

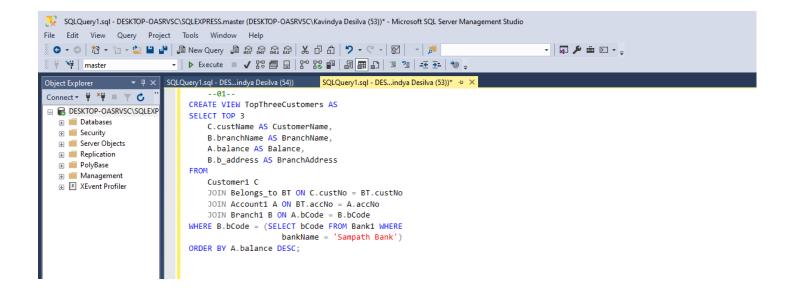
Sri Lanka Institute of Information Technology

Database Management Systems for Security - IE2024

Lab Submission 05

IT22151056 De Silva K.R.K.D Group – WD.CS 01.02

Activity 01



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                                                                 SOLOuery1.sql - DES..indya Desilva (54))

SOLOuery1.sql - DES..indya Desilva (53))*

JOIN Account1 A ON BT. accNo = A. accNo
JOIN Branch1 B ON A. bCode = B. bCode

WHERE B. bCode = (SELECT bCode FROM Bank1 WHERE
bankName = 'Sampath Bank')
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            ORDER BY A.balance DESC;
             --02--
           CREATE VIEW TopDepositByBank AS
                                                                                                                                SELECT
                                                                                                                                                B.bankName AS BankName
                                                                                                                                                {\color{red} \textbf{COUNT}} \ (\textbf{H.tid}) \ {\color{blue} \textbf{AS}} \ {\color{blue} \textbf{TotalDeposits}}
                                                                                                                                               Bank1 B
                                                                                                                                               Banki B
JOIN Branchi BR ON B.bCode = BR.bCode
JOIN Accounti A ON BR.bCode = A.bCode AND BR.branchNo = A.branchNo
JOIN Hasi H ON A.accNo = H.accountNo
JOIN Transactioni T ON H.tid = T.tid
                                                                                                                               WHERE H.h_type = 'Credit'
                                                                                                                                 GROUP BY B.bankName
```

03)

```
CREATE FUNCTION GetTotalBranchBalance (
    @bankName varchar (200),

    @branchName varchar (150)
)

RETURNS DECIMAL(10,2)
    AS
    BEGIN
    DECLARE @totalBalance DECIMAL (10,2)

SELECT @totalBalance = SUM(A.balance)
    FROM Bank1 B
    JOIN Branch1 BR ON B.bCode = BR.bCode
    JOIN Account1 A ON BR.branchNo = A.branchNo AND B.bCode = A.bCode
    WHERE B.bankName = @bankName AND BR.branchName = @branchName;

RETURN @totalBalance;

END;
```

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  WHERE H.h_type = 'Credit'
GROUP BY B.bankName
   Replication
  --03--
   CREATE FUNCTION GetTotalBranchBalance (
                                  @bankName varchar (200),
@branchName varchar (150)
                              RETURNS DECIMAL(10,2)
                                      DECLARE @totalBalance DECIMAL (10,2)
                                  SELECT @totalBalance = SUM(A.balance)
                                  FROM Bank1 B
JOIN Branch1 BR ON B.bCode = BR.bCode
                                  JOIN Account1 A ON BR.branchNo = A.branchNo AND B.bCode = A.bCode
WHERE B.bankName = @bankName AND BR.branchName = @branchName;
                                  RETURN @totalBalance;
```

```
04)
```

```
AND year(T.date) = @year
AND H.h_type ='debit';

RETURN @totalWithdrawal;
END;
```

```
🛼 SQLQuery1.sql - DESKTOP-OASRVSC\SQLEXPRESS.master (DESKTOP-OASRVSC\Kavindya Desilva (53))* - Microsoft SQL Server Management Studio
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                      ▼ ﴿ X SQLQuery1.sql - DE5...indya Desilva (54)) SQLQuery1.sql - DE5...indya Desilva (53))* ▼ X WHERE B. bankName = @bankName AND BR. branchName = @branchName;
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□ R DESKTOP-OASRVSC\SQLEXF

                                             RETURN @totalBalance;
   END;
   $^{--04--}$ CREATE FUNCTION GetTotWithdrawalsByCustomer (
   @year int,
                                        RETURNS DECIMAL(10, 2)
                                             DECLARE @totalWithdrawal DECIMAL(10,2);
                                             SELECT @totalWithdrawal = SUM(T.amount)
                                             FROM Transaction1 T
                                            FROM Transaction1 T
JOIN Has1 H ON T.tid = H.tid
JOIN Account A ON H.accountNo = A.accNo
JOIN Belongs_to BE ON A.accNo = BE.accNo
WHERE BE.cuNo = @cusNo
AND T.executedBy = @method
AND year(T.date) = @year
AND H.h_type ='debit';
                                        RETURN @totalWithdrawal;
                                        END:
```

