

lab_sql 作业解答

所有代码可见根目录 code 文件夹 [lab_sql_solve.sql](#)

[查看源码](#)

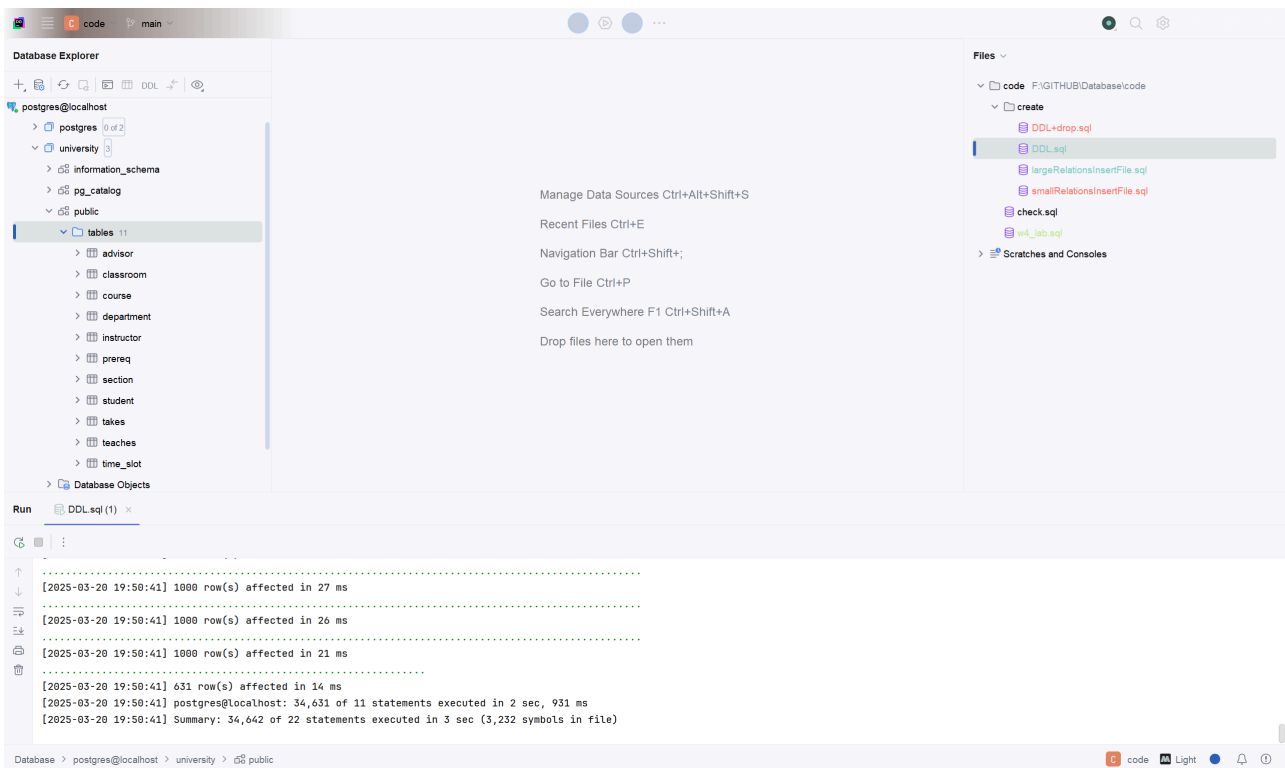
1 问题一

需要使用 PostgreSQL 及 DataGrip 软件操作，并对操作页面及结果进行截图。

1.新建一个 university 数据库，并执行 [largeRelationsInsertFile.sql](#)，导入数据。

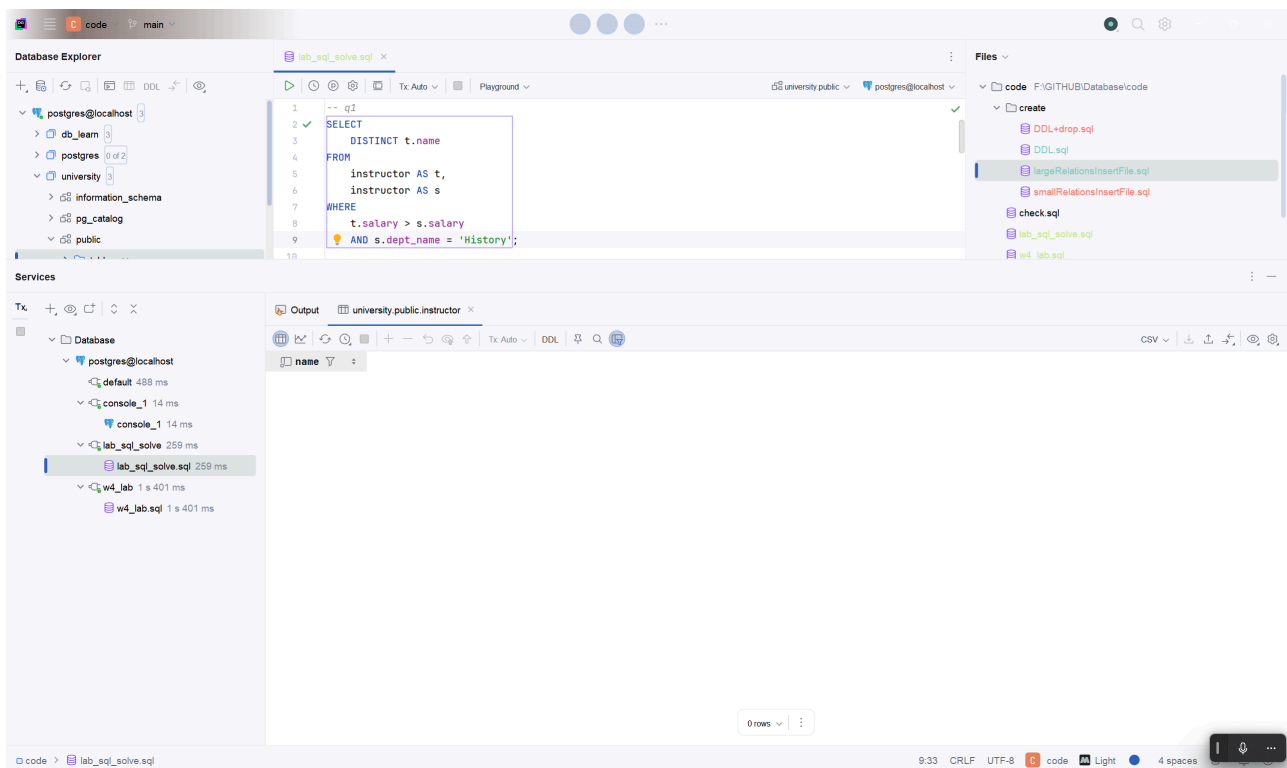
2.运行第 2 次作业的题目三代码。注意：把原题目中的会计改成 History。

- 如图所示



共在 university 的 public schema 下导入 11 张表

- 如图所示, 没有任何结果



但是如果在数据库中进一步执行 *smallRelationsInsertFile.sql* 导入, 则可以查询到结果

2 问题二

参考[Pattern Matching](#), 在 PG 中使用至少三种方法实现找到所有以 **S** 开头教师的名字。

- 方法一: LIKE()

```
1 -- q2 way1:LIKE()
2 SELECT
3     *
4 FROM
5     instructor
6 WHERE
7     name LIKE 'S%';
```

Database Explorer

lab_sq_solve.sql

```

1 -- q2 way1: LIKE()
2 SELECT *
3 FROM instructor
4 WHERE name LIKE 'S%'

```

Files

- code
 - F:\GITHUB\Database\code
 - create
 - check.sql
 - lab_sq_solve.sql
 - w4_lab.sql

Services

Tx

Database

- postgres@localhost
 - default 488 ms
 - console_1 14 ms
 - lab_sq_solve 338 ms
 - w4_lab 1 s 401 ms

Output

university.public.instructor

id	name	dept_name	salary
50330	Shuming	Physics	108011.81
73623	Sullivan	Elec. Eng.	98038.09
35579	Soisalon-Soininen	Psychology	62579.61
48570	Sarkar	Pol. Sci.	87549.80
95709	Sakurai	English	118143.98

5 rows

SUM: 0 5.2 4:21 CRLF UTF-8 code Light 4 spaces

- 方法二: ~

```

1 -- q2 way2:~
2 SELECT
3     *
4 FROM
5     instructor
6 WHERE
7     name ~ '^S';

```

Database Explorer

lab_sq_solve.sql

```

1 -- q2 way1: LIKE()
2 SELECT *
3 FROM instructor
4 WHERE name LIKE 'S%';
5
6 -- q2 way2:~
7 SELECT *
8 FROM instructor
9 WHERE name ~ '^S';

