**TRANSACTIONS BASICS**

TRANSACTION IS A MECHANISM TO EXECUTE COMPLETE SET OF OPERATIONS OR NOTHING.

MEANS EITHER TO EXECUTE COMPLETELY OR NOTHING.

**COMMIT**: A COMMAND TO SAVE TRANSACTIONS FROM DATABASE LOG FILE TO DATA FILE.

**ROLLBACK**: TO UNDO or CANCEL A TRANSACTION.

**TYPES OF TRANSACTIONS**:

**AUTO COMMIT EXPLICIT COMMIT IMPLICIT COMMIT**

----------------------------------------------------------------------------------------------------------------------------

BEGIN TRANSACTION

STATEMENT 1 STATEMENT 1 STATEMENT 1

STATEMENT 2 STATEMENT 2 STATEMENT 2

COMMIT | ROLLBACK COMMIT | ROLLBACK

**ACID PROPERTIES** : EVERY TRANSACTION SHOULD HAVE BELOW PROPERTIES:

1. **ATOMOCITY** - EVERY TRANSACTION SHOULD BE EXECUTED AS A SINGLE UNIT.

2. **CONSISTENCY** - A TRANSACTION SUCCESS OR FAILURE SHOULD NOT IMPACT STATE OF DATABASE.

3. **ISOLATION** - ONE TRANSACTION MAY OR MAY NOT DEPENDANT ON OTHER TRANSACTIONS.

4. **DURABILITY** - EVERY TRANSACTION THAT IS COMMITTED IS PERMENANT. FOREVER.

**-- ITEM 1: EXAMPLES FOR AUTOCOMMIT TRANSACTIONS. means AUTO SAVE.**

INSERT INTO Reservation VALUES ('AI21', 21, 'ECO')

INSERT INTO Reservation VALUES ('AI22', 22, 'ECO')

**-- ITEM 2: EXAMPLES FOR EXPLICIT TRANSACTIONS**

**BEGIN TRANSACTION T1**

INSERT INTO Reservation VALUES ('AI127', 21, 'ECO')

INSERT INTO Reservation VALUES ('AI128', 22, 'ECO')

IF @@ERROR = 0 **COMMIT**

ELSE **ROLLBACK**

**-- ITEM #3: EXAMPLE FOR IMPLICIT TRANSACTION**

**SET IMPLICIT\_TRANSACTIONS ON**

INSERT INTO Reservation VALUES ('AI127', 21, 'ECO')

INSERT INTO Reservation VALUES ('AI129', 23, 'ECO')

IF @@ERROR = 0 **COMMIT**

ELSE **ROLLBACK**

SET IMPLICIT\_TRANSACTIONS OFF

-- **ITEM #4: OPEN TRANSACTIONS : TRANSACTIONS WHICH ARE STARTED BUT NOT COMMITTED AND ROLLBACK. IMPACT OF OPEN TRANSACTIONS : QUERY BLOCKING**

**BEGIN TRANSACTION T1**

INSERT INTO Reservation VALUES ('AI201', 21, 'ECO')

INSERT INTO Reservation VALUES ('AI202', 22, 'ECO')

-- GO TO A NEW QUERY WINDOW (CTRL + N) > TYPE THIS STATEMENT:

**SELECT \* FROM Reservation -- WE SEE THAT THE QUERY RUNS FOREVER** [**MEANS BLOCKED**]