05)

```
CREATE PROCEDURE UpdateAccBalance
       @accNo int,
       @operation varchar(20),
       @amt DECIMAL(10,2)
AS
BEGIN
       IF @operation NOT IN ('Credit', 'Debit')
       BEGIN
              RAISEERROR('Invalid operation. Operation must be either "Credit" or
"Debit."', 16, 1);
        RETURN;
       END;
       IF @operation = 'Credit'
       BEGIN
              UPDATE Account1
              SET balance = balance + @amt
              WHERE accNo = @accNo;
       END;
       ELSE IF @operation = 'Debit'
       BEGIN
```

END;

```
SQLQuery1.sql - DESKTOP-OASRVSC\SQLEXPRESS.master (DESKTOP-OASRVSC\Kavindya Desilva (53))* - Microsoft SQL Server Management Studio
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                                        --05--
CREATE PROCEDURE UpdateAccBalance
     Databases

    Databases
    Security
    Server Objects
    Replication
    PolyBase
    Management
    XEvent Profiler
                                             @accNo int,
@operation varchar(20),
@amt DECIMAL(10,2)
                                        BEGIN
                                              IN IF @operation NOT IN ('Credit', 'Debit')
BEGIN
RAISEERROR('Invalid operation. Operation must be either "Credit" or "Debit."', 16, 1);
                                                  RETURN;
                                              IF @operation = 'Credit'
                                                   IN
UPDATE Account1
SET balance = balance + @amt
WHERE accNo = @accNo;
                                              ELSE IF @operation ='Debit'
                                                   DECLARE @currentBalance DECIMAL(10,2);
SELECT @currentBalance =balance
FROM Account1
                                                   WHERE accNo = @accNo
                                                   IF @amt > @currentBalance
                                                        RAISEERROR('insufficient balance for the debit', 16,1);
RETURN;
                                                   END;
                                                   UPDATE Account1
SET balance =balance -@amt
WHERE accNo =@accNo;
                                                   END;
                                   Messages
```

```
CREATE PROCEDURE TransMoney
       @sourceAccNo int,
       @amt DECIMAL(10,2),
       @targetAccNo int
AS
BEGIN
       IF @sourceAccNo = @targetAccNo
       BEGIN
              RAISEERROR('Target and source accounts cannot be the same.', 16, 1);
        RETURN;
       END;
       DECLARE @sourceBalance DECIMAL(10,2);
       SELECT @sourceBalance = balance
       FROM Account1
       WHERE accNo =@sourceAccNo;
       IF @amt > @sourceBalance
       BEGIN
              RAISEERROR('Amount in the source account is insufficient for the
transfer.', 16, 1);
              RETURN;
       END;
       BEGIN TRY
              BEGIN Transaction1;
              UPDATE Account1
              SET balance = balance -@amt
              WHERE accNo =@sourceAccNo;
              UPDATE Account1
              SET balance = balance + @amt
              WHERE accNo =@targetAccNo;
              COMMIT Transaction1;
              END TRY
              BEGIN CATCH
              ROLLBACK Transaction;
              RAISEERROR('The transfer was interrupted due to an error. transaction
reversed', 16, 1);
              END CATCH;
END;
```

```
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                                          --06--
CREATE PROCEDURE TransMoney
@sourceAccNo int,
@amt DECIMAL(10,2),
@targetAccNo int
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Databases

Security

Replication

PolyBase

Management

Xevent Profiler
                                           BEGIN
                                                IF @sourceAccNo = @targetAccNo
BEGIN
                                                    RAISEERROR('Target and source accounts cannot be the same.', 16, 1); RETURN;
                                               DECLARE @sourceBalance DECIMAL(10,2);
SELECT @sourceBalance = balance
FROM Account1
                                                WHERE accNo -@sourceAccNo;
                                               IF @amt > @sourceBalance
BEGIN
                                                         ISEERROR('Amount in the source account is insufficient for the transfer.', 16, 1):
                                                     RETURN:
                                               BEGIN TRY
BEGIN Transaction1;
                                                     UPDATE Account1
SET balance = balance -@amt
WHERE accNo =@sourceAccNo;
                                                     UPDATE Account1
SET balance = balance + @amt
WHERE accNo =@targetAccNo;
                                                      COMMIT Transaction1;
                                                     BEGIN CATCH
ROLLBACK Transaction;
RAISEERROR('The transfer was interrupted due to an error, transaction reversed', 16, 1);
END CATCH;
                                          END;
                                     ∰ Messages
```

