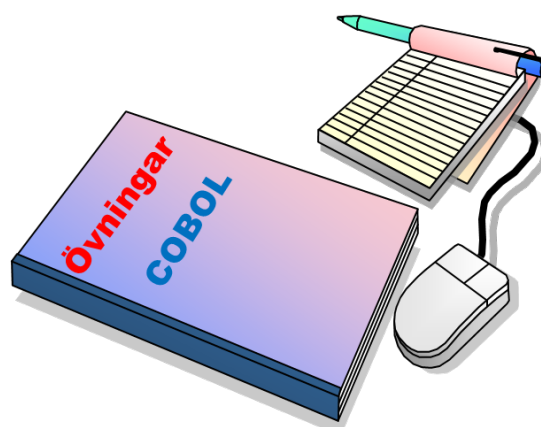


Lösningar - COBOL



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Övning 2 – COBOL single SQL

Uppgift 1 – Include

```

000100 Identification Division.
000200 Program-Id. OVN21.
000300 Data Division.
000400 Working-Storage Section.
000500*-----
000600* Lägg in INCLUDE av SQL-areor
000700*-----
000800     Exec SQL
000900         Include SQLCA
001000     End-Exec.
001100
001200 Procedure Division.
001300     Display '-->> Programmet startar...'
001400     Display '-->> Programmet avslutar...'
001500
001600     GoBack
001700     .
001800*-----
001900 End Program OVN21.
002000*-----

```

Uppgift 2 –SQL Select

```

000100 Identification Division.
000200 Program-Id. OVN22.
000300 Data Division.
000400 Working-Storage Section.
000500*-----
000600* Lägg in INCLUDE av SQL-areor
000700* och beskrivningar.
000800*-----
000900     Exec SQL
001000         Include SQLCA
001100     End-Exec.
001200
001300 01 SQL-Data.
001400     05 WS-Datum           Pic X(10).
001500     05 WS-Tid             Pic X(10).
001600     05 WS-SQLCODE        Pic +(09).
001700
001800
001900 Procedure Division.
002000     Display '-->> Programmet startar...'
002100     Perform Hamta-Datum-Tid
002200     Perform Visa-Datum-Tid
002300     Display '-->> Programmet avslutar...'
002400
002500     GoBack
002600     .
002700*-----
002800 Hamta-Datum-Tid.
002900*-----

```

```
003000      Exec SQL
003100          Select
003200              CURRENT DATE ,
003300              CURRENT TIME
003400          Into
003500              :WS-Datum ,
003600              :WS-Tid
003700          From
003800              SYSIBM.SYSDUMMY1
003900      End-Exec
004000      .
004100*-----
004200      Visa-Datum-Tid.
004300*-----
004400      Display '-->> Datum : ' WS-Datum
004500      Display '-->> Tid   : ' WS-Tid
004600      .
004700*-----
004800      End Program OVN22.
004900*-----
```

Övning 3 – COBOL CURSOR

Uppgift 1 – Include

```

000100 Identification Division.
000200 Program-Id. OVN31.
000300 Data Division.
000400 Working-Storage Section.
000500*-----
000600* Lägg in INCLUDE av SQL-areor
000700* och beskrivningar.
000800*-----
000900     Exec SQL
001000         Include SQLCA
001100     End-Exec.
001200
001300     Exec SQL
001400         Include DRYCK
001500     End-Exec.
001600
001700     Exec SQL
001800         Include PRIS
001900     End-Exec.
002000
002100 01 SQL-Data.
002200     05 WS-Datum         Pic X(10).
002300     05 WS-Tid          Pic X(10).
002400     05 WS-SQLCODE     Pic +(09).
002500
002600
002700 Procedure Division.
002800     Display '-->> Programmet startar...'
002900     Perform Hamta-Datum-Tid
003000     Perform Visa-Datum-Tid
003100     Display '-->> Programmet avslutar...'
003200
003300     GoBack
003400     .
003500*-----
003600 Hamta-Datum-Tid.
003700*-----
003800     Exec SQL
003900         Select
004000             CURRENT DATE,
004100             CURRENT TIME
004200         Into
004300             :WS-Datum,
004400             :WS-Tid
004500         From
004600             SYSIBM.SYSDUMMY1
004700     End-Exec
004800     .
004900*-----
005000 Visa-Datum-Tid.
005100*-----
005200     Display '-->> Datum : ' WS-Datum
005300     Display '-->> Tid   : ' WS-Tid
005400     .

