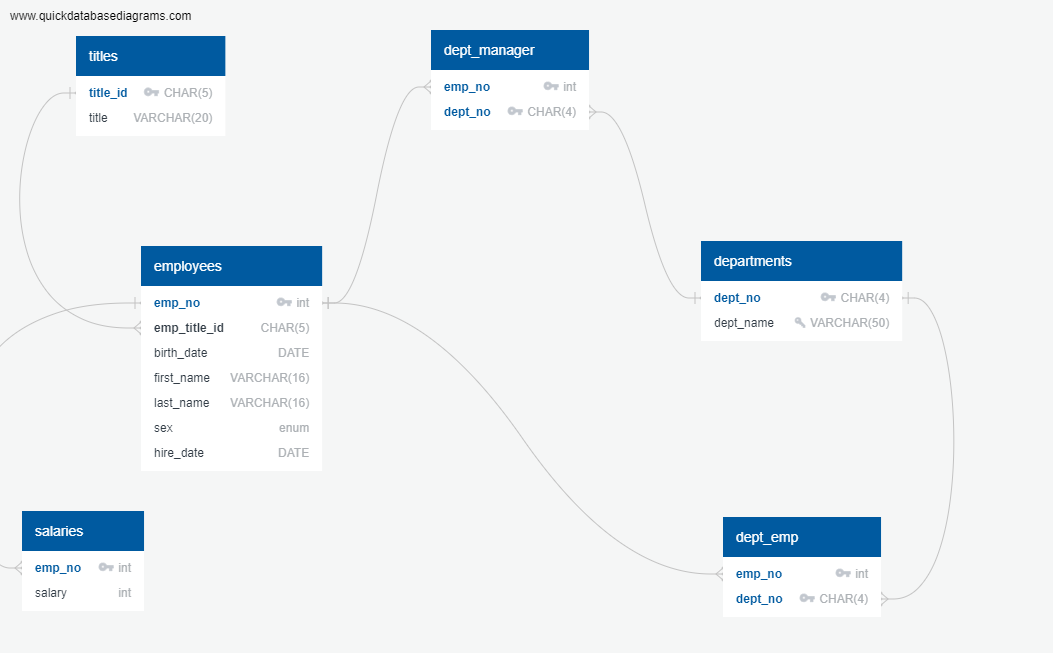
