Sri Lanka Institute of Information Technology

Database Management Systems for Security - IE2024

Lab Submission 05

IT22151056

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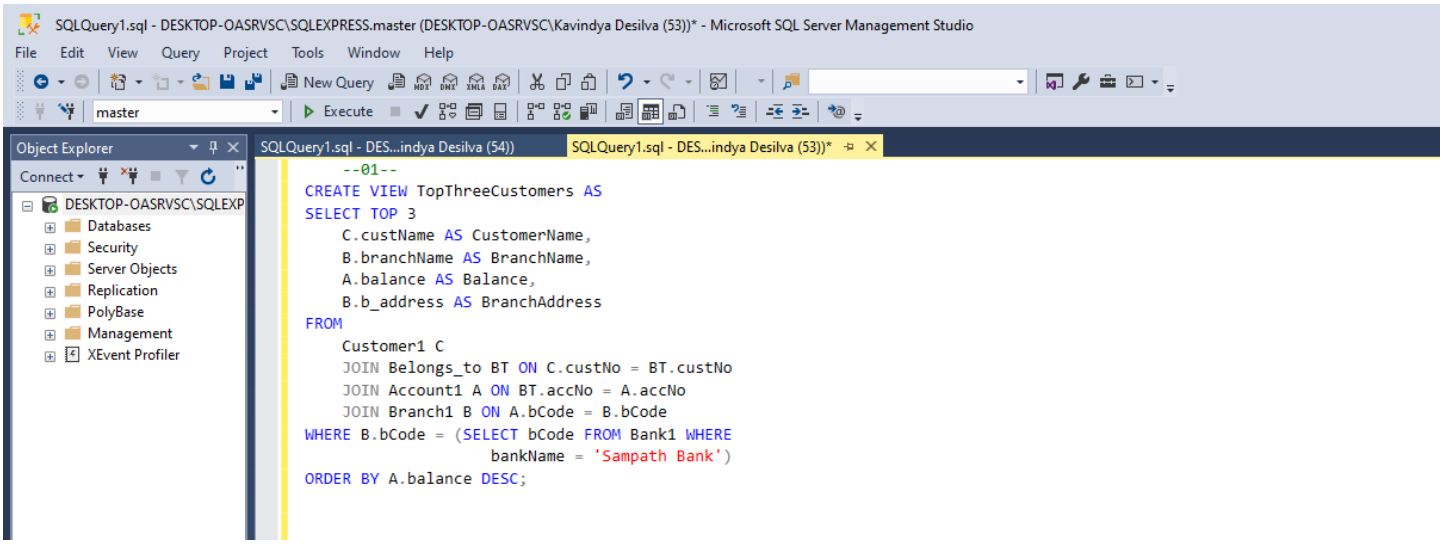
Group – WD.CS 01.02