```

```

005500*-----
005600 End Program OVN31.
005700*-----

```

Uppgift 2 – Parameterdatum

```

000100 Identification Division.
000200 Program-Id. OVN32.
000300 Data Division.
000400 Working-Storage Section.
000500*-----
000600* Lagg in INCLUDE av SQL-areor
000700* och beskrivningar.
000800*-----
000900     Exec SQL
001000         Include SQLCA
001100     End-Exec.
001200
001300     Exec SQL
001400         Include DRYCK
001500     End-Exec.
001600
001700     Exec SQL
001800         Include PRIS
001900     End-Exec.
002000
002100 01 SQL-Data.
002200     05 WS-Datum         Pic X(10).
002300     05 WS-Tid          Pic X(10).
002400     05 WS-SQLCODE     Pic +(09).
002500
002600 01 SysinData.
002700     05 WS-Parameter-Datum Pic X(10).
002800
002900
003000 Procedure Division.
003100     Display '-->> Programmet startar...'
003200     Perform Hamta-Datum-Tid
003300     Perform Hamta-Parameter-Datum
003400     Perform Visa-Datum-Tid
003500     Display '-->> Programmet avslutar...'
003600
003700     GoBack
003800     .
003900*-----
004000 Hamta-Datum-Tid.
004100*-----
004200     Exec SQL
004300         Select
004400             CURRENT DATE,
004500             CURRENT TIME
004600         Into
004700             :WS-Datum,
004800             :WS-Tid
004900         From
005000             SYSIBM.SYSDUMMY1
005100     End-Exec

```

```

005200      .
005300*-----
005400 Hamta-Parameter-Datum.
005500*-----
005600      Accept WS-Parameter-Datum From SYSIN
005700      .
005800*-----
005900 Visa-Datum-Tid.
006000*-----
006100      Display '-->> Datum : ' WS-Datum
006200      Display '-->> Tid   : ' WS-Tid
006300      Display '-->> Pdatum : ' WS-Parameter-Datum
006400      .
006500*-----
006600 End Program OVN32.
006700*-----

```

Uppgift 3 – Prislista

```

000100 Identification Division.
000200 Program-Id. OVN33.
000300 Data Division.
000400 Working-Storage Section.
000500*-----
000600* Lagg in INCLUDE av SQL-areor
000700* och beskrivningar.
000800*-----
000900      Exec SQL
001000          Include SQLCA
001100      End-Exec.
001200
001300      Exec SQL
001400          Include DRYCK
001500      End-Exec.
001600
001700      Exec SQL
001800          Include PRIS
001900      End-Exec.
002000
002100      Exec SQL
002200          DECLARE PRISER CURSOR FOR
002300              SELECT
002400                  D.DRYCKNR ,
002500                  D.DRYCKNAMN ,
002600                  P.VOLYM ,
002700                  P.PRIS ,
002800                  P.PRDATUM
002900          FROM
003000              UTB00.DRYCK D JOIN UTB00.PRIS P
003100              ON D.DRYCKNR = P.DRYCKNR
003200          WHERE
003300              (P.DRYCKNR , P.VOLYM , P.PRDATUM) IN
003400              (SELECT
003500                  P2.DRYCKNR ,
003600                  P2.VOLYM ,

