**任课教师：张涵翠、霍戌文**

**《数据库系统实训》**

**（2021-2022学年第2学期）**

**实**

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**实验九：触发器**

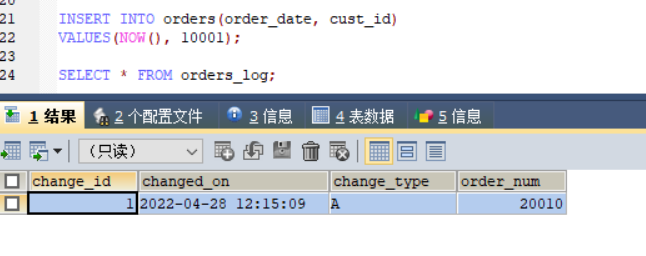
1. **--使用触发器**

**第一部分：样例库的应用**

**1）INSERT 触发器**

|  |
| --- |
| CREATE TABLE orders\_log(  change\_id int NOT NULL AUTO\_INCREMENT,  changed\_on datetime NOT NULL ,  change\_type char(1) NOT NULL ,  order\_num int NOT NULL ,  PRIMARY KEY (change\_id)  ) ENGINE=INNODB;  drop trigger if exists neworder;  DELIMITER //  CREATE TRIGGER neworder AFTER INSERT ON orders  FOR EACH ROW  BEGIN  INSERT INTO orders\_log(changed\_on, change\_type, order\_num)  VALUES(Now(),'A', NEW.order\_num);  END //  DELIMITER ; |

**执行结果：**

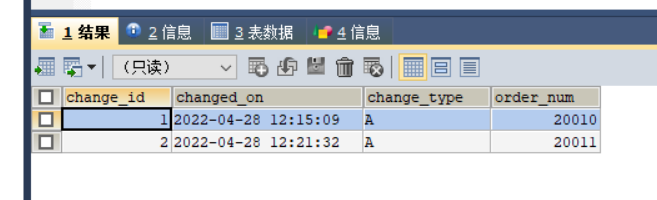


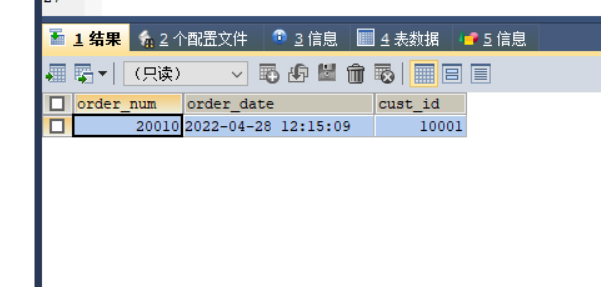
**2）DELETE触发器**

|  |
| --- |
| CREATE TABLE archive\_orders  (  order\_num int NOT NULL,  order\_date datetime NOT NULL ,  cust\_id int NOT NULL  ) ENGINE=InnoDB;  drop trigger if exists deleteorder;  DELIMITER //  CREATE TRIGGER deleteorder AFTER DELETE ON orders  FOR EACH ROW  BEGIN  INSERT INTO orders\_log(changed\_on, change\_type, order\_num)  VALUES(Now(),'D', OLD.order\_num);  INSERT INTO archive\_orders(order\_num, order\_date, cust\_id)  VALUES(OLD.order\_num, OLD.order\_date, OLD.cust\_id);  END //  DELIMITER ; |

**执行结果：**

|  |
| --- |
| DELETE FROM orders WHERE order\_num ='20010';  SELECT \* FROM orders\_log;  SELECT \* FROM archive\_ orders; |

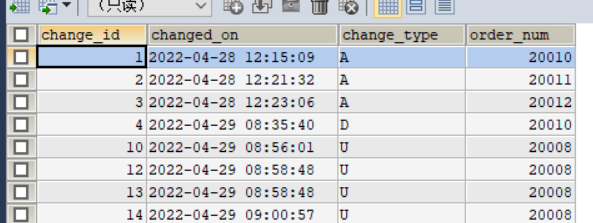


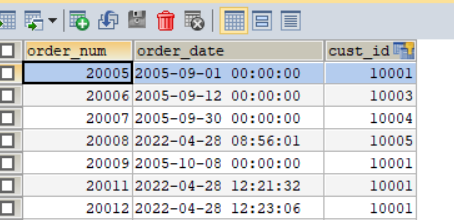


**3）UPDATE触发器**

|  |
| --- |
| drop trigger if exists updateorders;  DELIMITER //  CREATE TRIGGER updateorders BEFORE UPDATE ON orders  FOR EACH ROW  BEGIN  INSERT INTO orders\_log(changed\_on, change\_type, order\_num)  VALUES(Now(),'U', OLD.order\_num);  SET NEW.ORDER\_DATE = NOW();  END //  DELIMITER ;  UPDATE orders SET order\_date='2022-04-28 08:56:01' WHERE cust\_id='10005';  SELECT \* FROM orders\_log;  SELECT \* FROM orders; |

