



Accounting Transaction

- These are the steps required for the requested operations.
- They are given as business Transactions; the DEA Credit/Debit pair, followed by the row.

1.1 Alex Deposits \$50

| | | | | | | | |
|--------------|-----|------------|-----------|-----------|-----|----|--|
| Credit | 50 | 123 | Alex | | | | |
| Debit | 50 | 990 | Liability | HouseCash | | | |
| AccountXact+ | 990 | 2019.12.23 | Dr | Dp | 123 | 50 | |

1.2 Alex Withdraws \$75

| | | | | | | | |
|--------------|-----|------------|-----------|-----------|-----|----|--|
| Debit | 75 | 123 | Alex | | | | |
| Credit | 75 | 990 | Liability | HouseCash | | | |
| AccountXact+ | 990 | 2019.12.23 | Cr | Wd | 123 | 75 | |

1.3 Day End Procedure (Batch Job, One Task)

| | | | | | | | |
|-------------|--------|------------|-----------|--------------|--|--|--|
| Debit | 456000 | 990 | Liability | HouseCash | | | |
| Credit | 456000 | 992 | Liability | HouseReserve | | | |
| LedgerXact+ | 992 | 2019.12.23 | 990 | 456000 | | | |

2 Charge Monthly Fee (Batch Job, One Task)

```

foreach <AccountType_Ext> {
  get <Fee> for <AccountType_Ext>
  foreach <Account> IN <AccountType_Ext> {
    Debit <Fee> <No> <Account>
    Credit <Fee> 661 Revenue FeeRegular
    AccountXact+ 661 2019.12.01 Cr FB
    <Account> <Fee>
  }
}
    
```

3 OTC Transaction • International Transfer \$500

| | | | | | | | |
|--------------|-----|------------|-----------|--------------|-----|-----|--|
| Debit | 500 | 234 | Mary | | | | |
| Credit | 500 | 992 | Liability | HouseReserve | | | |
| AccountXact+ | 992 | 2019.12.23 | Cr | Wd | 234 | 500 | |

| | | | | | | | |
|-------------|-----|------------|-----------|--------------|--|--|--|
| Debit | 500 | 992 | Liability | HouseReserve | | | |
| Credit | 500 | 980 | Liability | Interbank | | | |
| LedgerXact+ | 980 | 2019.12.23 | 992 | 500 | | | |

| | | | | | | | |
|--------------|-----|------------|---------|----------------|-----|----|--|
| Debit | 30 | 234 | Mary | | | | |
| Credit | 30 | 662 | Revenue | FeeTransaction | | | |
| AccountXact+ | 662 | 2019.12.23 | Cr | Wd | 234 | 30 | |

4 Transfer \$100

| | | | | | | | |
|--------------|-----|------------|-----------|--------------|-----|-----|--|
| Debit | 100 | 234 | Mary | | | | |
| Credit | 100 | 992 | Liability | HouseReserve | | | |
| AccountXact+ | 992 | 2019.12.23 | Cr | Wd | 234 | 100 | |

| | | | | | | | |
|-------------|-----|------------|-----------|--------------|--|--|--|
| Debit | 100 | 992 | Liability | HouseReserve | | | |
| Credit | 100 | 990 | Liability | HouseCash | | | |
| LedgerXact+ | 990 | 2019.12.23 | 992 | 100 | | | |

| | | | | | | | |
|--------------|-----|------------|-----------|-----------|-----|-----|--|
| Debit | 100 | 990 | Liability | HouseCash | | | |
| Credit | 100 | 345 | John | | | | |
| AccountXact+ | 990 | 2019.12.23 | Dr | Dp | 345 | 100 | |

View

| Account Current_V | Account Month_V |
|-------------------|-----------------|
| AccountNo | AccountNo |
| Date | OpeningDate |
| ClosingBalance | OpeningBalance |
| TotalCredit | TotalCredit |
| TotalDebit | TotalDebit |
| CurrentBalance | |

