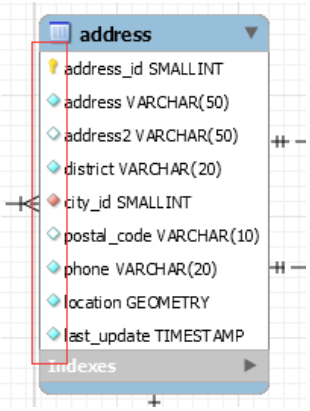
实验一报告

一、 回答问题

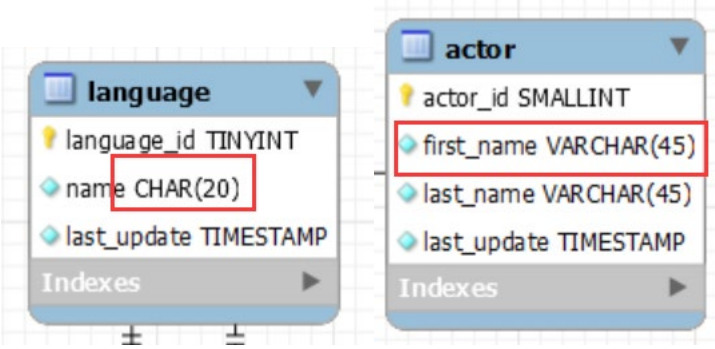
请一边熟悉 sakila 数据库，一边回答以下问题：

1. sakila.mwb 模型中，表结构里每个字段前面的小标记分别表示什么意思？（观察字段的属性）



标记	意义
	主码(Primary key)
	非空(not null)
	可以为空
	外码且非空(Foreign key & not null)

2. char 和 varchar 类型的区别是什么？



char 是长度不可变的字符，空间不足的用空格填充

varchar 是长度可变的字符，通常用一个字节来记录长度

3. 图中哪部分体现影片-演员关系？换句话说，如果要找出演某个影片的演员名

字，访问哪几张表可以获得信息？

需要访问 film, film_actor, actor 共 3 张表，过程如下：

（1）在 film 表中查询 film_id；

（2）再在 film_actor 表中通过 film_id 查询 actor_id；

（3）最后在 actor 表中通过 actor_id 查询演员姓/名(first_name & last_name)。

4. 如果已知某个顾客姓名，要找到他租借的所有影片名，需要访问哪几张表？

需要访问 customer, rental, inventory, film,共 4 张表，过程如下：

（1）在 customer 表中通过顾客姓名查询 customer_id；

（2）在 rental 表中通过 customer_id 查询 inventory_id；

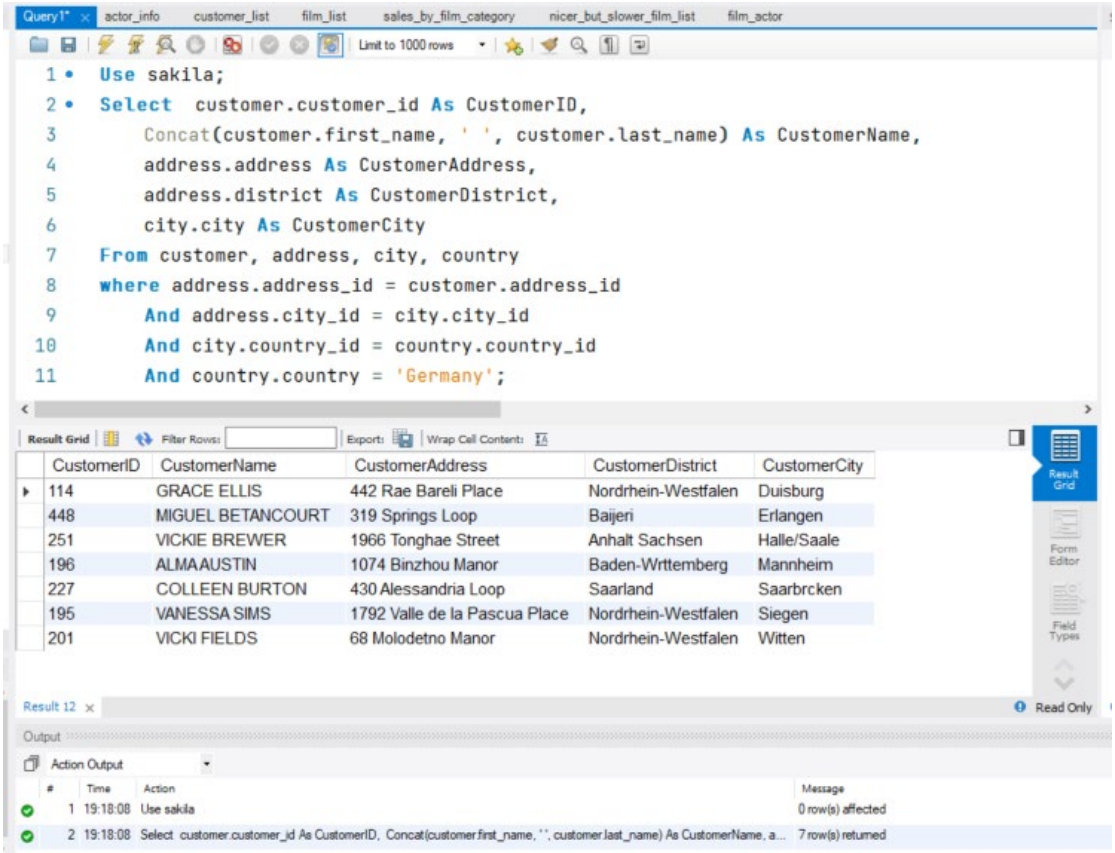
（3）再在 inventory 表中通过 inventory_id 查询 film_id；