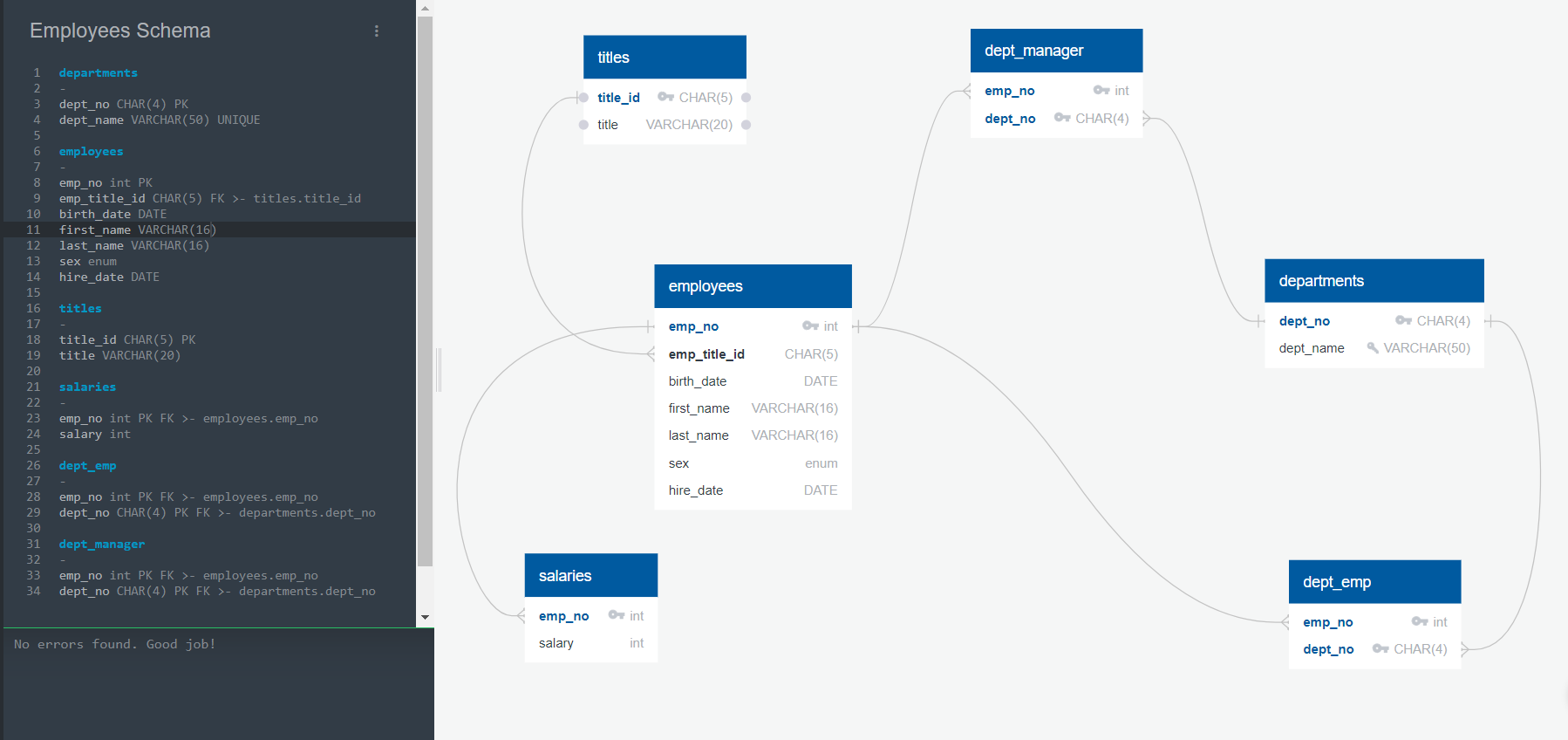
**Data Modeling:**

