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EC3
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The code is in the appendix, which is at the end of this document.

Here is the initial checking and saving table:

Result Grid		Filter Rows:	Search	Edit:	Export/Import:
id_count	account_id	balance	overdraft_limit		
▶ 15	CH-15	100	50		
16	CH-16	200	50		
17	CH-17	300	100		
18	CH-18	400	0		
NULL	NULL	NULL	NULL		
ec3_checking 111		ec3_savings 112	ec3_log 113		

Result Grid		Filter Rows:	Search	Edit:	Export
id_count	account_id	balance	minimum_balance		
▶ 1	SV-1	760	50		
2	SV-2	200	200		
3	SV-3	150	0		
4	SV-4	900	70		
NULL	NULL	NULL	NULL		
ec3_checking 114		ec3_savings 115	ec3_log 116		

After Test 1:

Result Grid		Filter Rows:	Search	Edit:	Export
	id_count	account_id	balance	overdraft_limit	
▶	15	CH-15	100	50	
	16	CH-16	200	50	
	17	CH-17	300	100	
	18	CH-18	400	0	
	19	CH-19	750	100	
	NULL	NULL	NULL	NULL	
ec3_checking 117		ec3_savings 118		ec3_log 119	



After Test 2:

Result Grid		Filter Rows:	Search	Edit:	Export
	id_count	account_id	balance	minimum_balance	
▶	1	SV-1	760	50	
	2	SV-2	200	200	
	3	SV-3	150	0	
	4	SV-4	900	70	
	5	SV-5	500	250	
	NULL	NULL	NULL	NULL	
ec3_checking 120		ec3_savings 121		ec3_log 122	


After Test 3:

100%	1:173				
Result Grid		Filter Rows:	Search	Export:	
	@rc				
▶	1				
Result 131		ec3_checking 132		ec3_savings 133	
				ec3_log 134	




Result Grid




Filter Rows:

 Search

Edit:



Export/Import:



	id_count	account_id	balance	overdraft_limit
▶	15	CH-15	0	50
	16	CH-16	200	50
	17	CH-17	300	100
	18	CH-18	400	0
	19	CH-19	750	100
	NULL	NULL	NULL	NULL

Result 131




ec3_checking 132

ec3_savings 133

ec3_log 134


	id_count	account_id	balance	minimum_balance								
▶	1	SV-1	860	50								
	2	SV-2	200	200								
	3	SV-3	150	0								
	4	SV-4	900	70								
	5	SV-5	500	250								
	NULL	NULL	NULL	NULL								
Result 131					ec3_checking 132			ec3_savings 133			ec3_log 134	


After test 4:

Result Grid				Filter Rows:	<input type="text" value="Search"/>	Export: 
	@rc					
▶	1					

100% 3:1


Result Grid







Filter Rows:

Edit:







	id_count	account_id	balance	overdraft_limit
▶ 15	CH-15	0	50	
16	CH-16	-25	50	
17	CH-17	300	100	
18	CH-18	400	0	
19	CH-19	750	100	
	NULL	NULL	NULL	NULL



Result 135

ec3_checking 136




ec3_savings 137

ec3_log 138

Result Grid



Filter Rows:

Edit: 

	id_count	account_id	balance	minimum_balance
▶ 1	SV-1	1085	50	
2	SV-2	200	200	
3	SV-3	150	0	
4	SV-4	900	70	
5	SV-5	500	250	
	NULL	NULL	NULL	

Result 135




ec3_checking 136

ec3_savings 137

ec3_log 138

After test 5:

100% 12:1/4

Result Grid   Filter Rows: Export: 

	@rc
▶ -1	

Result 139 ec3_checking 140 ec3_savings 141 ec3_log 142

Tables have no change.