最后在 film 表中通过 film_id 查询影片名(title)。

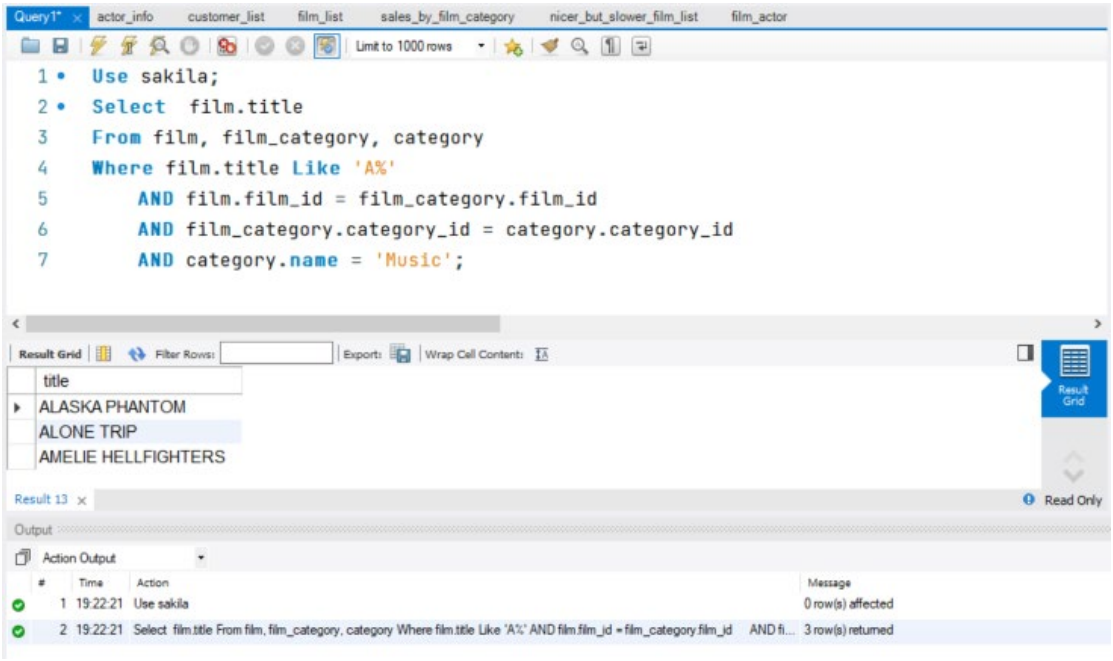
二、 实验截图

（注意截图清晰，截图时需要体现 SQL 语句、执行结果、Output 窗口）

1、 请列出所有 country 是“Germany”的客户的信息，显示 customer_id、客户姓名、地址、所在区域，所在城市（注意：客户姓名请以 first_name+空格+last_name 的格式，例如：SISSY SOBIESKI）；