```

```

003700             MAX(P2.PRDATUM)
003800             FROM
003900             UTB00.PRIS P2
004000             WHERE
004100             P2.PRDATUM <= :WS-Sysin-Datum
004200             GROUP BY
004300             P2.DRYCKNR
004400             ,P2.VOLYM)
004500             ORDER BY D.DRYCKNR, P.VOLYM
004600             End-Exec.
004700
004800 01 SQL-Data.
004900     05 WS-Datum           Pic X(10).
005000     05 WS-Tid           Pic X(10).
005100     05 WS-SQLCODE       Pic +(09).
005200
005300 01 SysinData.
005400     05 WS-Sysin-Datum Pic X(10).
005500
005600 01 Display-Rad.
005700     05 D-Drycknr         Pic 9(05).
005800     05                   Pic X(02) Value Space.
005900     05 D-Drycknamn     Pic X(25).
006000     05                   Pic X(02) Value Space.
006100     05 D-Volym         Pic 9(05).
006200     05                   Pic X(02) Value Space.
006300     05 D-Pris          Pic 9(05).
006400     05                   Pic X(02) Value Space.
006500     05 D-Prdatum      Pic X(10).
006600
006700 01 Vilkoren           Pic X(08) Value Space.
006800     88 Klar             Value 'Klar'.
006900
007000
007100 Procedure Division.
007200     Display '-->> Programmet startar...'
007300     Perform Hamta-Datum-Tid
007400     Perform Hamta-Sysin-Datum
007500     Perform Visa-Datum-Tid
007600     Perform SQL-Oppna-Cursor
007700     Perform SQL-Fetch-Cursor Until Klar
007800     Display '-->> Programmet avslutar...'
007900
008000     GoBack
008100     .
008200*-----
008300 Hamta-Datum-Tid.
008400*-----
008500     Exec SQL
008600     Select
008700         CURRENT DATE,
008800         CURRENT TIME
008900     Into
009000         :WS-Datum,
009100         :WS-Tid
009200     From
009300         SYSIBM.SYSDUMMY1
009400     End-Exec
009500     .
009600*-----
009700 Hamta-Sysin-Datum.

```



```
009800*-----
009900      Accept WS-Sysin-Datum From SYSIN
010000      .
010100*-----
010200 SQL-Oppna-Cursor.
010300*-----
010400      Exec SQL
010500          OPEN PRISER
010600      End-Exec
010700      .
010800*-----
010900 SQL-Fetch-Cursor.
011000*-----
011100      Exec SQL
011200          FETCH PRISER
011300          INTO
011400              :DCLDRYCK.DRYCKNR,
011500              :DCLDRYCK.DRYCKNAMN,
011600              :DCLPRIS.VOLYM,
011700              :DCLPRIS.PRIS,
011800              :DCLPRIS.PRDATUM
011900      End-Exec
012000
012100      Evaluate SQLCODE
012200          When 0
012300              Perform Display-Rader
012400          When 100
012500              Set Klar to True
012600          When Other
012700              Perform SQL-Fel
012800      End-Evaluate
012900      .
013000*-----
013100 Stang-Cursor.
013200*-----
013300      Exec SQL
013400          CLOSE PRISER
013500      End-Exec
013600      .
013700*-----
013800 Display-Rader.
013900*-----
014000      Move Drycknr      in DclDryck to D-Drycknr
014100      Move Drycknamn   in DclDryck to D-Drycknamn
014200      Move Volym       in DclPris  to D-Volym
014300      Move Pris        in DclPris  to D-Pris
014400      Move Prdatum     in DclPris  to D-Prdatum
014500      Display Display-Rad
014600      .
014700*-----
014800 Visa-Datum-Tid.
014900*-----
015000      Display '-->> Datum   : ' WS-Datum
015100      Display '-->> Tid     : ' WS-Tid
015200      Display '-->> Pdatum  : ' WS-Sysin-Datum
015300      Display Space
015400      .
015500*-----
015600 SQL-Fel.
015700*-----
015800      Move SQLCODE to WS-SQLCODE
```

```

015900      Display '*** SQL-Fel ***'
016000      Display 'SQLCODE   : ' WS-SQLCODE
016100      Display 'SQLSTATE  : ' SQLSTATE
016200      Display 'SQLMedd   : ' SQLERRMC(1:SQLERRML)
016300      Move 99 to Return-Code
016400      Set Klar to True
016500      .
016600*-----
016700      End Program OVN33.
016800*-----

