



دانشگاه صنعتی اصفهان
دانشکده مهندسی برق و کامپیوتر

عنوان: تکلیف ششم درس پایگاه داده‌ها ۱

نام و نام خانوادگی: علیرضا ابره فروش

شماره دانشجویی: ۹۸۱۶۶۰۳

نیم سال تحصیلی: پاییز ۱۴۰۰

مدرس: دکتر ناصر قدیری مدرس

دستیاران آموزشی: عارف آسمند - بهاره حاجی هاشمی - پردیس مرادیکی

- سیدمهدی موسوی

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| Data Output | Explain | Messages | Notifications |
|---|---------|----------|---------------|
| ERROR: new row for relation "trader" violates check constraint "trader_birth_date_check" DETAIL: Failing row contains (41561, Alfred Yoming, 1700-01-01 00:00:00, 1990-01-01 00:00:00, 1233.00). SQL state: 23514 | | | |

شکل ۱: سوال ۱

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| | first_name character varying (45) | last_name character varying (45) | title character varying (255) | ?column? interval |
|----|--------------------------------------|-------------------------------------|----------------------------------|--------------------------|
| 1 | Peter | Menard | Rules Human | 609 days 22:28:26.996577 |
| 2 | Peter | Menard | Majestic Floats | 609 days 22:28:26.996577 |
| 3 | Peter | Menard | Maiden Home | 609 days 22:28:26.996577 |
| 4 | Peter | Menard | Hyde Doctor | 609 days 22:28:26.996577 |
| 5 | Peter | Menard | Massacre Usual | 609 days 22:28:26.996577 |
| 6 | Peter | Menard | Annie Identity | 609 days 22:28:26.996577 |
| 7 | Harold | Martino | Wash Heavenly | 609 days 22:28:26.996577 |
| 8 | Harold | Martino | Lola Agent | 609 days 22:28:26.996577 |
| 9 | Harold | Martino | Identity Lover | 609 days 22:28:26.996577 |
| 10 | Douglas | Graf | Opposite Necklace | 609 days 22:28:26.996577 |
| 11 | Douglas | Graf | Anything Savannah | 609 days 22:28:26.996577 |
| 12 | Douglas | Graf | Superfly Trip | 609 days 22:28:26.996577 |

شکل ۲: سوال ۳

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سه روش اصلی Blob، Clob و ذخیره در دیسک و استفاده از پوینتر برای دسترسی به فایل است.

Table 1

| | Blob | Clob |
|----|---|--|
| 1. | The full form of Blob is a Binary Large Object. | The full form of Clob is Character Large Object. |
| 2. | This is used to store large binary data. | This is used to store large textual data. |
| 3. | This stores values in the form of binary streams. | This stores values in the form of character streams. |
| 4. | Using this you can store files like videos, images, gifs, and audio files. | Using this you can store files like text files, PDF documents, word documents etc. |
| 5. | MySQL supports this with the following datatypes: TINYBLOB BLOB MEDIUMBLOB LONGBLOB | MySQL supports this with the following datatypes: TINYTEXT TEXT MEDIUMTEXT LONGTEXT |
| 6. | In JDBC API it is represented by java.sql.Blob Interface. | In JDBC it is represented by java.sql.Clob Interface. |
| 7. | The Blob object in JDBC points to the location of BLOB instead of holding its binary data. | The Blob object in JDBC points to the location of BLOB instead of holding its character data. |
| 8. | To store Blob JDBC (PreparedStatement) provides methods like: setBlob() setBinaryStream() | To store Clob JDBC (PreparedStatement) provides methods like: setClob() setCharacterStream() |
| 9. | And to retrieve (ResultSet) Blob it provides methods like: getBlob() getBinaryStream | And to retrieve (ResultSet) Clob it provides methods like: getClob() getCharacterStream() |

```

2 select
3     A.title
4 from
5     film as A
6 where
7     A.title = 'Chamber Italian'

```

Data Output Explain Messages Notifications

Successfully run. Total query runtime: 174 msec.
1 rows affected.

شکل ۳: کوئری پیش از تعریف ایندکس در ۱۷۴ میلی‌ثانیه اجرا می‌شود.

```

1 create index myIdx ON film using btree (title);
2 select
3     A.title
4 from
5     film as A
6 where
7     A.title = 'Chamber Italian'

```

Data Output Explain Messages Notifications

Successfully run. Total query runtime: 152 msec.
1 rows affected.