Activity 01

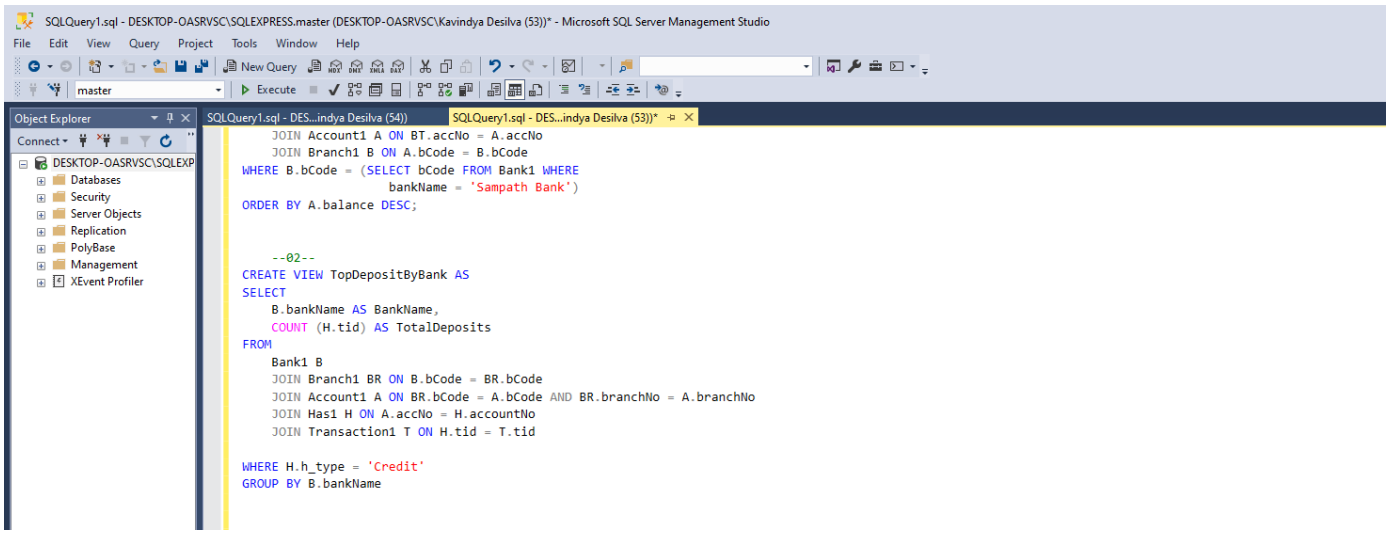
01)

```
CREATE VIEW TopThreeCustomers AS
SELECT TOP 3
       C.custName AS CustomerName,
       B.branchName AS BranchName,
       A.balance AS Balance,
       B.b_address AS BranchAddress
FROM
       Customer1 C
       JOIN Belongs_to BT ON C.custNo = BT.custNo
       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')
ORDER BY A.balance DESC;
```



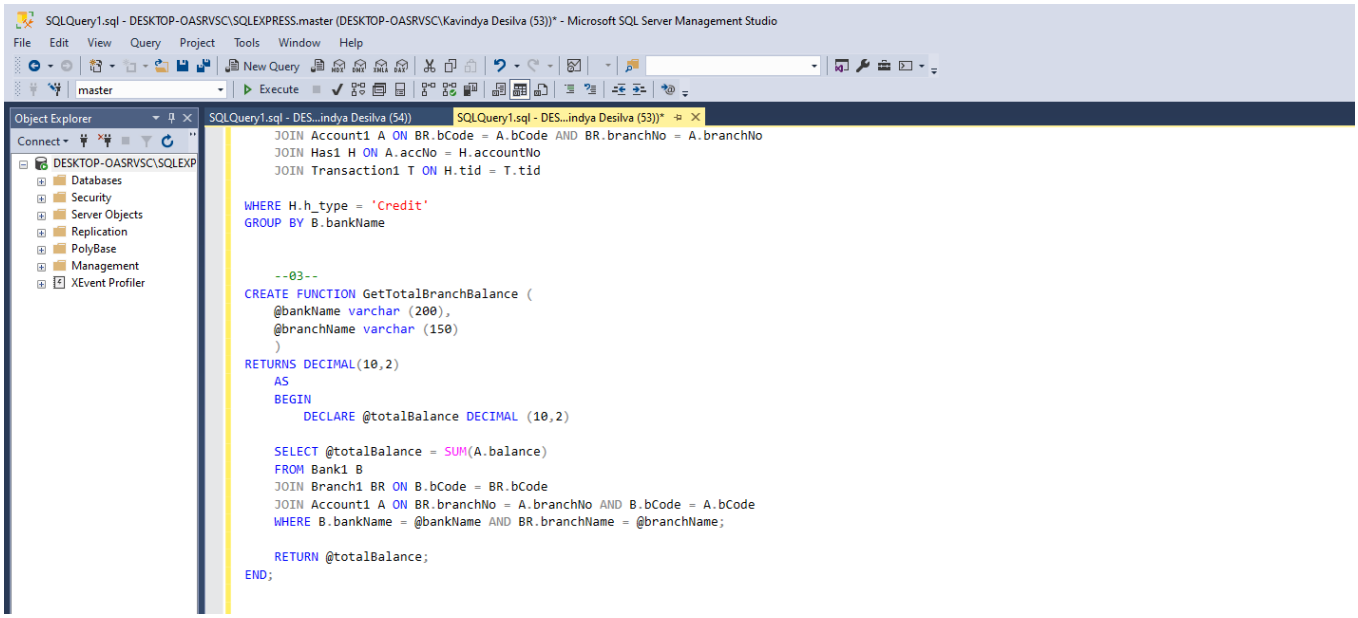
02)

```
CREATE VIEW TopDepositByBank AS
SELECT
       B.bankName AS BankName,
       COUNT (H.tid) AS TotalDeposits
FROM
       Bank1 B
       JOIN Branch1 BR ON B.bCode = BR.bCode
       JOIN Account1 A ON BR.bCode = A.bCode AND BR.branchNo = A.branchNo
       JOIN Has1 H ON A.accNo = H.accountNo
       JOIN Transaction1 T ON H.tid = T.tid

WHERE H.h_type = 'Credit'
GROUP BY B.bankName
```