SQL

```

CREATE VIEW Account_Current_V
AS
SELECT AccountNo,
Date = DATEADD( DD, -1, GETDATE() ), -- show /as of/ previous day
ASS.ClosingBalance, -- 1st of this month
TotalCredit = (
  SELECT SUM( Amount )
  FROM AccountTransaction ATT
  WHERE ATT.AccountNo = ASS.AccountNo
  AND XactTypeCode_Ext IN ( "AC", "Dp" )
  -- >= 1st day of this month yy.mm.01 /AND <= current date/
  AND DateTime >= CONVERT( CHAR(6), GETDATE(), 2 ) + "01"
),
TotalDebit = (
  SELECT SUM( Amount )
  FROM AccountTransaction ATT
  WHERE ATT.AccountNo = ASS.AccountNo
  AND XactTypeCode_Ext NOT IN ( "AC", "Dp" )
  AND DateTime >= CONVERT( CHAR(6), GETDATE(), 2 ) + "01"
),
CurrentBalance = ClosingBalance +
<TotalCredit> - -- subquery above
<TotalDebit> -- subquery above
FROM AccountStatement ASS
WHERE ASS.Date = CONVERT( CHAR(6), GETDATE(), 2 ) + "01"
    
```

```

CREATE PROC Account_Withdraw_tr (
  @AccountNo,
  @Amount
) AS
IF EXISTS ( SELECT 1
  FROM AccountCurrent_V
  WHERE AccountNo = @AccountNo
  AND CurrentBalance >= @Amount -- withdrawal is possible
)
BEGIN
  SELECT @LedgerNo = LedgerNo
  FROM Ledger
  WHERE Name = "HouseCash"
  BEGIN TRAN
  INSERT AccountTransaction
  VALUES ( @LedgerNo, GETDATE(), "Cr", "Wd", @AccountNo, @Amount )
  COMMIT TRAN
  END
    
```

```

CREATE PROC Account_Deposit_tr (
  @AccountNo,
  @Amount
) AS
... IF EXISTS, etc ... -- validate before verb
BEGIN
  SELECT @LedgerNo ...
  BEGIN TRAN
  INSERT AccountTransaction
  VALUES ( @LedgerNo, GETDATE(), "Dr", "Dp", @AccountNo, @Amount )
  COMMIT TRAN
  END
    
```

```

CREATE PROC Ledger_Xact_tr (
  @LedgerNo, -- Credit Ledger Account
  @LedgerNo_Dr, -- Debit Ledger Account
  @Amount
) AS
... IF EXISTS, etc ...
BEGIN
  SELECT @LedgerNo ...
  BEGIN TRAN
  INSERT LedgerTransaction
  VALUES ( @LedgerNo, GETDATE(), @LedgerNo_Dr, @Amount )
  COMMIT TRAN
  END
    
```

```

CREATE PROC Account_MonthEnd_btr ( ... )
AS
... begin loop
... batch transaction control (eg. 500 rows per xact), etc ...
INSERT AccountStatement
  SELECT ACT.AccountNo,
  CONVERT( CHAR(6), GETDATE(), 2 ) + "01", -- 1st day THIS month
  AMV.ClosingBalance, -- for PREVIOUS month
  AMV.TotalCredit,
  AMV.TotalDebit
FROM Account ACT
JOIN Account_Month_V AMV
ON ACT.AccountNo = AMV.AccountNo
WHERE AMV.OpeningDate = DATEADD( MM, -1, ACT.Date )
... end loop
... batch transaction control, etc ...
    
```

Table Type

| | | | |
|--------------------|--------------|--------------|-----------|
| Ledger (Internal) | Internal | External | Attribute |
| Account (External) | PrimaryKey | PrimaryKey | Attribute |
| Transaction | AlternateKey | AlternateKey | Attribute |



Relational model for double entry accounting
Wikipedia: Double-entry Bookkeeping System