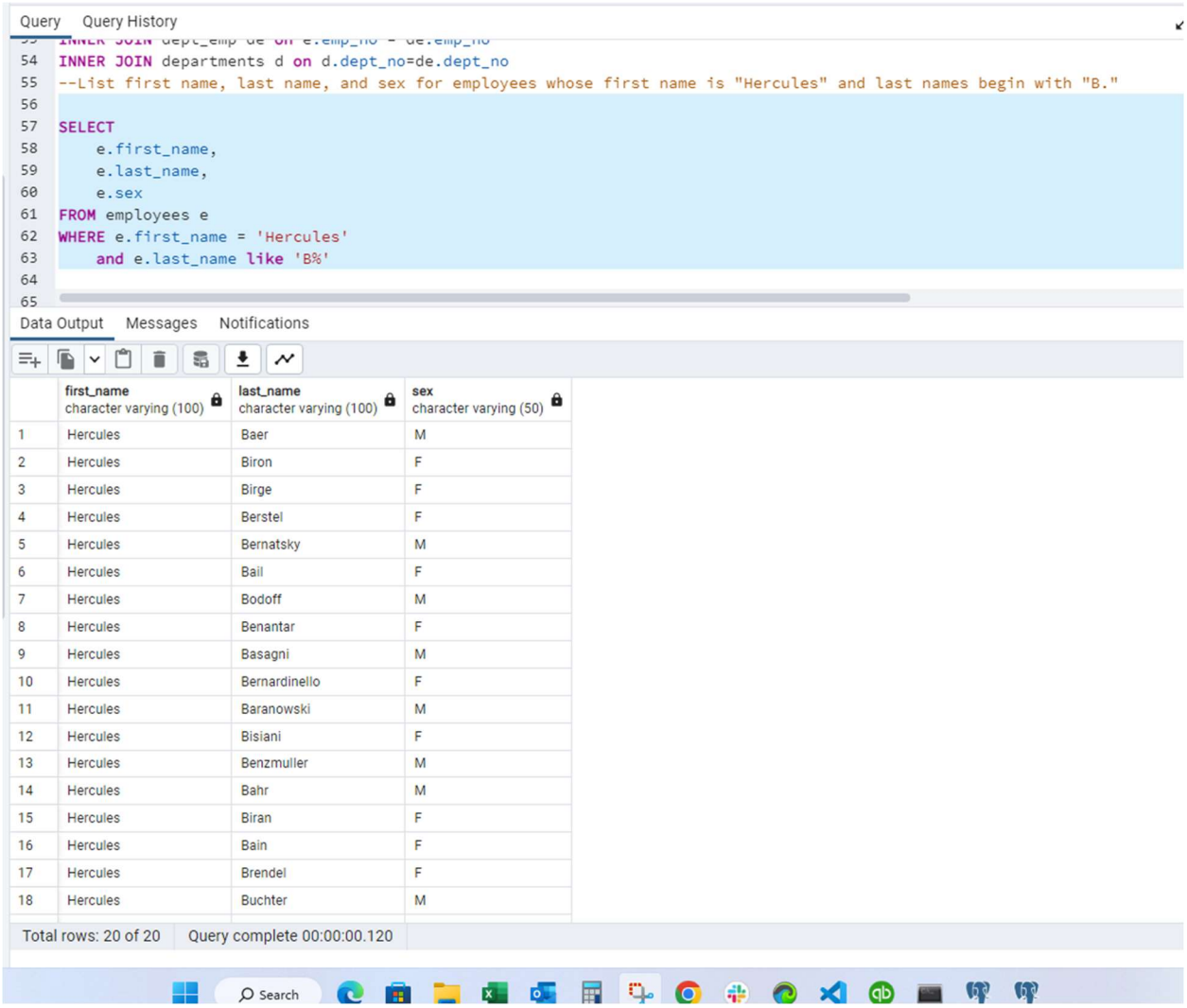
ata Output | Messages | Notifications

emp_no integer	first_name character varying (100)	last_name character varying (100)	dept_name character varying (100)
10005	Kyoichi	Maliniak	Human Resources
10010	Duangkaew	Piveteau	Production
10010	Duangkaew	Piveteau	Quality Management
10011	Mary	Sluis	Customer Service
10013	Eberhardt	Terkki	Human Resources
10017	Cristinel	Bouloucos	Marketing
10035	Alain	Chappelet	Production
10037	Pradeep	Makrucki	Development
10045	Moss	Shanbhogue	Production
10051	Hidefumi	Caine	Production
10058	Berhard	McFarlin	Marketing
10078	Danel	Mondadori	Development
10085	Kenroku	Malabarba	Production
10096	Jayson	Mandell	Production
10117	Kiyotoshi	Blokdijk	Production
10156	Sumali	Farqier	Quality Management

otal rows: 1000 of 331603 Query complete 00:00:00.387

--List first name, last name, and sex for employees whose first name is "Hercules" and last names begin with "B."

```
SELECT
    e.first_name,
    e.last_name,
    e.sex
FROM employees e
WHERE e.first_name = 'Hercules'
    and e.last_name like 'B%';
```