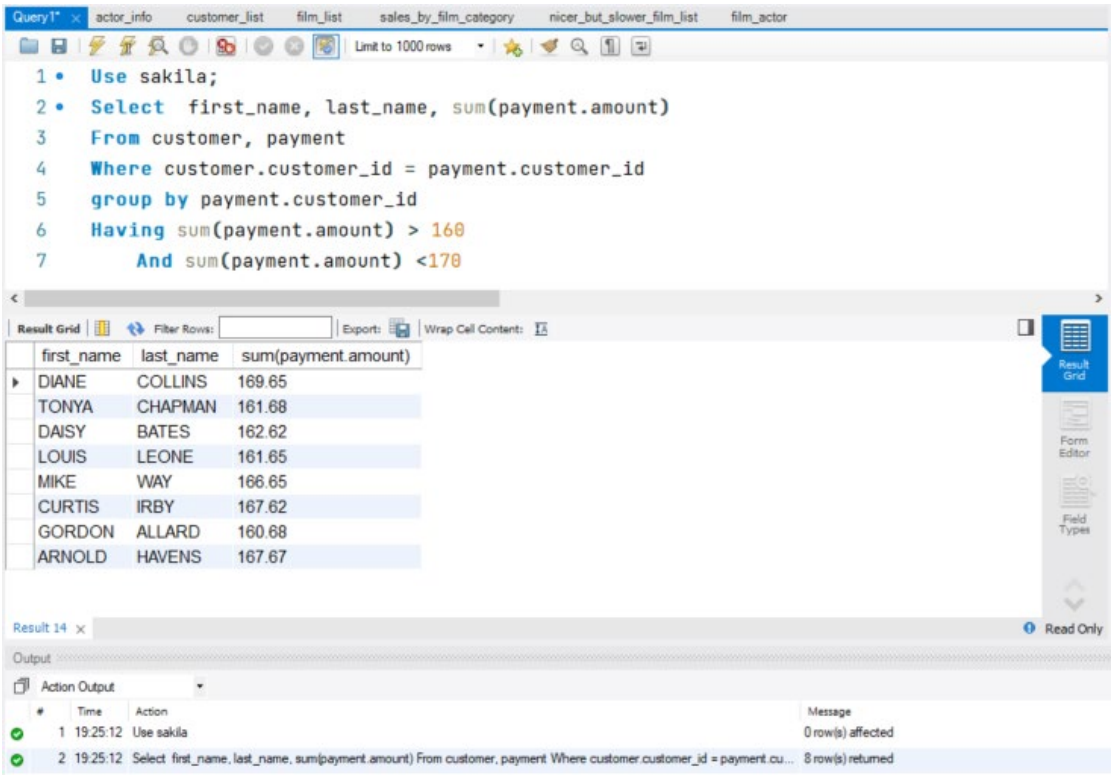
2、 列出属于“Music”类型并以“A”开头的电影名；



```
Use sakila;
Select  film.title
From film, film_category, category
Where film.title Like 'A%'
    AND film.film_id = film_category.film_id
    AND film_category.category_id = category.category_id
    AND category.name = 'Music';
```

title
ALASKA PHANTOM
ALONE TRIP
AMELIE HELLFIGHTERS

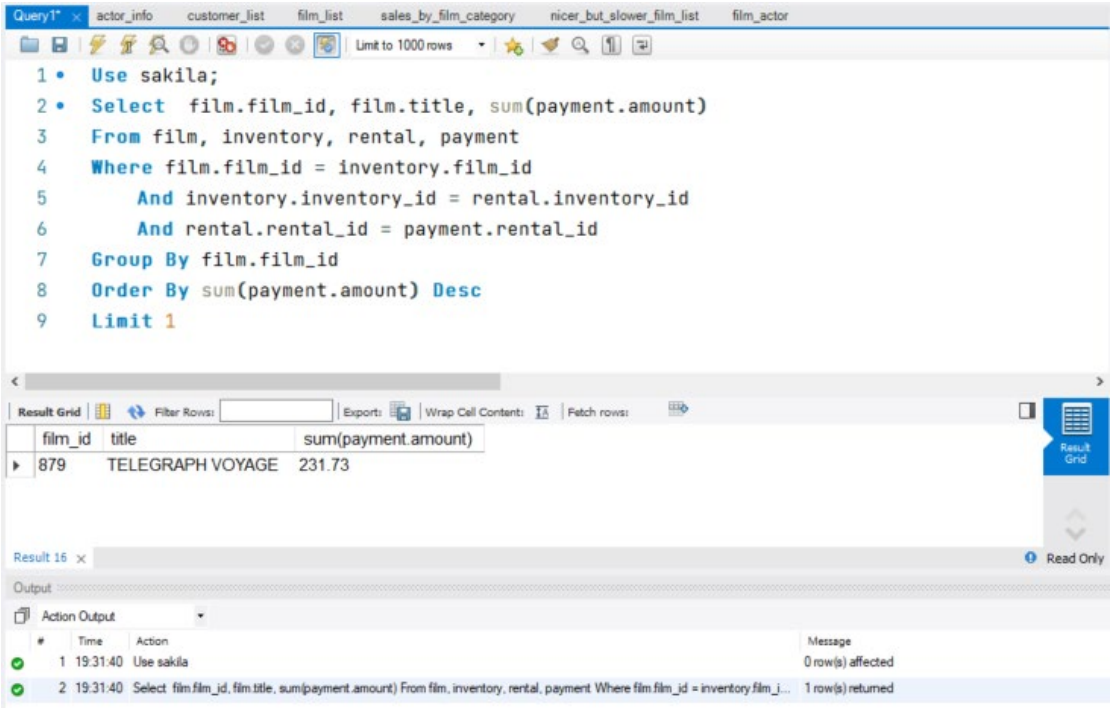
3、 找出租 DVD 花费的总费用在 160 至 170 之间的客户，列出他们的 first_name, last_name 和每个人花费的金额；



```
Use sakila;
Select  first_name, last_name, sum(payment.amount)
From customer, payment
Where customer.customer_id = payment.customer_id
group by payment.customer_id
Having sum(payment.amount) > 160
    And sum(payment.amount) <170
```