Final result:

100% 12:174

Result Grid Filter Rows: Search Edit: Export/Import:

id_count	account_id	balance	overdraft_limit
15	CH-15	0	50
16	CH-16	-25	50
17	CH-17	300	100
18	CH-18	400	0
19	CH-19	750	100
NULL	NULL	NULL	NULL

Result 139 ec3_checking 140 ec3_savings 141 ec3_log 142

100% 12:174

Result Grid Filter Rows: Search Edit: Export/Import:

id_count	account_id	balance	minimum_balance
1	SV-1	1085	50
2	SV-2	200	200
3	SV-3	150	0
4	SV-4	900	70
5	SV-5	500	250
NULL	NULL	NULL	NULL

Result 139 ec3_checking 140 ec3_savings 141 ec3_log 142

100% 12:174

Result Grid Filter Rows: Search Edit: Export/Import:

sequence_number	source_id	target_id	amount	result_code	transfer_time
4	CH-15	SV-1	100	1	2017-12-12 22:21:59
5	CH-16	SV-1	225	1	2017-12-12 22:29:22
6	CH-19	SV-1	900	-1	2017-12-12 22:33:42
NULL	NULL	NULL	NULL	NULL	NULL

Result 139 ec3_checking 140 ec3_savings 141 ec3_log 142

Appendix:

```
/*
DROP TABLE IF EXISTS `ec3_checking`;
CREATE TABLE `ec3_checking` (
  `id_count` int(11) NOT NULL AUTO_INCREMENT,
  `account_id` varchar(12) DEFAULT NULL,
  `balance` float NOT NULL,
  `overdraft_limit` float NOT NULL,
  PRIMARY KEY (`id_count`),
  UNIQUE KEY `id_count_UNIQUE` (`id_count`)
) ENGINE=InnoDB AUTO_INCREMENT=14 DEFAULT CHARSET=utf8;
```

```
DROP TABLE IF EXISTS `ec3_savings`;
CREATE TABLE `ec3_savings` (
  `id_count` int(11) NOT NULL AUTO_INCREMENT,
  `account_id` varchar(12) DEFAULT NULL,
  `balance` float NOT NULL,
  `minimum_balance` float NOT NULL,
  PRIMARY KEY (`id_count`),
  UNIQUE KEY `id_count_UNIQUE` (`id_count`)
) ENGINE=InnoDB AUTO_INCREMENT=1 DEFAULT CHARSET=utf8;
```

```
DROP TABLE IF EXISTS `ec3_log`;
CREATE TABLE `ec3_log` (
  `sequence_number` int(11) NOT NULL AUTO_INCREMENT,
  `source_id` varchar(12) DEFAULT NULL,
  `target_id` varchar(12) DEFAULT NULL,
  `amount` float DEFAULT NULL,
  `result_code` int DEFAULT NULL,
  `transfer_time` timestamp,
  PRIMARY KEY (`sequence_number`)
) ENGINE=InnoDB AUTO_INCREMENT=4 DEFAULT CHARSET=utf8;
```

```
DROP TRIGGER IF EXISTS `trigger_insert_checking`;
DELIMITER $$
CREATE TRIGGER `trigger_insert_checking`
  BEFORE INSERT ON `ec3_checking` FOR EACH ROW
BEGIN
```

```
    IF NOT EXISTS (select * from `ec3_checking`) THEN
      SET New.account_id = "CH-14";
    ELSE
      SET New.account_id = CONCAT("CH-",(select max(id_count) from
`ec3_checking`)+1);
```

```

        end if;

END $$
DELIMITER ;

DROP TRIGGER IF EXISTS `trigger_insert_saving`;
DELIMITER $$
CREATE TRIGGER `trigger_insert_saving`
  BEFORE INSERT ON `ec3_savings` FOR EACH ROW
  BEGIN
    IF NOT EXISTS (select * from `ec3_savings`) THEN
      SET New.account_id = "SV-1";
    ELSE
      SET New.account_id = CONCAT("SV-",(select max(id_count) from
`ec3_savings`)+1);
    end if;

END $$
DELIMITER ;

DROP PROCEDURE IF EXISTS `transfer_commit`;
DELIMITER $$
CREATE PROCEDURE `transfer_commit` (source_id VARCHAR(12),target_id
VARCHAR(12),
amount float,OUT rc int)

BEGIN
  DECLARE temp_balance float;
  IF source_id LIKE "CH-%" THEN
    IF ((select balance from `ec3_checking` where `account_id` = source_id) -
amount) >
(-1.0 * (select overdraft_limit from `ec3_checking` where `account_id` = source_id))
THEN
    # Debit the balance in the source account
    SET temp_balance = (select balance from `ec3_checking` where `account_id` =
source_id);
    update `ec3_checking` set balance = temp_balance - amount where
account_id = source_id;

    # Increase the balance in the target account
    IF target_id LIKE "CH-%" THEN
      SET temp_balance = (select balance from `ec3_checking`
where `account_id` = target_id);
      update `ec3_checking` set balance = temp_balance + amount
where account_id = target_id;
    END IF;