****

****

**Data Engineering:**

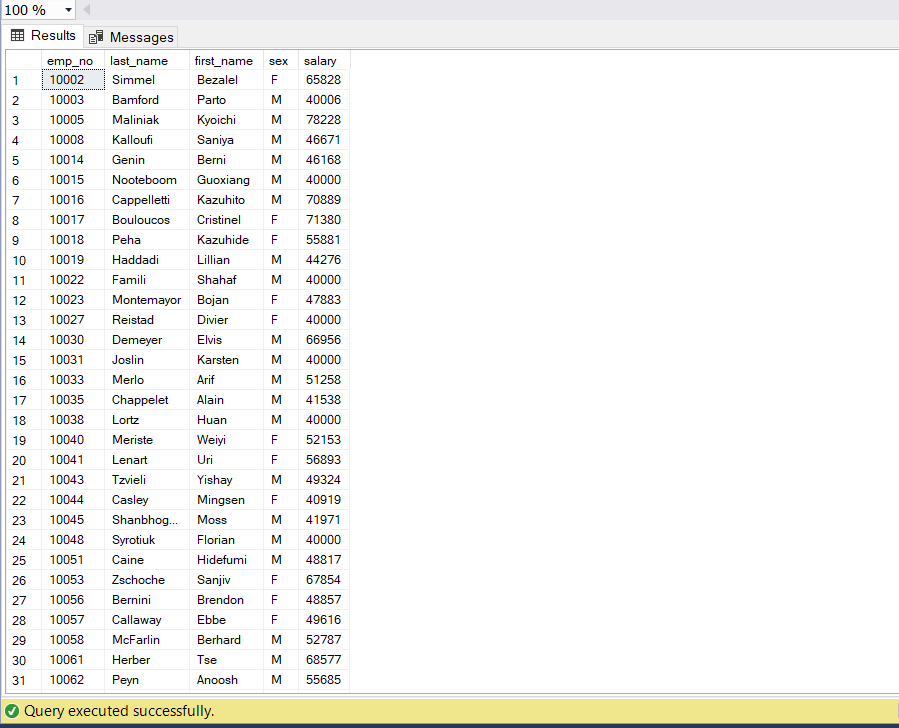


|  |
| --- |
| CREATE DATABASE employee\_data;  USE employee\_data;  CREATE TABLE departments(  dept\_no CHAR(4) PRIMARY KEY NOT NULL,  dept\_name VARCHAR(50) UNIQUE NOT NULL  );  CREATE TABLE titles (  title\_id CHAR(5) PRIMARY KEY NOT NULL,  title VARCHAR(20)  );  CREATE TABLE employees (  emp\_no INT PRIMARY KEY NOT NULL,  emp\_title\_id CHAR(5) NOT NULL,  birth\_date DATE,  first\_name VARCHAR(16),  last\_name VARCHAR(16),  sex CHAR(1)  hire\_date DATE,  FOREIGN KEY (emp\_title\_id) REFERENCES titles(title\_id));  CREATE TABLE salaries (  emp\_no INT NOT NULL,  salary INT,  PRIMARY KEY (emp\_no),  FOREIGN KEY (emp\_no) REFERENCES employees(emp\_no) );  CREATE TABLE dept\_emp (  emp\_no INT NOT NULL,  dept\_no CHAR(4) NOT NULL,  PRIMARY KEY (emp\_no, dept\_no),  FOREIGN KEY (emp\_no) REFERENCES employees(emp\_no),  FOREIGN KEY (dept\_no) REFERENCES departments(dept\_no) );  CREATE TABLE dept\_manager (  emp\_no INT NOT NULL,  dept\_no CHAR(4) NOT NULL,  PRIMARY KEY (emp\_no, dept\_no),  FOREIGN KEY (emp\_no) REFERENCES employees(emp\_no),  FOREIGN KEY (dept\_no) REFERENCES departments(dept\_no) ); |

**Data Analysis:**

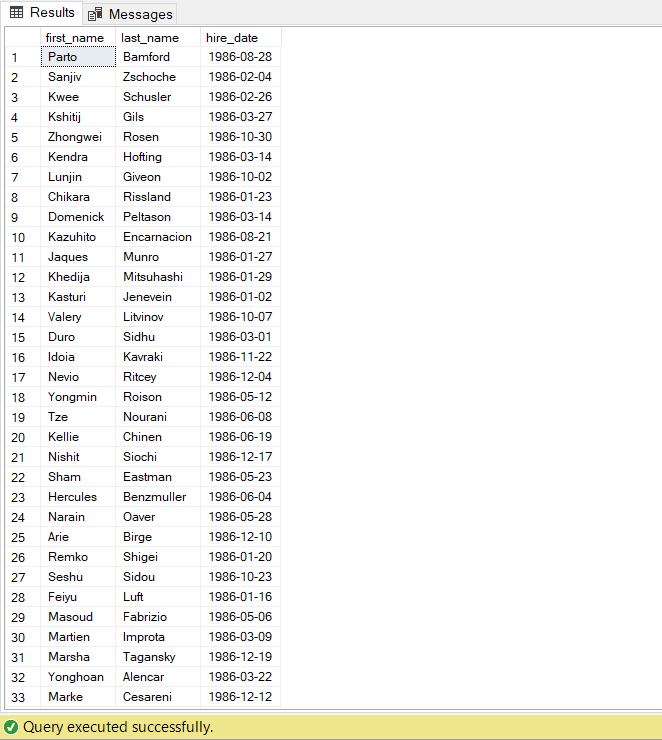
* List the employee number, last name, first name, sex, and salary of each employee

| SELECT e.emp\_no, e.last\_name, e.first\_name, e.sex, s.salary FROM employees e JOIN salaries s ON e.emp\_no = s.emp\_no; |
| --- |