first_name	last_name	sum(payment.amount)
DIANE	COLLINS	169.65
TONYA	CHAPMAN	161.68
DAISY	BATES	162.62
LOUIS	LEONE	161.65
MIKE	WAY	166.65
CURTIS	IRBY	167.62
GORDON	ALLARD	160.68
ARNOLD	HAVENS	167.67

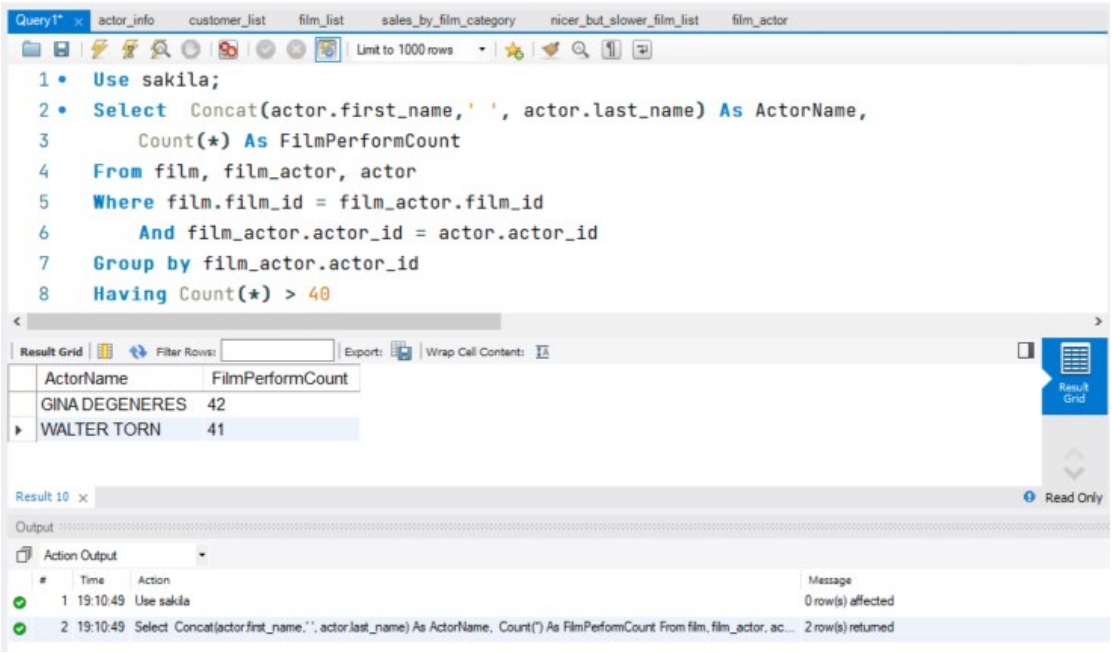
4、 哪个影片获得了总体最高的租金？请列出影片 id、影片名、总租金；



```
Use sakila;
Select  film.film_id, film.title, sum(payment.amount)
From film, inventory, rental, payment
Where film.film_id = inventory.film_id
    And inventory.inventory_id = rental.inventory_id
    And rental.rental_id = payment.rental_id
Group By film.film_id
Order By sum(payment.amount) Desc
Limit 1
```

film_id	title	sum(payment.amount)
879	TELEGRAPH VOYAGE	231.73

5、 哪些演员出演的电影超过 40 部？ 请列出演员名、出演的电影数；



```
Use sakila;
Select  Concat(actor.first_name,' ', actor.last_name) As ActorName,
    Count(*) As FilmPerformCount
From film, film_actor, actor
Where film.film_id = film_actor.film_id
    And film_actor.actor_id = actor.actor_id
Group by film_actor.actor_id
Having Count(*) > 40
```