--List all employees in the Sales department, including their employee number, last name, first name, and department name.

```
SELECT
    e.emp_no,
    e.first_name,
    e.last_name,
    d.dept_name
FROM employees e
INNER JOIN dept_emp de on e.emp_no = de.emp_no
INNER JOIN departments d on d.dept_no=de.dept_no
WHERE d.dept_name = 'Sales';
```

Query | Query History

```
68  SELECT
69      e.emp_no,
70      e.first_name,
71      e.last_name,
72      d.dept_name
73
74
75  FROM employees e
76  INNER JOIN dept_emp de on e.emp_no = de.emp_no
77  INNER JOIN departments d on d.dept_no=de.dept_no
78  where d.dept_name = 'Sales'
79
80
```

Data Output | Messages | Notifications

	emp_no integer	first_name character varying (100)	last_name character varying (100)	dept_name character varying (100)
1	10002	Bezalel	Simmel	Sales
2	10016	Kazuhito	Cappelletti	Sales
3	10034	Bader	Swan	Sales
4	10041	Uri	Lenart	Sales
5	10050	Yinghua	Dredge	Sales
6	10053	Sanjiv	Zschoche	Sales
7	10060	Breannda	Billingsley	Sales
8	10061	Tse	Herber	Sales
9	10068	Charlene	Brattka	Sales
10	10087	Xinglin	Eugenio	Sales
11	10088	Jungsoon	Syrzycki	Sales
12	10089	Sudharsan	Flasterstein	Sales
13	10093	Sailaja	Desikan	Sales
14	10095	Hilari	Morton	Sales
15	10099	Valter	Sullins	Sales
16	10101	Perla	Heyers	Sales
17	10107	Dung	Baca	Sales
18	10125	Syozo	Hiltgen	Sales

--List all employees in the Sales and Development departments, including their employee number, last name, first name, and department name.

```
SELECT
        e.emp_no,
        e.first_name,
        e.last_name,
        d.dept_name
FROM employees e
INNER JOIN dept_emp de on e.emp_no = de.emp_no
INNER JOIN departments d on d.dept_no=de.dept_no
WHERE d.dept_name = 'Sales'
        or d.dept_name = 'Development';
```

Query Query History

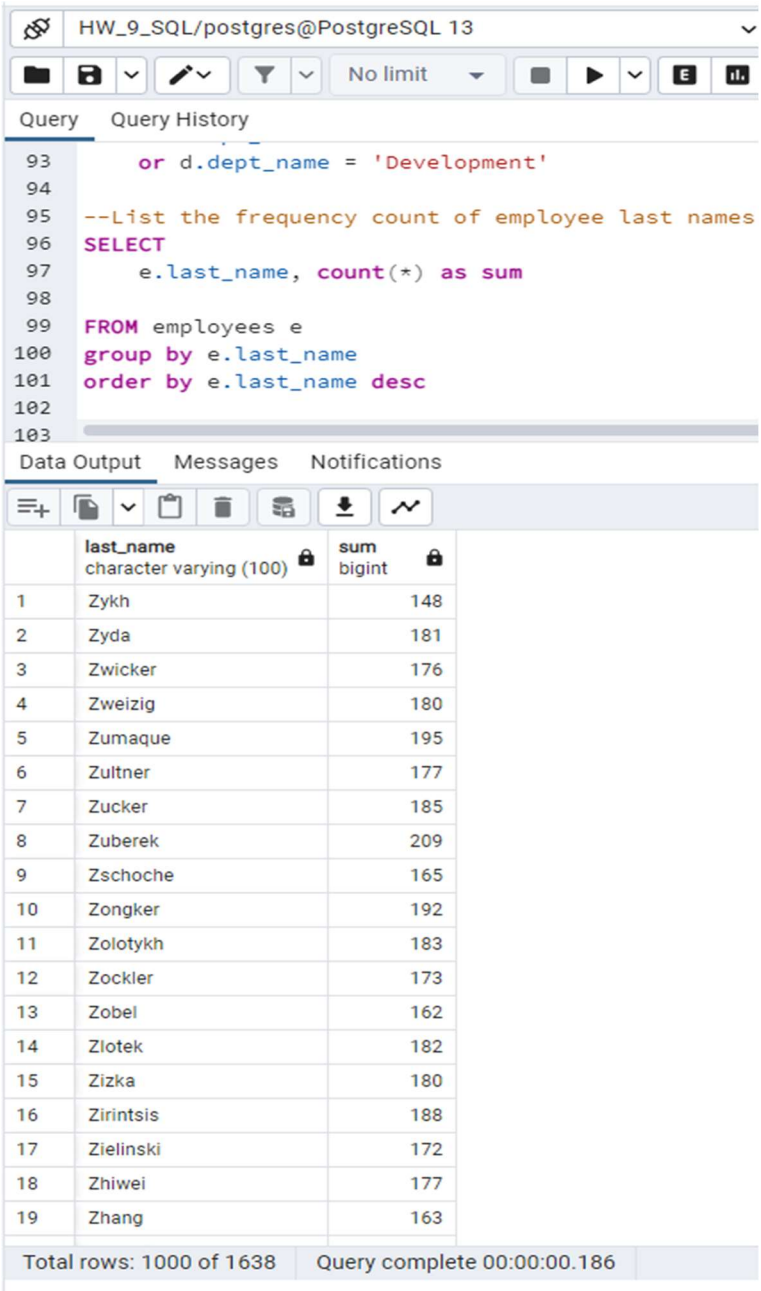
```
81  --List all employees in the Sales and Development departments, including their employee number, last name, first name
82  SELECT
83      e.emp_no,
84      e.first_name,
85      e.last_name,
86      d.dept_name
87
88
89  FROM employees e
90  INNER JOIN dept_emp de on e.emp_no = de.emp_no
91  INNER JOIN departments d on d.dept_no=de.dept_no
92  where d.dept_name = 'Sales'
93      or d.dept_name = 'Development'
94
```