```

```

        IF target_id LIKE "SV-%" THEN
            SET temp_balance = (select balance from `ec3_savings`
where `account_id` = target_id);
            update `ec3_savings` set balance = temp_balance + amount
where account_id = target_id;
        END IF;

        # Write a log record containing the source account id,
        # target account id, amount and an rc=1 to the log table
        INSERT INTO `ec3_log` (`source_id`, `target_id`, `amount`, `result_code`)
            VALUES (source_id,target_id,amount,1);

        SET rc = 1;
    ELSE
        INSERT INTO `ec3_log` (`source_id`, `target_id`, `amount`, `result_code`)
            VALUES (source_id,target_id,amount,-1);

        SET rc = -1;
    END IF;
    ELSEIF source_id LIKE "SV-%" THEN
        IF ((select balance from `ec3_savings` where `account_id` = source_id) -
amount) >
        (1.0 * (select minimum_balance from `ec3_savings` where `account_id` =
source_id)) THEN

            # Debit the balance in the source account
            SET temp_balance = (select balance from `ec3_savings` where `account_id` =
source_id);
            update `ec3_savings` set balance = temp_balance - amount where
account_id = source_id;

            # Increase the balance in the target account
            IF target_id LIKE "CH-%" THEN
                SET temp_balance = (select balance from `ec3_checking`
where `account_id` = target_id);
                update `ec3_checking` set balance = temp_balance + amount
where account_id = target_id;
            END IF;

            IF target_id LIKE "SV-%" THEN
                SET temp_balance = (select balance from `ec3_savings`
where `account_id` = target_id);
                update `ec3_savings` set balance = temp_balance + amount
where account_id = target_id;
            END IF;

            # Write a log record containing the source account id,
            # target account id, amount and an rc=1 to the log table

```



```

INSERT INTO `ec3_log` (`source_id`, `target_id`, `amount`, `result_code`)
VALUES (source_id,target_id,amount,1);

        SET rc = 1;
    ELSE
INSERT INTO `ec3_log` (`source_id`, `target_id`, `amount`, `result_code`)
VALUES (source_id,target_id,amount,-1);

        SET rc = -1;
    END IF;

END IF;
END $$
DELIMITER ;

```

```

# load initial data
INSERT INTO `ec3_checking` (balance,overdraft_limit) VALUES (0,0);
INSERT INTO `ec3_checking` (balance,overdraft_limit) VALUES (100,50);
INSERT INTO `ec3_checking` (balance,overdraft_limit) VALUES (200,50);
INSERT INTO `ec3_checking` (balance,overdraft_limit) VALUES (300,100);
INSERT INTO `ec3_checking` (balance,overdraft_limit) VALUES (400,0);
DELETE FROM `ec3_checking` where id_count = 14;
INSERT INTO `ec3_savings` (balance,minimum_balance) VALUES (760,50);
INSERT INTO `ec3_savings` (balance,minimum_balance) VALUES (200,200);
INSERT INTO `ec3_savings` (balance,minimum_balance) VALUES (150,0);
INSERT INTO `ec3_savings` (balance,minimum_balance) VALUES (900,70);

```

```

# test 1
INSERT INTO `ec3_checking` (balance,overdraft_limit) VALUES (750,100);

```

```

# test 2
INSERT INTO `ec3_savings` (balance, minimum_balance) values(500, 250);

```

```

# test 3
call transfer_commit("CH-15", "SV-1",100,@rc);
select @rc;

```

```

# test 4
call transfer_commit("CH-16", "SV-1",225,@rc);
select @rc;
*/

```

```

# test 5:
call transfer_commit("CH-19", "SV-1",900,@rc);

```

```
select @rc;
```

```
#call transfer_commit("V-15", "SV-1",100,@rc);  
#select @rc;
```

```
select * from `ec3_checking`;  
select * from `ec3_savings`;  
select * from `ec3_log`;
```