ActorName	FilmPerformCount
GINA DEGENERES	42
WALTER TORN	41

6、 请找出没有租借过电影《NATURAL STOCK》的顾客姓名；

```
Use sakila;
Select  Concat(customer.first_name, ' ', customer.last_name)
From customer
Where customer.customer_id Not In (
    Select customer.customer_id
    From film, inventory, rental, customer
    Where film.title = 'NATURAL STOCK'
        And film.film_id = inventory.film_id
        And inventory.inventory_id = rental.inventory_id
        And rental.customer_id = customer.customer_id
)
```

Concat(customer.first_name, ' ', customer.last_name)
MARY SMITH
PATRICIA JOHNSON
LINDA WILLIAMS
BARBARA JONES
ELIZABETH BROWN
JENNIFER DAVIS
SUSAN WILSON
MARGARET MOORE
DOROTHY TAYLOR
LISA ANDERSON
NANCY THOMAS
KAREN JACKSON

#	Time	Action	Message
1	19:40:26	Use sakila	0 row(s) affected
2	19:40:26	Select Concat(customer.first_name, ' ', customer.last_name) From customer Where customer.customer_id Not In (Select ...	586 row(s) returned

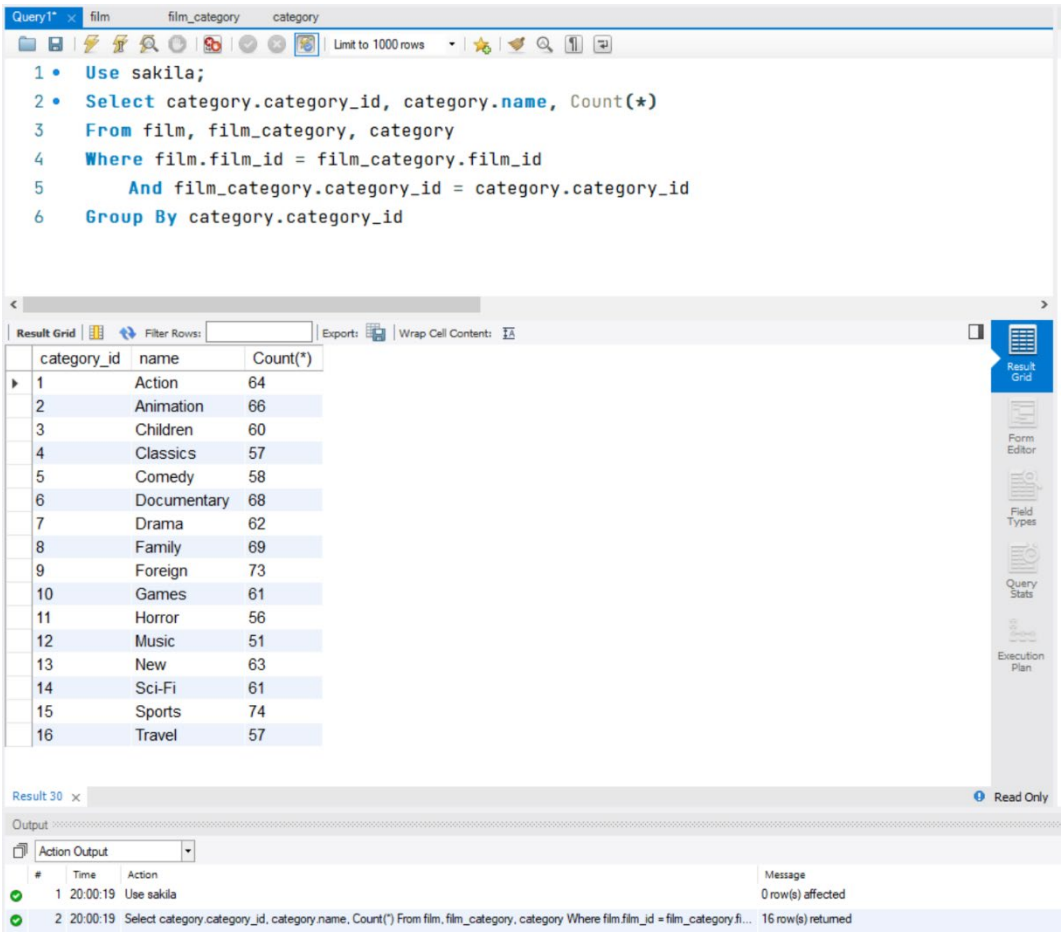
7、 查询既演过《ELEPHANT TROJAN》又演过《DOGMA FAMILY》的演员，列出其姓名；

```
Use sakila;
Select Concat(actor.first_name, ' ', actor.last_name) As ActorName
From film, film_actor, actor
Where film.title = 'DOGMA FAMILY'
    And film.film_id = film_actor.film_id
    And film_actor.actor_id = actor.actor_id
    AND actor.actor_id  In (
        Select actor.actor_id
        From film, film_actor, actor
        Where film.title = 'ELEPHANT TROJAN'
            And film.film_id = film_actor.film_id
            And film_actor.actor_id = actor.actor_id
    )
```