شکل ۴: کوئری پس از تعریف ایندکس در ۱۵۲ میلی‌ثانیه اجرا می‌شود.

| Data Output | Explain | Messages | Notifications |
|--|---|----------|---------------|
| <div> <div>QUERY PLAN</div> <div>text</div> </div> | | | |
| 1 | Seq Scan on film a (cost=0.00..66.50 rows=1 width=15) | | |
| 2 | [...] Filter: ((title)::text = 'Chamber Italian'::text) | | |

شکل ۵: خروجی *explain* پیش از تعریف ایندکس

| Data Output | Explain | Messages | Notifications |
|--|---|----------|---------------|
| <div> <div>QUERY PLAN</div> <div>text</div> </div> | | | |
| 1 | Index Only Scan using myidx on film a (cost=0.28..8.29 rows=1 width=15) | | |
| 2 | [...] Index Cond: (title = 'Chamber Italian'::text) | | |

شکل ۶: خروجی *explain* پس از تعریف ایندکس

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| | indexname name | tablename name | indexdef text |
|----|--|-----------------------------|--|
| 1 | PK_Customer_CustomerID | customer | CREATE UNIQUE INDEX "PK_Customer_CustomerID" ON sales.customer USING btree (customerid) |
| 2 | PK_CurrencyRate_CurrencyRateID | currencyrate | CREATE UNIQUE INDEX "PK_CurrencyRate_CurrencyRateID" ON sales.currencyrate USING btree (currencyrateid) |
| 3 | PK_SpecialOffer_SpecialOfferID | specialoffer | CREATE UNIQUE INDEX "PK_SpecialOffer_SpecialOfferID" ON sales.specialoffer USING btree (specialofferid) |
| 4 | PK_Store_BusinessEntityID | store | CREATE UNIQUE INDEX "PK_Store_BusinessEntityID" ON sales.store USING btree (businessentityid) |
| 5 | PK_SpecialOfferProduct_SpecialOfferID_ProductID | specialofferproduct | CREATE UNIQUE INDEX "PK_SpecialOfferProduct_SpecialOfferID_ProductID" ON sales.specialofferproduct USING btree (specialofferid, productid) |
| 6 | PK_SalesOrderHeaderSalesReason_SalesOrderID_SalesReasonID | salesorderheadersalesreason | CREATE UNIQUE INDEX "PK_SalesOrderHeaderSalesReason_SalesOrderID_SalesReasonID" ON sales.salesorderheader USING btree (salesorderid, salesreasonid) |
| 7 | PK_CountryRegionCurrency_CountryRegionCode_CurrencyCode | countryregioncurrency | CREATE UNIQUE INDEX "PK_CountryRegionCurrency_CountryRegionCode_CurrencyCode" ON sales.countryregioncurrency USING btree (countryregioncode, currencycode) |
| 8 | PK_Currency_CurrencyCode | currency | CREATE UNIQUE INDEX "PK_Currency_CurrencyCode" ON sales.currency USING btree (currencycode) |
| 9 | PK_CreditCard_CreditCardID | creditcard | CREATE UNIQUE INDEX "PK_CreditCard_CreditCardID" ON sales.creditcard USING btree (creditcardid) |
| 10 | PK_PersonCreditCard_BusinessEntityID_CreditCardID | personcreditcard | CREATE UNIQUE INDEX "PK_PersonCreditCard_BusinessEntityID_CreditCardID" ON sales.personcreditcard USING btree (businessentityid, creditcardid) |
| 11 | PK_SalesOrderHeader_SalesOrderID | salesorderheader | CREATE UNIQUE INDEX "PK_SalesOrderHeader_SalesOrderID" ON sales.salesorderheader USING btree (salesorderid) |
| 12 | PK_SalesOrderDetail_SalesOrderID_SalesOrderDetailID | salesorderdetail | CREATE UNIQUE INDEX "PK_SalesOrderDetail_SalesOrderID_SalesOrderDetailID" ON sales.salesorderdetail USING btree (salesorderid, salesorderdetailid) |
| 13 | PK_ShoppingCartItem_SalesOrderID_SalesOrderDetailID_SalesOrderDetailID_SalesOrderDetailID_SalesOrderDetailID | shoppingcartitem | CREATE UNIQUE INDEX "PK_ShoppingCartItem_SalesOrderID_SalesOrderDetailID_SalesOrderDetailID_SalesOrderDetailID_SalesOrderDetailID" ON sales.shoppingcartitem USING btree (salesorderid, salesorderdetailid, salesorderdetailid, salesorderdetailid, salesorderdetailid) |
| 14 | PK_SalesTaxHeaderSalesReasonID_SalesOrderID_SalesOrderDetailID_SalesOrderDetailID_SalesOrderDetailID_SalesOrderDetailID_SalesOrderDetailID | sales-tax-header | CREATE UNIQUE INDEX "PK_SalesTaxHeaderSalesReasonID_SalesOrderID_SalesOrderDetailID_SalesOrderDetailID_SalesOrderDetailID_SalesOrderDetailID_SalesOrderDetailID" ON sales.sales-tax-header USING btree (salesreasonid, salesorderid, salesorderdetailid, salesorderdetailid, salesorderdetailid, salesorderdetailid, salesorderdetailid) |