```

Files

- code
 - F:\GITHUB\Database\code
 - create
 - check.sql
 - lab_sq_solve.sql
 - w4_lab.sql
 - Scratches and Consoles

Services

Tx

Database

- postgres@localhost
 - default 488 ms
 - console_1 14 ms
 - lab_sq_solve 254 ms
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Output

university.public.instructor

id	name	dept_name	salary
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5 rows

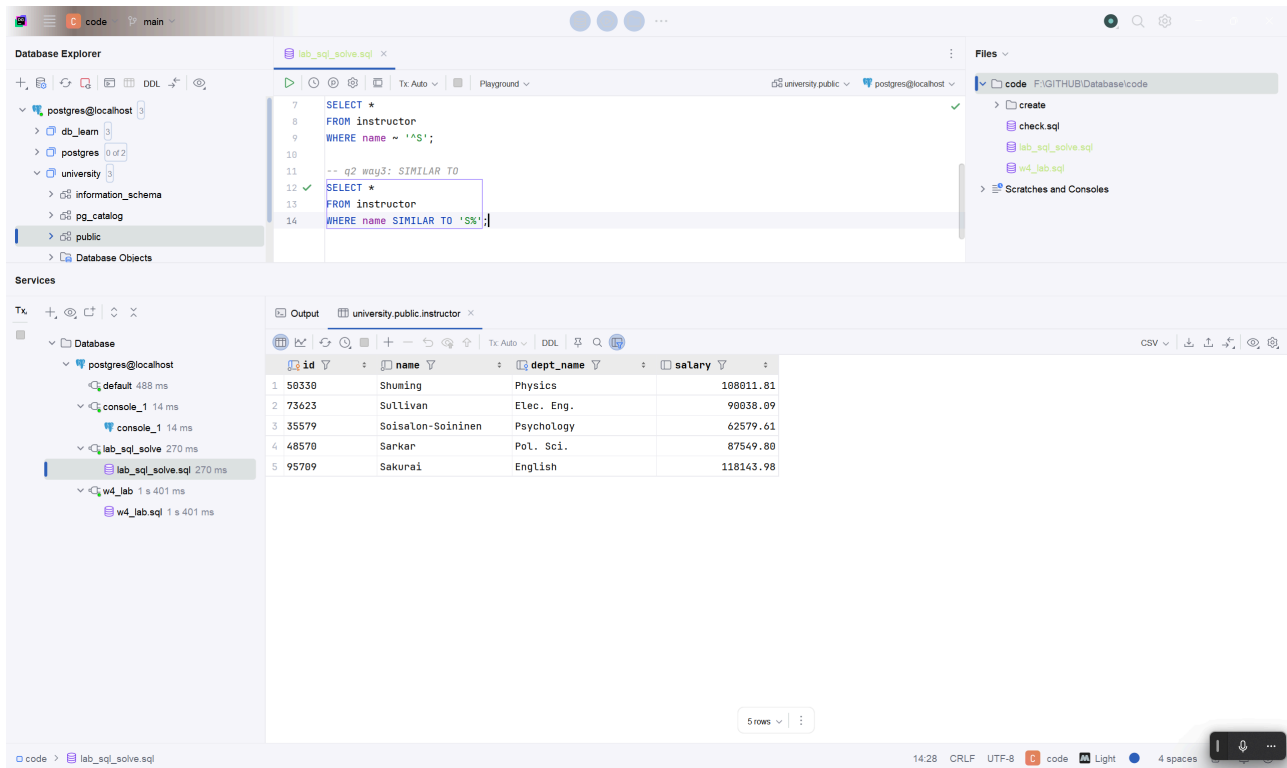
9:19 CRLF UTF-8 code Light 4 spaces

- 方法三: SIMILAR TO

```

1  -- q2 way3: SIMILAR TO
2  SELECT
3      *
4  FROM
5      instructor
6  WHERE
7      name SIMILAR TO 'S%';

```



3 问题三

`psql` 是 PostgreSQL 的命令行工具。请使用 `psql` 命令行工具：

- 实现题目二
 - 列出所有的数据库
 - 列出当前数据库的所有表
 - 显示某张表的关系模式
- 先列出所有数据库

```

1  postgres=# \l