03)

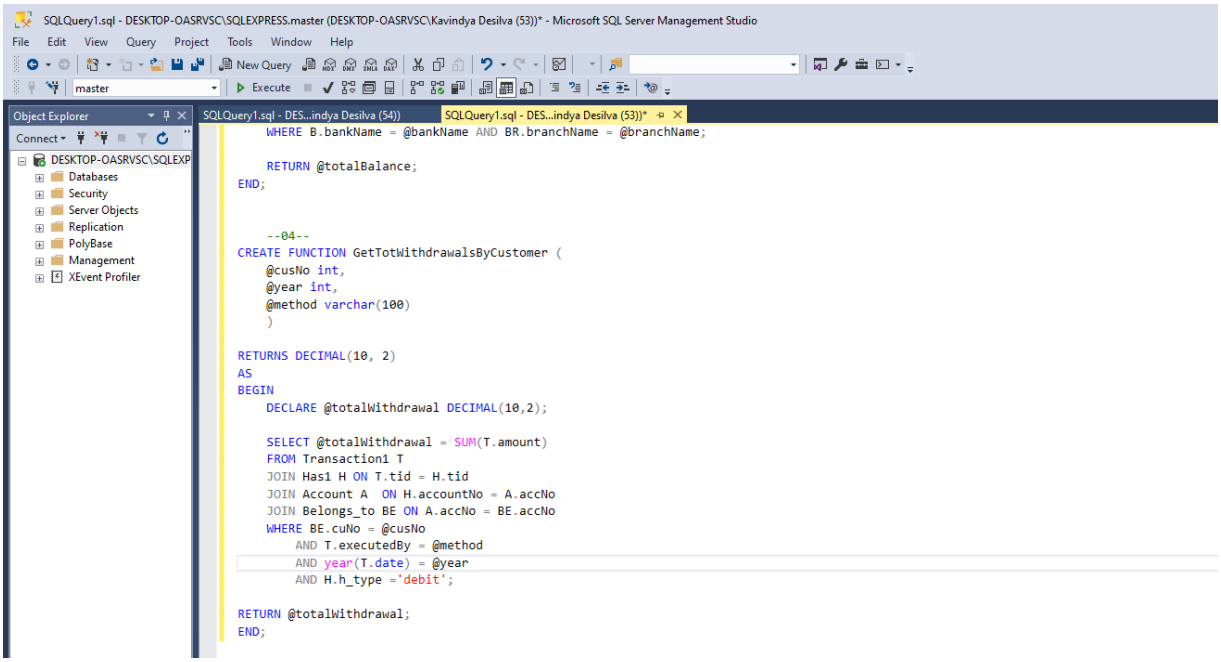
```
CREATE FUNCTION GetTotalBranchBalance (
	@bankName varchar (200),

	@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;
```



04)

```
CREATE FUNCTION GetTotWithdrawalsByCustomer (
	@cusNo int,
	@year int,
	@method varchar(100)
	)

RETURNS DECIMAL(10, 2)
AS
BEGIN
	DECLARE @totalWithdrawal DECIMAL(10,2);

	SELECT @totalWithdrawal = SUM(T.amount)
	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
```