شکل ۷: سوال ۶

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| PID | Lock type | Target relation | Page | Tuple | vXID (target) | XID (target) | Class | Object ID | vXID (owner) | Mode | Granted? |
|-------|-----------|-----------------|------|-------|---------------|--------------|-------|-----------|--------------|------------------|----------|
| 12112 | relation | pg_locks | | | | | | | 7/8570 | AccessShareLock | true |
| 26840 | relation | accounts_pkey | | | | | | | 4/681 | RowExclusiveLock | true |
| 26840 | relation | accounts | | | | | | | 4/681 | RowExclusiveLock | true |

شکل ۸: لاگ پس از تغییر حساب *Amir* و *Ali* و پیش از پایان تراکنش (*commit*)

| PID | Lock type | Target relation | Page | Tuple | vXID (target) | XID (target) | Class | Object ID | vXID (owner) | Mode | Granted? |
|-------|-----------|-----------------|------|-------|---------------|--------------|-------|-----------|--------------|-----------------|----------|
| 12112 | relation | pg_locks | | | | | | | 7/8635 | AccessShareLock | true |

شکل ۹: لاگ پس از تغییر حساب *Amir* و *Ali* و پس از پایان تراکنش (*commit*)

Data Output Explain Messages Notifications

WARNING: there is no transaction in progress
ROLLBACK

Query returned successfully in 119 msec.

شکل ۱۰: پس از پایان تراکنش دیگر *rollback* صورت نمی‌گیرد، زیرا تراکنش در حال اجرا نداریم.

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| | account_id [PK] integer | name character varying (50) | balance numeric (12,3) |
|---|-----------------------------------|---------------------------------------|----------------------------------|
| 1 | 2 | Ali | 1850.000 |
| 2 | 1 | Amir | 1150.000 |
| | | | |

شکل ۱۱: جدول *accounts* پس از تغییر حساب *Amir* و *Ali* و پیش از *rollback*

| PID | Lock type | Target relation | Page | Tuple | vXID (target) | XID (target) | Class | Object ID | vXID (owner) | Mode | Granted? |
|-------|-----------|-----------------|------|-------|---------------|--------------|-------|-----------|--------------|-----------------|----------|
| 18188 | relation | pg_locks | | | | | | | 5/15202 | AccessShareLock | true |