```

```
SQL Shell (psql)
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
用户 postgres 的口令:

psql (17.4)
输入 "help" 来获取帮助信息.

postgres=# \l
      名称      | 拥有者 | 字元编码 | Locale Provider | 数据库列表 | Ctype | Locale | ICU Rules | 存取权限
-----|-----|-----|-----|-----|-----|-----|-----|-----
db_learn        | postgres | UTF8    | libc            | zh-CN      | zh-CN |         |          |
postgres        | postgres | UTF8    | libc            | zh-CN      | zh-CN |         |          |
template0       | postgres | UTF8    | libc            | zh-CN      | zh-CN |         |          | =c/postgres +
template1       | postgres | UTF8    | libc            | zh-CN      | zh-CN |         |          | postgres=Ctc/postgres +
university      | postgres | UTF8    | libc            | zh-CN      | zh-CN |         |          | =c/postgres +
                |          |          |          |          |          |          |          | postgres=Ctc/postgres
(5 行记录)

postgres=#
```

- 选择连接到 `university` 数据库并列出所有表
(这里出了一些问题, 所以是选择退出重连的)

```
1 | university=# \dt
```

```
SQL Shell (psql)
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
用户 postgres 的口令:

psql (17.4)
输入 "help" 来获取帮助信息.

postgres=# \l
      名称      | 拥有者 | 字元编码 | Locale Provider | 数据库列表 | Ctype | Locale | ICU Rules | 存取权限
-----|-----|-----|-----|-----|-----|-----|-----|-----
db_learn        | postgres | UTF8    | libc            | zh-CN      | zh-CN |         |          |
postgres        | postgres | UTF8    | libc            | zh-CN      | zh-CN |         |          |
template0       | postgres | UTF8    | libc            | zh-CN      | zh-CN |         |          | =c/postgres +
template1       | postgres | UTF8    | libc            | zh-CN      | zh-CN |         |          | postgres=Ctc/postgres +
university      | postgres | UTF8    | libc            | zh-CN      | zh-CN |         |          | =c/postgres +
                |          |          |          |          |          |          |          | postgres=Ctc/postgres
(5 行记录)

postgres=#
```

- 显示 `instructor` 表的关系模式

```
1 | university=# \d instructor
```

```
SQL Shell (psql)
public | instructor | 数据表 | postgres
public | prereq | 数据表 | postgres
public | section | 数据表 | postgres
public | student | 数据表 | postgres
public | takes | 数据表 | postgres
public | teaches | 数据表 | postgres
public | time_slot | 数据表 | postgres
(11 行记录)

university=# \d instructor
                        数据表 "public.instructor"
  栏位 |          类型          | 校对规则 | 可空的 | 预设
-----+-----+-----+-----+-----
id     | character varying(5)   |          | not null |
name   | character varying(20)  |          | not null |
dept_name | character varying(20) |          |          |
salary | numeric(8,2)           |          |          |
索引:
    "instructor_pkey" PRIMARY KEY, btree (id)
检查约束限制:
    "instructor_salary_check" CHECK (salary > 29000::numeric)
外部键(FK)限制:
    "instructor_dept_name_fkey" FOREIGN KEY (dept_name) REFERENCES department(dept_name) ON DELETE SET NULL
由引用:
    TABLE "advisor" CONSTRAINT "advisor_i_id_fkey" FOREIGN KEY (i_id) REFERENCES instructor(id) ON DELETE SET NULL
    TABLE "teaches" CONSTRAINT "teaches_id_fkey" FOREIGN KEY (id) REFERENCES instructor(id) ON DELETE CASCADE

university=#
```

- 实现题目二

```
1 | university=# SELECT * FROM instructor WHERE name ~ '^S';
```

```
SQL Shell (psql)
                        数据表 "public.instructor"
  栏位 |          类型          | 校对规则 | 可空的 | 预设
-----+-----+-----+-----+-----
id     | character varying(5)   |          | not null |
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salary | numeric(8,2)           |          |          |
索引:
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university=# SELECT * FROM instructor WHERE name ~ '^S';
 id |      name      | dept_name | salary
----+-----+-----+-----
50330 | Shuming      | Physics  | 108011.81
73623 | Sullivan     | Elec. Eng. | 90038.09
35579 | Soisalon-Soininen | Psychology | 62579.61
48570 | Sarkar       | Pol. Sci. | 87549.80
95709 | Sakurai      | English  | 118143.98
(5 行记录)

university=#
```