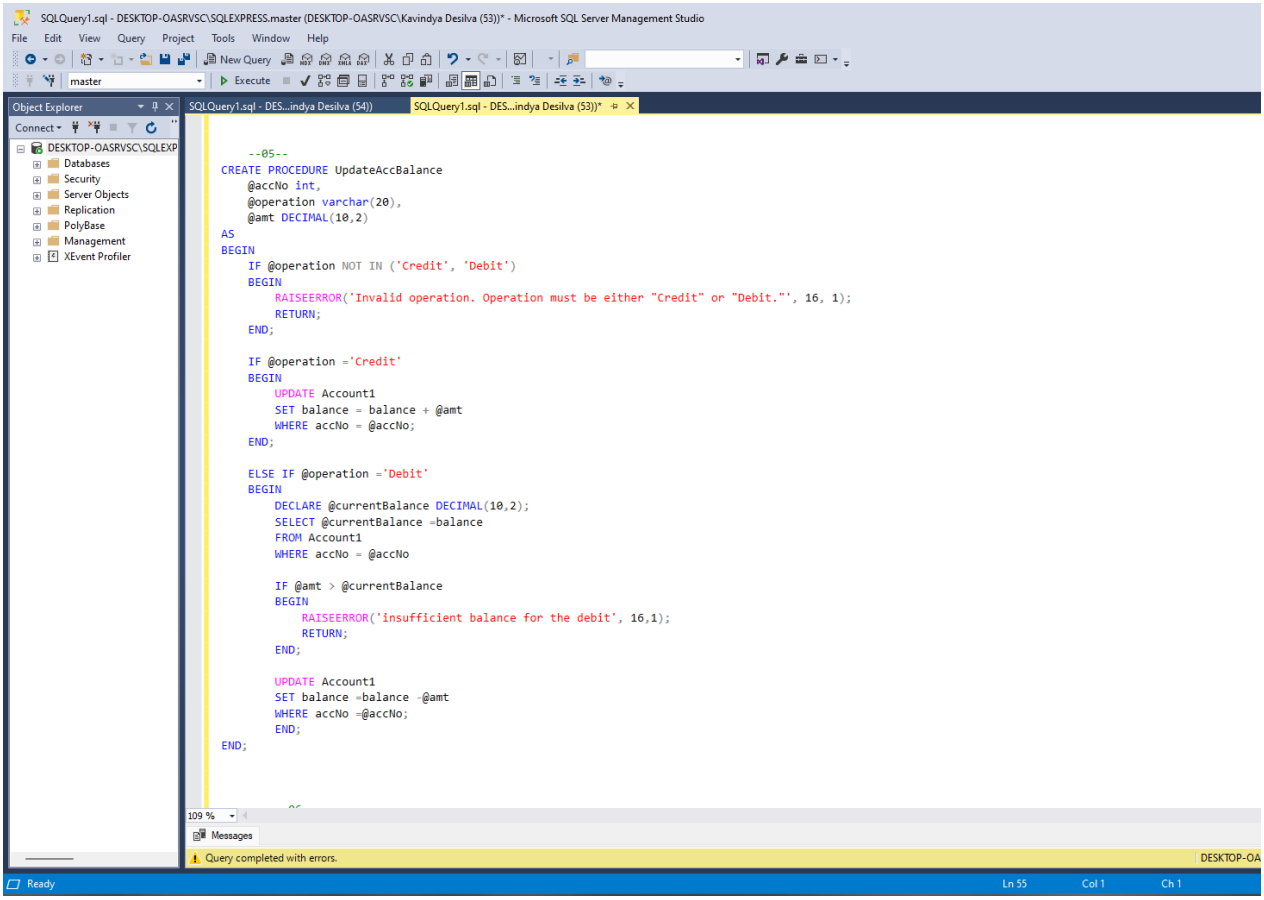
```
            AND year(T.date) = @year
            AND H.h_type ='debit';

RETURN @totalWithdrawal;
END;
```



05)