**执行结果：**



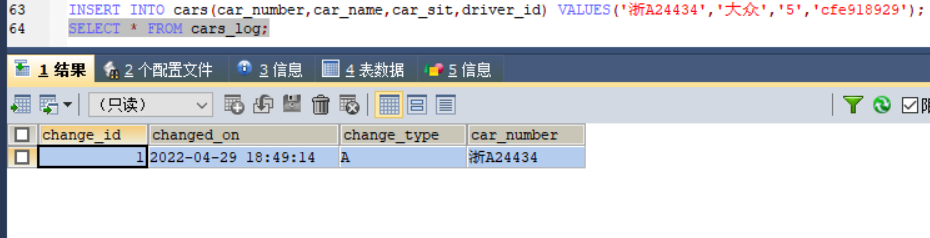


**第二部分：所选课题数据库的应用**

**1）INSERT 触发器**

|  |
| --- |
| CREATE TABLE cars\_log  (  change\_id int NOT NULL AUTO\_INCREMENT,  changed\_on datetime NOT NULL ,  change\_type char(1) NOT NULL ,  car\_number varchar(20) NOT NULL ,  PRIMARY KEY (change\_id)  ) ENGINE=INNODB;  drop trigger if exists newcar;  DELIMITER //  CREATE TRIGGER newcar AFTER INSERT ON cars  FOR EACH ROW  BEGIN  INSERT INTO cars\_log(changed\_on, change\_type, car\_number)  VALUES(Now(),'A', NEW.car\_number);  END //  DELIMITER ; |

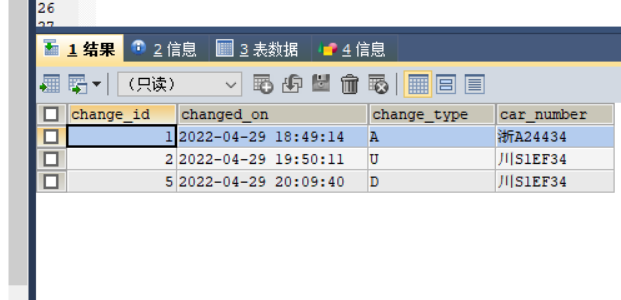
**执行结果：**

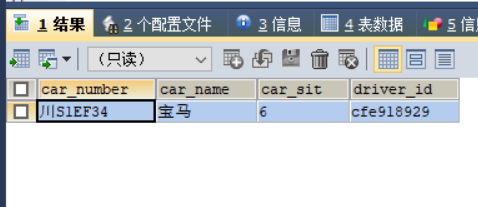


**2）DELETE触发器**

|  |
| --- |
| CREATE TABLE archive\_car  (  car\_number varchar(20) NOT NULL primary key,  car\_name varchar(20) NOT NULL ,  car\_sit varchar(20) NOT NULL ,  driver\_id varchar(20) not null  ) ENGINE=InnoDB;  drop trigger if exists deletecar;  DELIMITER //  CREATE TRIGGER deletecar BEFORE DELETE ON cars  FOR EACH ROW  BEGIN  INSERT INTO cars\_log(changed\_on, change\_type, car\_number)  VALUES(Now(),'D', OLD.car\_number);  INSERT INTO archive\_car(car\_number, car\_name, car\_sit,driver\_id)  VALUES(OLD.car\_number, OLD.car\_name, OLD.car\_sit,OLD.driver\_id);  END //  DELIMITER ;  delete from cars WHERE car\_number ='川S1EF34';  SELECT \* FROM cars\_log;  SELECT \* FROM archive\_car; |

**执行结果：**





**3）UPDATE触发器**

|  |
| --- |
| DELIMITER //  CREATE TRIGGER updatecars BEFORE UPDATE ON cars  FOR EACH ROW  BEGIN  INSERT INTO cars\_log(changed\_on, change\_type, car\_number)  VALUES(Now(),'U', OLD.car\_number);  END //  DELIMITER ;  UPDATE drive.cars SET car\_sit='6' WHERE car\_number='川S1EF34';  SELECT \* FROM cars\_log;  SELECT \* FROM cars; |

**执行结果：**