ActorName
GINA DEGENERES

#	Time	Action	Message
1	19:54:33	Use sakila	0 row(s) affected
2	19:54:33	Select Concat(actor.first_name, ' ', actor.last_name) As ActorName From film, film_actor, actor Where film.title = 'DOGMA F...	1 row(s) returned

8、 统计每种类型的影片数，显示类型编号、类型名称、该类型影片数；



```
Use sakila;
Select category.category_id, category.name, Count(*)
From film, film_category, category
Where film.film_id = film_category.film_id
    And film_category.category_id = category.category_id
Group By category.category_id
```

category_id	name	Count(*)
1	Action	64
2	Animation	66
3	Children	60
4	Classics	57
5	Comedy	58
6	Documentary	68
7	Drama	62
8	Family	69
9	Foreign	73
10	Games	61
11	Horror	56
12	Music	51
13	New	63
14	Sci-Fi	61
15	Sports	74
16	Travel	57

#	Time	Action	Message
1	20:00:19	Use sakila	0 row(s) affected
2	20:00:19	Select category.category_id, category.name, Count(*) From film, film_category, category Where film.film_id = film_category.fi...	16 row(s) returned

9、 有哪些影片是 2 个商店都有库存的？显示影片名。

```sql
Use sakila;
Select Distinct film.title
From film, inventory
Where film.film_id = inventory.film_id
    And inventory.store_id = 1
    And film.film_id in (
        Select Distinct film.film_id
        From film, inventory
        Where film.film_id = inventory.film_id
        And inventory.store_id = 2
    );
```

title
ACADEMY DINOSAUR
AFFAIR PREJUDICE
AGENT TRUMAN
AIRPLANE SIERRA
ALABAMA DEVIL
ALADDIN CALENDAR
ALAMO VIDEOTAPE
ALASKA PHANTOM
ALIEN CENTER
ALLEY EVOLUTION
ALONE TRIP
ALTER VICTORY
AMADEUS HOLY
AMERICAN CIRCUS

#	Time	Action	Message
1	20:07:24	Use sakila	0 row(s) affected
2	20:07:24	Select Distinct film.title From film, inventory Where film.film_id = inventory.film_id And inventory.store_id = 1 And film.film_i...	563 row(s) returned

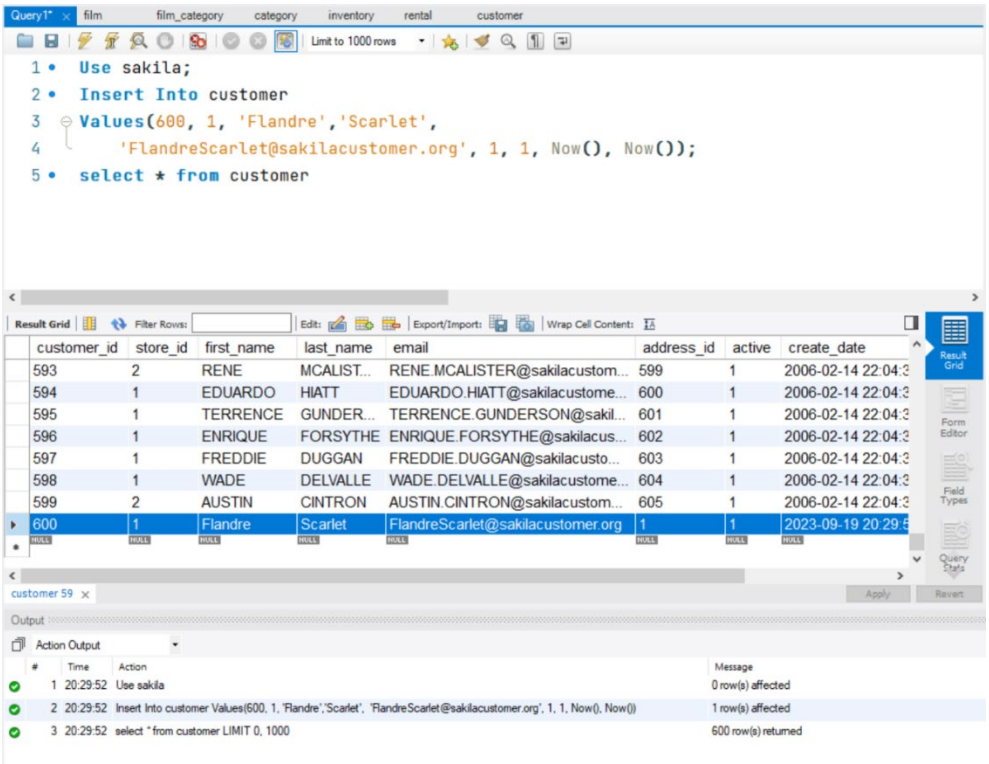
10、 查询单次租借影片时间最长的 2 位客户，列出其 first_name、last_name 和当次租借时长（单位秒）；

```sql
Use sakila;
Select customer.first_name, customer.last_name,
    (rental.return_date - rental.rental_date) As RentalDurance
From customer, rental
Where customer.customer_id = rental.customer_id
Order By RentalDurance Desc
Limit 2
```