Data Output | Messages | Notifications

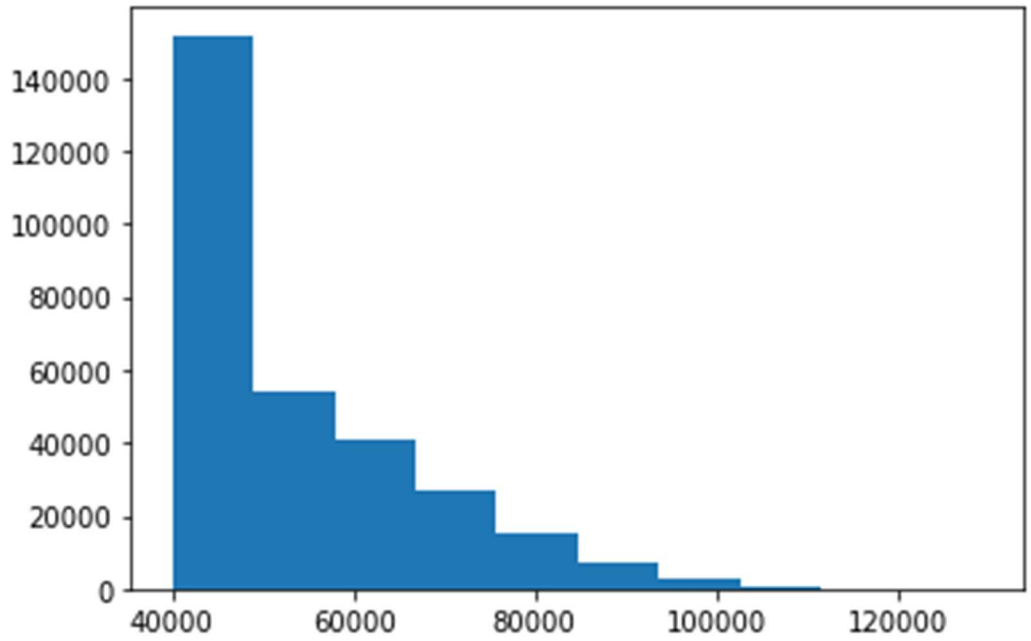
	emp_no integer	first_name character varying (100)	last_name character varying (100)	dept_name character varying (100)
1	10001	Georgi	Facello	Development
2	10002	Bezalel	Simmel	Sales
3	10006	Anneke	Preusig	Development
4	10008	Saniya	Kalloufi	Development
5	10012	Patricio	Bridgland	Development
6	10014	Berni	Genin	Development
7	10016	Kazuhito	Cappelletti	Sales
8	10018	Kazuhide	Peha	Development
9	10021	Ramzi	Erde	Development
10	10022	Shahaf	Famili	Development
11	10023	Bojan	Montemayor	Development
12	10025	Prasadram	Heyers	Development
13	10027	Divier	Reistad	Development
14	10028	Domenick	Tempesti	Development
15	10031	Karsten	Joslin	Development
16	10034	Bader	Swan	Sales
17	10037	Pradeep	Makrucki	Development

--List the frequency count of employee last names (i.e., how many employees share each last name) in descending order.

```
SELECT
        e.last_name, count(*) as sum
FROM employees e
GROUP BY e.last_name
ORDER BY e.last_name desc;
```



Bonus Chart 1



Bonus Chart 2