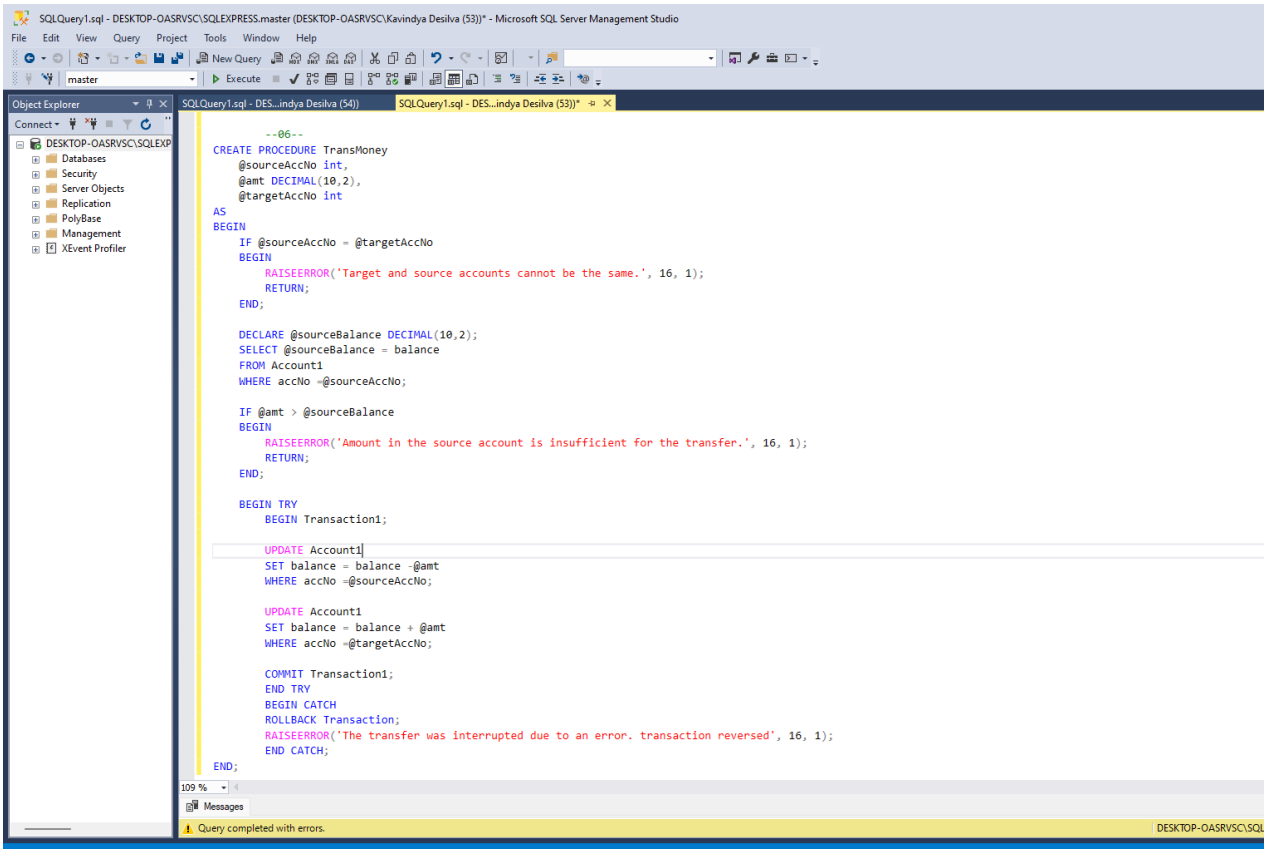
```
CREATE PROCEDURE UpdateAccBalance
       @accNo int,
       @operation varchar(20),
       @amt DECIMAL(10,2)
AS
BEGIN
       IF @operation NOT IN ('Credit', 'Debit')
       BEGIN
              RAISEERROR('Invalid operation. Operation must be either "Credit" or
"Debit."', 16, 1);
        RETURN;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

       IF @operation ='Credit'
       BEGIN
              UPDATE Account1
              SET balance = balance + @amt
              WHERE accNo = @accNo;
       END;

       ELSE IF @operation ='Debit'
       BEGIN
```

```
        DECLARE @currentBalance DECIMAL(10,2);
        SELECT @currentBalance =balance
        FROM Account1
        WHERE accNo = @accNo

        IF @amt > @currentBalance
        BEGIN
               RAISEERROR('insufficient balance for the debit', 16,1);
               RETURN;
        END;

        UPDATE Account1
        SET balance =balance -@amt
        WHERE accNo =@accNo;
        END;
END;
```