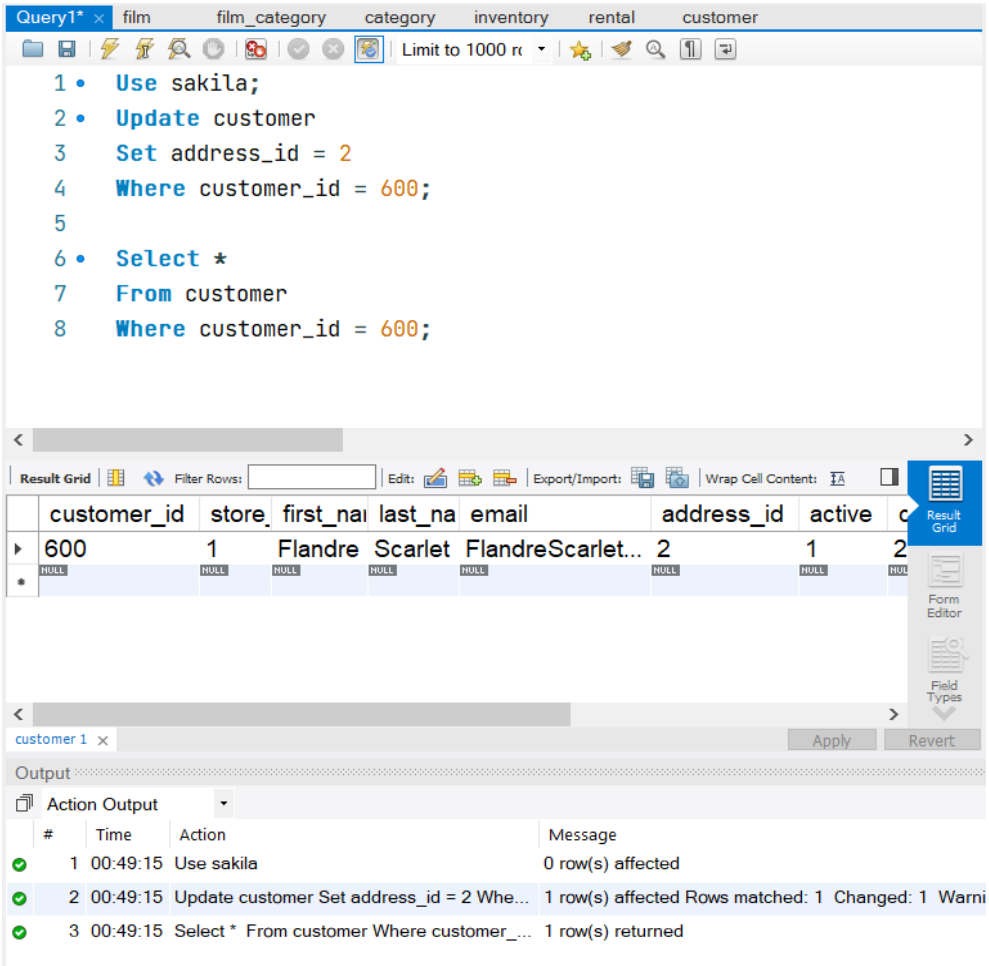
first_name	last_name	RentalDurance
STACEY	MONTGOMERY	79818900
KAREN	JACKSON	78819100

#	Time	Action	Message
1	20:17:16	Use sakila	0 row(s) affected
2	20:17:16	Select customer.first_name, customer.last_name, (rental.return_date - rental.rental_date) As RentalDurance From custom...	2 row(s) returned