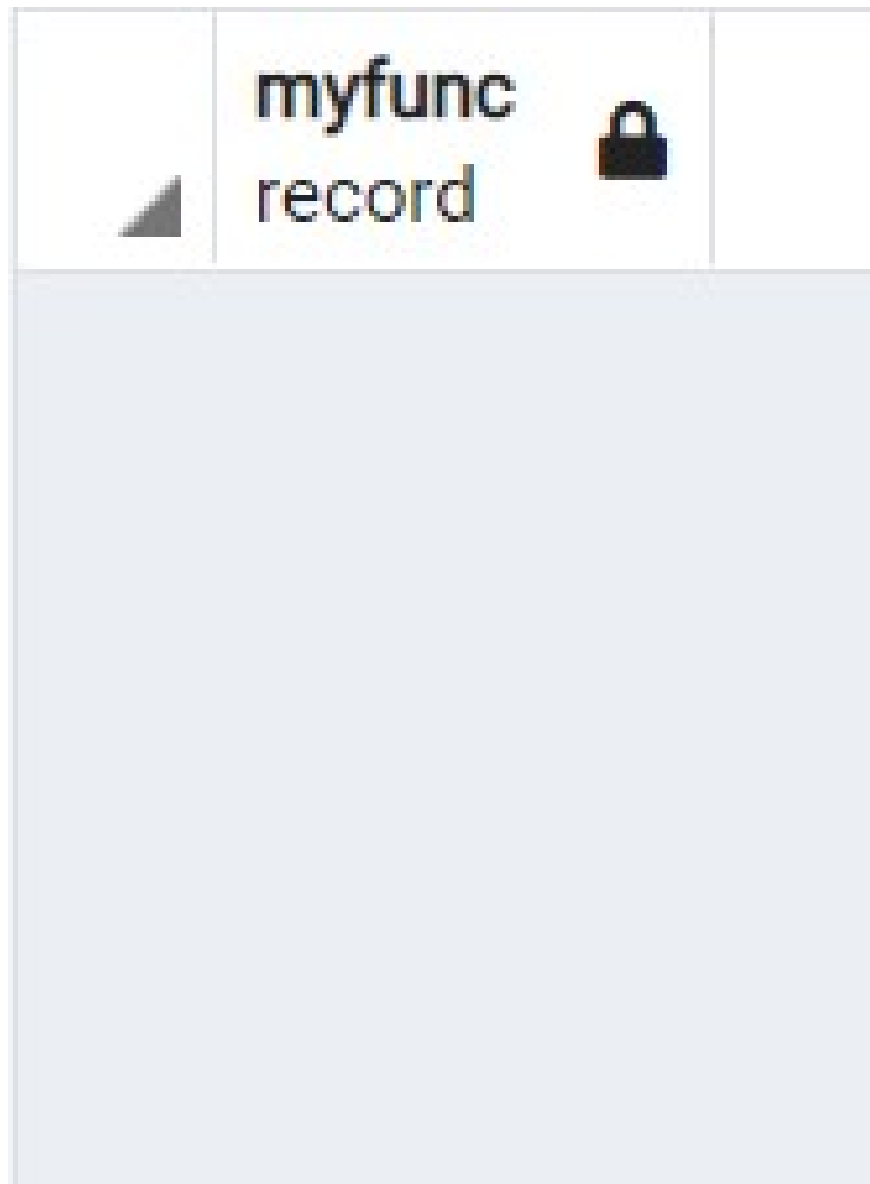
شکل ۱۲: لاگ پس از تغییر حساب *Amir* و *Ali* و پیش از *rollback*

| | account_id [PK] integer | name character varying (50) | balance numeric (12,3) |
|---|-----------------------------------|---------------------------------------|----------------------------------|
| 1 | 1 | Amir | 1000.000 |
| 2 | 2 | Ali | 2000.000 |
| | | | |

شکل ۱۳: جدول *accounts* پس از تغییر حساب *Amir* و *Ali* و پس از *rollback*

| PID | Lock type | Target relation | Page | Tuple | vXID (target) | XID (target) | Class | Object ID | vXID (owner) | Mode | Granted? |
|-------|-----------|-----------------|------|-------|---------------|--------------|-------|-----------|--------------|-----------------|----------|
| 18188 | relation | pg_locks | | | | | | | 5/15340 | AccessShareLock | true |

شکل ۱۴: لاگ پس از تغییر حساب *Amir* و *Ali* و پس از *rollback*



شکل ۱۵: خروجی اجرای تابع برای ناحیه *Alberta*

| | myfunc record |
|---|--------------------------------------|
| 1 | (Jennifer,Davis,"Masked Bubble") |
| 2 | (Kim,Cruz,"Rouge Squad") |
| 3 | (Richard,Mccrary,"Rocketeer Mother") |
| 4 | (Bryan,Hardison,"Strictly Scarface") |
| 5 | (Ian,Still,"Mockingbird Hollywood") |

شکل ۱۶: خروجی اجرای تابع برای ناحیه Texas

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| | film_id [PK] integer | title character varying (255) | rating mpaa_rating |
|---|-------------------------|----------------------------------|-----------------------|
| 1 | 133 | Chamber Italian | NC-17 |
| 2 | 384 | Grosse Wonderful | R |

شکل ۱۷: قبل از اجرای stored procedure

| | film_id [PK] integer | title character varying (255) | rating mpaa_rating |
|---|-------------------------|----------------------------------|-----------------------|
| 1 | 133 | Chamber Italian | R |
| 2 | 384 | Grosse Wonderful | NC-17 |

شکل ۱۸: پس از اجرای stored procedure

منابع

[1] <https://www.tutorialspoint.com/what-is-the-difference-between-blob-and-clob-datatypes>