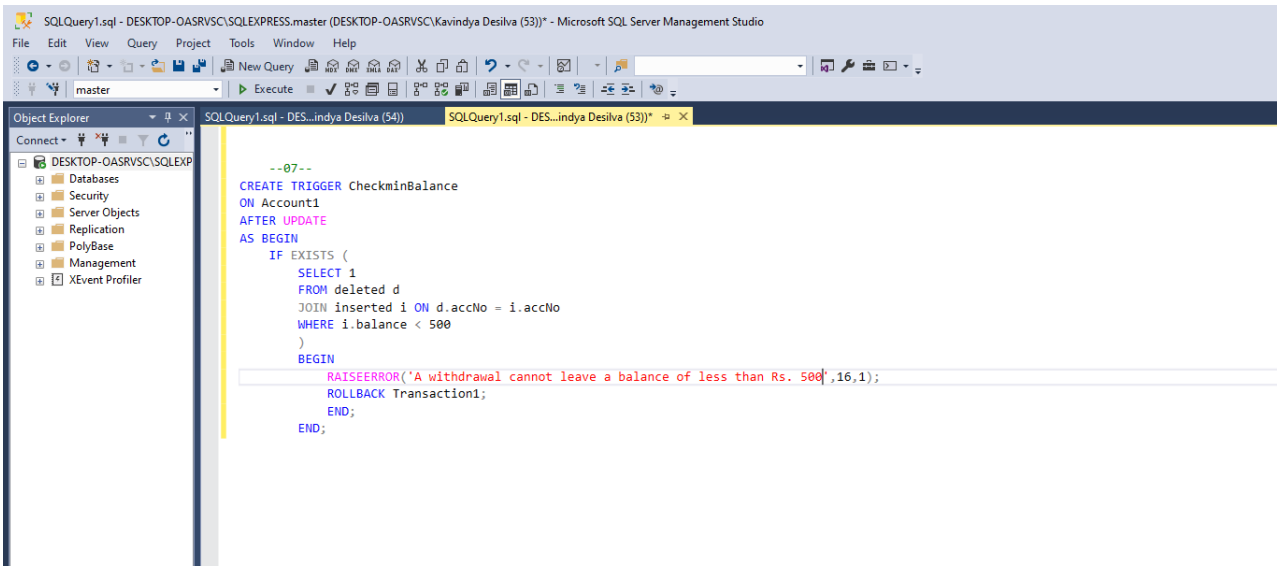
06)

```
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;
```



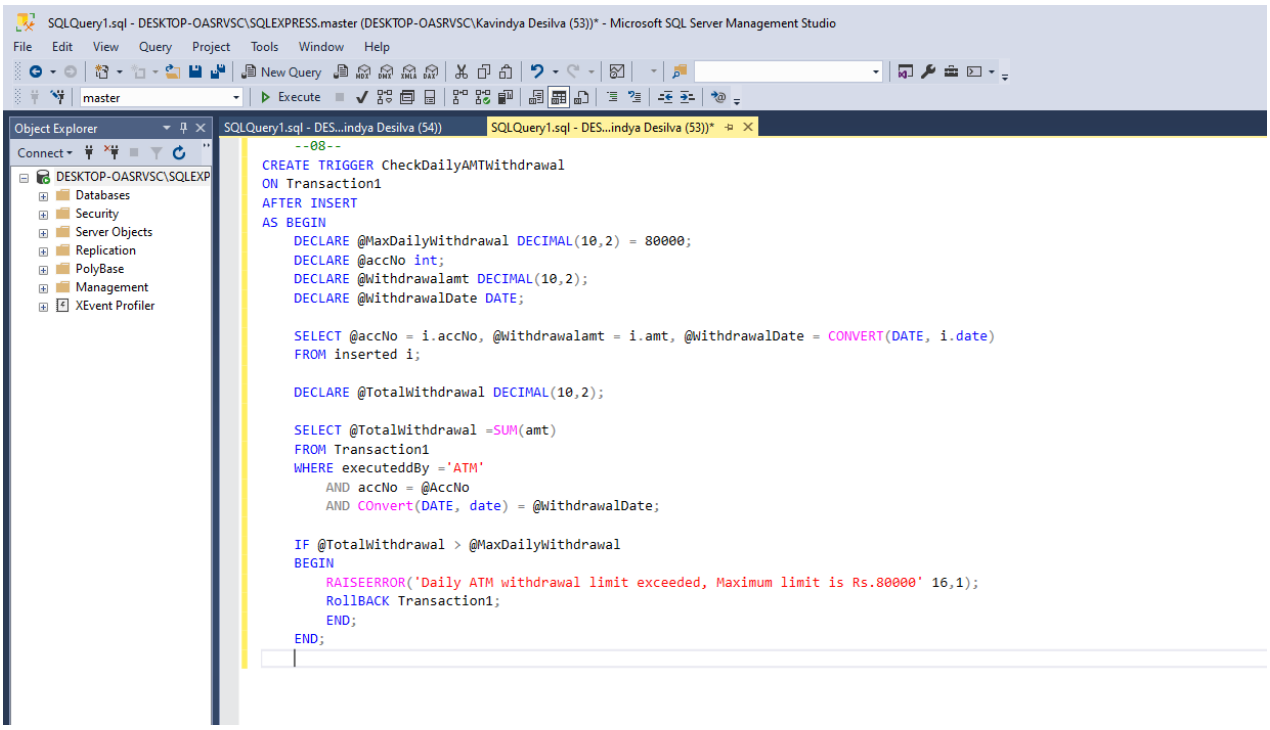
07)

```
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;
```