07)

```
CREATE TRIGGER CheckminBalance
ON Account1
AFTER UPDATE
AS BEGIN

IF EXISTS (

SELECT 1

FROM deleted d

JOIN inserted i ON d.accNo = i.accNo
WHERE i.balance < 500
)
BEGIN

RAISEERROR('A withdrawal cannot leave a balance of less than Rs.

500',16,1);

ROLLBACK Transaction1;
END;
END;
```

```
    SQLQuery1.sql - DESKTOP-OASRVSC\SQLEXPRESS.master (DESKTOP-OASRVSC\Kavindya Desilva (53))* - Microsoft SQL Server Management Studio
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   CREATE TRIGGER CheckminBalance
                               ON Account1
   AFTER UPDATE
                               AS BEGIN
   IF EXISTS (
   SELECT 1
                                       FROM deleted d
JOIN inserted i ON d.accNo = i.accNo
                                       WHERE i.balance < 500
                                           RAISEERROR('A withdrawal cannot leave a balance of less than Rs. 500',16,1);
ROLLBACK Transaction1;
```

```
08)
CREATE TRIGGER CheckDailyAMTWithdrawal
ON Transaction1
AFTER INSERT
AS BEGIN
       DECLARE @MaxDailyWithdrawal DECIMAL(10,2) = 80000;
       DECLARE @accNo int;
       DECLARE @Withdrawalamt DECIMAL(10,2);
      DECLARE @WithdrawalDate DATE;
       SELECT @accNo = i.accNo, @Withdrawalamt = i.amt, @WithdrawalDate = CONVERT(DATE,
i.date)
       FROM inserted i;
      DECLARE @TotalWithdrawal DECIMAL(10,2);
       SELECT @TotalWithdrawal =SUM(amt)
       FROM Transaction1
      WHERE executeddBy = 'ATM'
              AND accNo = @AccNo
              AND COnvert(DATE, date) = @WithdrawalDate;
       IF @TotalWithdrawal > @MaxDailyWithdrawal
       BEGIN
             RAISEERROR('Daily ATM withdrawal limit exceeded, Maximum limit is Rs.80000'
16,1);
             RollBACK Transaction1;
             END;
END;
```

```
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                                CREATE TRIGGER CheckDailyAMTWithdrawal
☐ R DESKTOP-OASRVSC\SQLEXP
                                ON Transaction1
AFTER INSERT

    Security

                                AS BEGIN

    ■ Server Objects

                                    DECLARE @MaxDailyWithdrawal DECIMAL(10,2) = 80000;

■ Replication

                                    DECLARE @accNo int;
   DECLARE @Withdrawalamt DECIMAL(10,2);
                                    DECLARE @WithdrawalDate DATE;

    ★ XEvent Profiler

                                    SELECT @accNo = i.accNo, @Withdrawalamt = i.amt, @WithdrawalDate = CONVERT(DATE, i.date)
                                    FROM inserted i;
                                    DECLARE @TotalWithdrawal DECIMAL(10,2);
                                    SELECT @TotalWithdrawal =SUM(amt)
                                     FROM Transaction1
                                     WHERE executeddBy ='ATM'
                                        AND accNo = @AccNo
AND COnvert(DATE, date) = @WithdrawalDate;
                                     IF @TotalWithdrawal > @MaxDailyWithdrawal
                                         RAISEERROR('Daily ATM withdrawal limit exceeded, Maximum limit is Rs.80000' 16,1);
                                         RollBACK Transaction1;
```

```
09)
CREATE TRIGGER UpdateAccBalance
ON Transaction1
AFTER INSERT
AS BEGIN
       DECLARE @accNo int;
       DECLARE @amt DECIMAL(10,2);
      DECLARE @t_type varchar(20);
       SELECT @accNo = i.accNo, @amt = i.amt, @t_type = i.executedBy
       FROM inserted i;
       IF @t_type ='Credit'
       Begin
              EXEC UpdateAccBalance @accNo = @accNo, @amt= @amt, @operation = 'Credit';
       END
       ELSE IF @t_type = 'Debit'
       BEGIN
              EXEC UpdateAccBalance @accNo = @accNo, @amt = @amt, @operation ='Debit';
              END
END;
```

```
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                                CREATE TRIGGER UpdateAccBalance
   ON Transaction1
AFTER INSERT
                                AS BEGIN
  Replication
PolyBase
Management
EXEVENT Profiler
                                    DECLARE @accNo int;
DECLARE @amt DECIMAL(10,2);
DECLARE @t_type varchar(20);
                                    SELECT @accNo = i.accNo, @amt = i.amt, @t_type = i.executedBy FROM inserted i;
                                    IF @t_type ='Credit'
                                    EXEC UpdateAccBalance @accNo = @accNo, @amt= @amt, @operation ='Credit';
                                    ELSE IF @t_type = 'Debit'
                                    BEGIN
                                        EXEC UpdateAccBalance @accNo = @accNo, @amt = @amt, @operation ='Debit';
                                END;
```