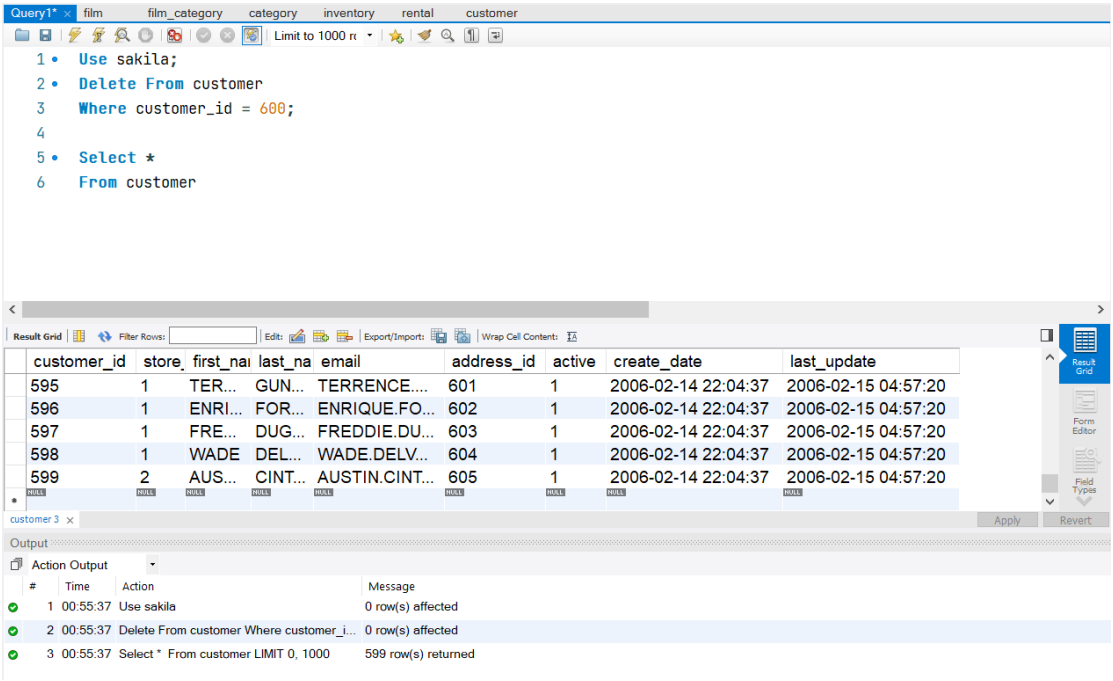
11、 在 customer 表中新增一条数据，注意 customer 表与其他表的关系；



12、 修改刚才在 customer 表中新增的那条数据；



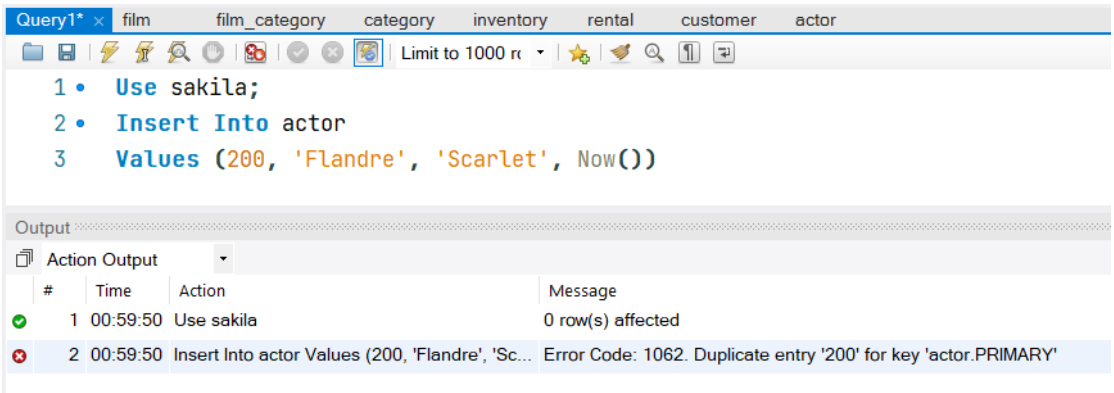
13、 删除第 11 步新增的那条数据。



三、 思考题

1) 如果 insert 一条数据到 actor 表，但 actor_id 和已有数据重复，会发生什么？同学们请自己尝试一下，截图并分析原因。

会报错，因为 actor_id 是主键，不能有两个元组的主键相同。



2) insert 语句还用了一个函数 NOW()，是做什么的呢？

这个函数返回一个时间对象，用于标记此条记录增加/修改的时间