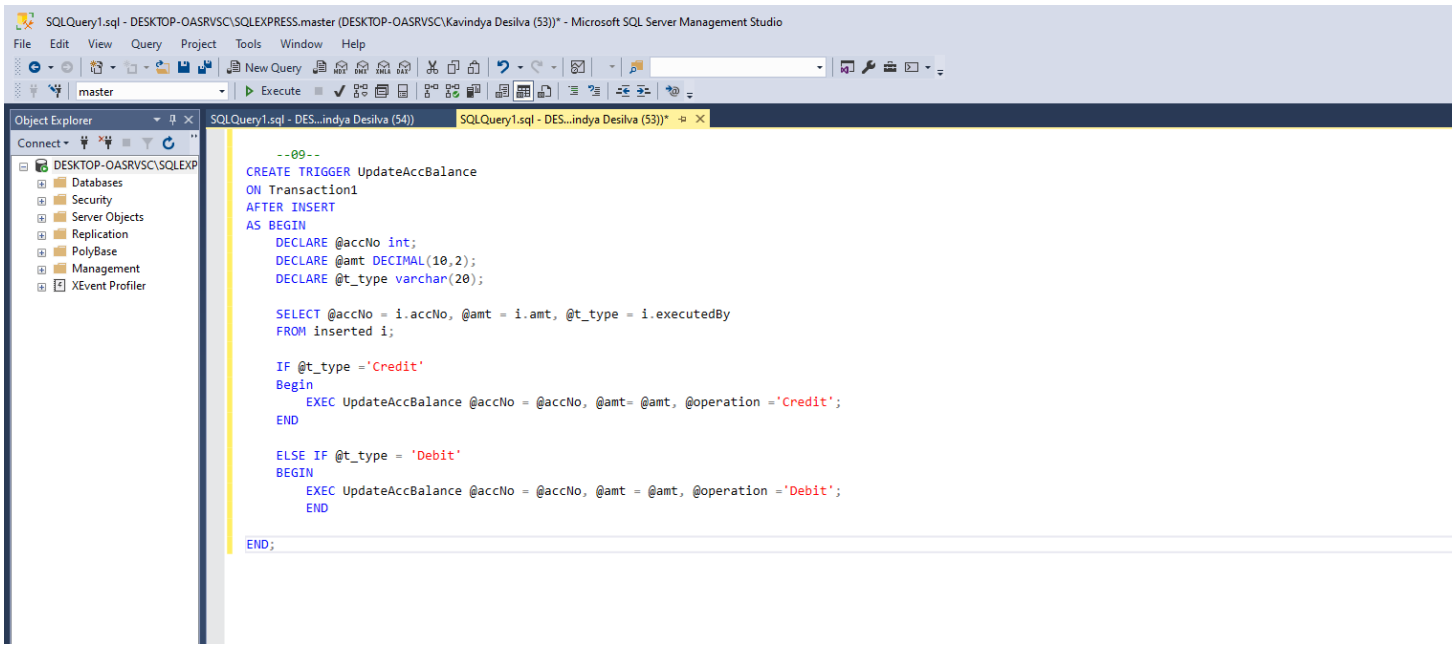
08)

```
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;
```



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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--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;