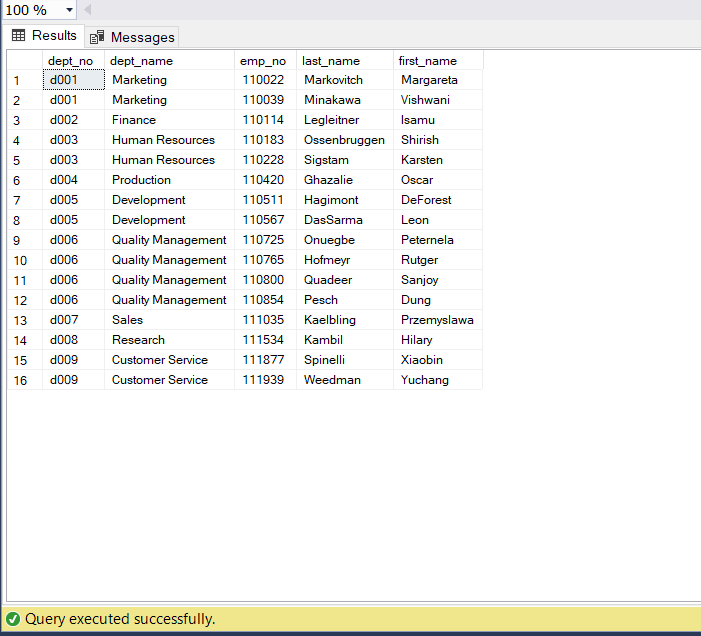
* List the first name, last name, and hire date for the employees who were hired in 1986

| SELECT first\_name, last\_name, hire\_date FROM employees WHERE YEAR(hire\_date) = 1986; |
| --- |



* List the manager of each department along with their department number, department name, employee number, last name, and first name

| SELECT dptm.dept\_no, d.dept\_name, dptm.emp\_no, e.last\_name, e.first\_name FROM dept\_manager dptm JOIN departments d  ON dptm.dept\_no = d.dept\_no JOIN employees e  ON dptm.emp\_no = e.emp\_no; |
| --- |



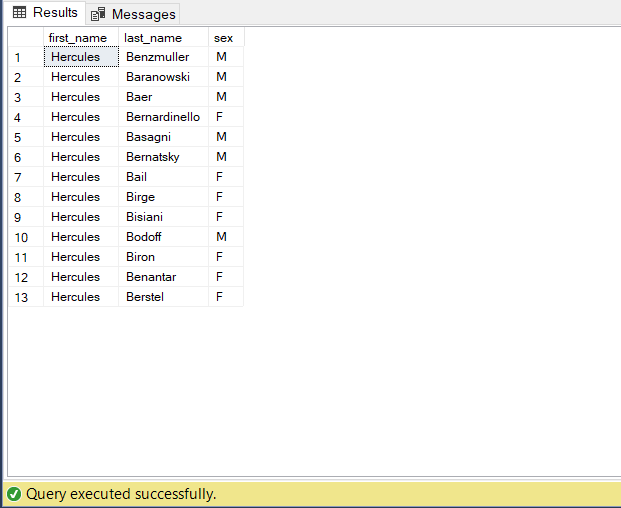
* List the department number for each employee along with that employee's employee number, last name, first name, and department name

| SELECT dept.dept\_no, dept.emp\_no, e.last\_name, e.first\_name,d.dept\_name FROM dept\_emp dept JOIN departments d  ON dept.dept\_no = d.dept\_no JOIN employees e  ON dept.emp\_no = e.emp\_no; |
| --- |



