-- PART 1 - Data Engineering

-- Creating table schema

-- Create department table

DROP TABLE departments;

CREATE TABLE departments (dept\_no VARCHAR, dept\_name VARCHAR NOT NULL,

PRIMARY KEY (dept\_no));

select \* from departments;

-- Create dept\_emp table

DROP TABLE dept\_emp;

CREATE TABLE dept\_emp (emp\_no INT NOT NULL,

dept\_no VARCHAR NOT NULL,

FOREIGN KEY (emp\_no) REFERENCES employees (emp\_no),

FOREIGN KEY (dept\_no) REFERENCES departments (dept\_no),

PRIMARY KEY (emp\_no, dept\_no) );

select\* from dept\_emp;

--- Create dept\_manager table

DROP TABLE dept\_manager;

CREATE TABLE dept\_manager (

dept\_no VARCHAR NOT NULL,

emp\_no INT NOT NULL,

FOREIGN KEY (emp\_no) REFERENCES employees (emp\_no),

FOREIGN KEY (dept\_no) REFERENCES departments (dept\_no),

PRIMARY KEY (dept\_no, emp\_no)

);

select \* from dept\_manager;

--- Create table employees

DROP TABLE employees;

CREATE TABLE employees (

emp\_no INT NOT NULL,

emp\_title\_id VARCHAR NOT NULL,

birth\_date VARCHAR NOT NULL,

first\_name VARCHAR NOT NULL,

last\_name VARCHAR NOT NULL,

sex VARCHAR NOT NULL,

hire\_date VARCHAR NOT NULL,

FOREIGN KEY (emp\_title\_id) REFERENCES titles (title\_id),

PRIMARY KEY (emp\_no)

);

select \* from employees;

--- create table salaries

drop table salaries

create table salaries (

emp\_no int not null,

salary int not null,

Primary Key (emp\_no),

Foreign key (emp\_no) references employees(emp\_no));

select \* from salaries;

--- create table titles

drop table titles

create table titles (

title\_id VARCHAR NOT NULL,

title VARCHAR NOT NULL,

Primary Key (title\_id)

);

select \* from titles;

--Data analysis\_\_\_\_

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--1.List the employee number, last name, first name,

--sex, and salary of each employee\_\_\_\_

SELECT employees.emp\_no,

employees.last\_name,

employees.first\_name,

employees.sex,

salaries.salary

FROM employees

LEFT JOIN salaries

ON employees.emp\_no = salaries.emp\_no

ORDER BY emp\_no

--2.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 hire\_date BETWEEN '1/1/1986' AND '12/31/1986'

ORDER BY hire\_date;

--3.List the manager of each department along with their department number,

--department name, employee number, last name, and first name.

SELECT departments.dept\_no, departments.dept\_name, dept\_manager.emp\_no,

employees.last\_name, employees.first\_name

FROM departments

JOIN dept\_manager

ON departments.dept\_no = dept\_manager.dept\_no

JOIN employees

ON dept\_manager.emp\_no = employees.emp\_no;

--4.List the department number for each employee along with that employee’s employee number,

--last name, first name, and department name.

SELECT dept\_emp.emp\_no, employees.last\_name, employees.first\_name, departments.dept\_name

FROM dept\_emp

JOIN employees

ON dept\_emp.emp\_no = employees.emp\_no

JOIN departments

ON dept\_emp.dept\_no = departments.dept\_no;

--5.List the first name, last name,

--and sex of each employee whose first name is Hercules and whose last name begins with the letter B.

SELECT employees.first\_name, employees.last\_name, employees.sex

FROM employees

WHERE first\_name = 'Hercules'

AND last\_name Like 'B%'

--6.List each employee in the Sales department,

--including their employee number, last name, and first name.

SELECT departments.dept\_name, employees.last\_name, employees.first\_name

FROM dept\_emp

JOIN employees

ON dept\_emp.emp\_no = employees.emp\_no

JOIN departments

ON dept\_emp.dept\_no = departments.dept\_no

WHERE departments.dept\_name = 'Sales';

--7.List each employee in the Sales and Development departments,

--including their employee number, last name, first name, and department name.

SELECT dept\_emp.emp\_no, employees.last\_name, employees.first\_name, departments.dept\_name

FROM dept\_emp

JOIN employees

ON dept\_emp.emp\_no = employees.emp\_no

JOIN departments

ON dept\_emp.dept\_no = departments.dept\_no

WHERE departments.dept\_name = 'Sales'

OR departments.dept\_name = 'Development';

--8.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(last\_name) AS "frequency"

FROM employees

GROUP BY last\_name

ORDER BY

COUNT(last\_name) DESC;