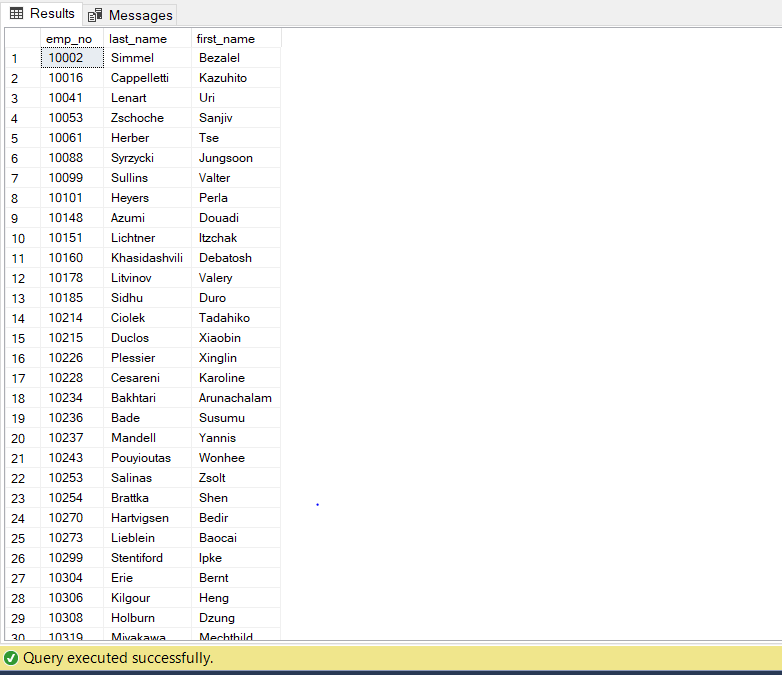
* List first name, last name, and sex of each employee whose first name is Hercules and whose last name begins with the letter B

| SELECT first\_name, last\_name, sex FROM employees WHERE first\_name = 'Hercules'  AND last\_name LIKE 'B%'; |
| --- |



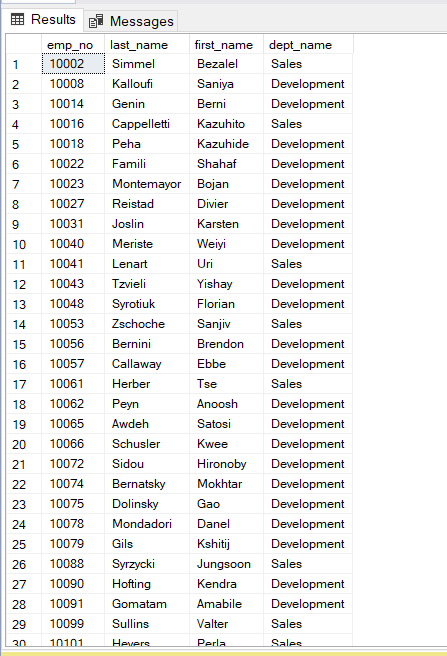
* List each employee in the Sales department, including their employee number, last name, and first name

| SELECT e.emp\_no, e.last\_name, e.first\_name FROM employees e JOIN dept\_emp de ON e.emp\_no = de.emp\_no JOIN departments d ON de.dept\_no = d.dept\_no WHERE d.dept\_name = 'Sales'; |
| --- |



* List each employee in the Sales and Development departments, including their employee number, last name, first name, and department name

| SELECT e.emp\_no, e.last\_name, e.first\_name, d.dept\_name FROM employees e JOIN dept\_emp de  ON e.emp\_no = de.emp\_no JOIN departments d  ON de.dept\_no = d.dept\_no WHERE d.dept\_name IN ('Sales', 'Development'); |
| --- |



* List the frequency counts, in descending order, of all the employee last names (that is, how many employees share each last name)

| SELECT last\_name, COUNT(\*) AS frequency FROM employees GROUP BY last\_name ORDER BY frequency DESC; |
| --- |