```

Uppgift 4 – Prislista till fil

```

000100      Identification Division.
000200      Program-Id. OVN34.
000300      Environment Division.
000400      Input-Output Section.
000500      File-Control.
000600          Select Lista Assign to LISTDD
000700              Organization is Sequential
000800              Access is Sequential
000900              .
001000
001100      Data Division.
001200      File Section.
001300      FD Lista Recording Mode F.
001400      01 Listrad   Pic X(120).
001500
001600      Working-Storage Section.
001700          Exec SQL
001800              Include SQLCA
001900          End-Exec.
002000
002100          Exec SQL
002200              Include DRYCK
002300          End-Exec.
002400
002500          Exec SQL
002600              Include PRIS
002700          End-Exec.
002800
002900          Exec SQL
003000              DECLARE PRISER CURSOR FOR
003100                  SELECT
003200                      D.DRYCKNR,
003300                      D.DRYCKNAMN,
003400                      P.VOLYM,
003500                      P.PRIS,
003600                      P.PRDATUM
003700                  FROM
003800                      UTB00.DRYCK D JOIN UTB00.PRIS P
003900                      ON D.DRYCKNR = P.DRYCKNR
004000                  WHERE
004100                      (P.DRYCKNR, P.VOLYM, P.PRDATUM) IN
004200                      (SELECT
004300                          P2.DRYCKNR,
004400                          P2.VOLYM,

```

```

004500             MAX(P2.PRDATUM)
004600             FROM
004700             UTB00.PRIS P2
004800             WHERE
004900             P2.PRDATUM <= :WS-Sysin-Datum
005000             GROUP BY
005100             P2.DRYCKNR
005200             ,P2.VOLYM)
005300             ORDER BY D.DRYCKNR, P.VOLYM
005400     End-Exec.
005500
005600 01 WS-Data.
005700     05 WS-Sidnr      Pic 9(02) Value 0.
005800     05 WS-Radnr     Pic 9(02) Value 0.
005900     88 Radnr-Start  Value 0.
006000     88 Radnr-Max   Value 15.
006100
006200 01 SQL-Data.
006300     05 WS-Datum     Pic X(10).
006400     05 WS-Tid      Pic X(10).
006500     05 WS-SQLCODE  Pic +(09).
006600
006700 01 SysinData.
006800     05 WS-Sysin-Datum Pic X(10).
006900
007000 01 Prislista-Dryckrad.
007100     05 D-Drycknr    Pic 9(05).
007200     05              Pic X(03) Value Space.
007300     05 D-Drycknamn Pic X(25).
007400     05              Pic X(02) Value Space.
007500     05 D-Volym     Pic 9(05).
007600     05              Pic X(02) Value Space.
007700     05 D-Pris      Pic 9(05).
007800     05              Pic X(02) Value Space.
007900     05 D-Prdatum  Pic X(10).
008000
008100 01 Prislista-Rubrik.
008200     05              Pic X(08) Value 'Drycknr'.
008300     05              Pic X(27) Value 'Drycknamn'.
008400     05              Pic X(07) Value 'Volym'.
008500     05              Pic X(07) Value 'Pris'.
008600     05              Pic X(12) Value 'Prisdatum'.
008700     05              Pic X(05) Value 'Sida:'.
008800     05 R-Sidnr   Pic Z(02).
008900
009000 01 Prislista-Slutrad.
009100     05 Pic X(30) Value 'S L U T på Prislista'.
009200
009300 01 Prislista-Skiljerad.
009400     05 Pic X(120) Value All '-'.
009500
009600 01 Vilkoren      Pic X(08) Value Space.
009700     88 Klar       Value 'Klar'.
009800
009900
010000 Procedure Division.
010100     Display '-->> Programmet startar...'
010200     Perform Initiera
010300     Perform SQL-Oppna-Cursor
010400     Perform SQL-Fetch-Cursor Until Klar
010500     Perform Avsluta

```

```
010600      Display '-->> Programmet avslutar...'
010700
010800      GoBack
010900      .
011000*-----
011100      Initiera.
011200*-----
011300      Open Output Lista
011400      Accept WS-Sysin-Datum From SYSIN
011500      .
011600*-----
011700      Avsluta.
011800*-----
011900      Perform Skriv-Prislista-Slutrad
012000      Close Lista
012100      .
012200*-----
012300      SQL-Öppna-Cursor.
012400*-----
012500      Exec SQL
012600          OPEN PRISER
012700      End-Exec
012800      .
012900*-----
013000      SQL-Fetch-Cursor.
013100*-----
013200      Exec SQL
013300          FETCH PRISER
013400          INTO
013500              :DCLDRYCK.DRYCKNR,
013600              :DCLDRYCK.DRYCKNAMN,
013700              :DCLPRIS.VOLYM,
013800              :DCLPRIS.PRIS,
013900              :DCLPRIS.PRDATUM
014000      End-Exec
014100
014200      Evaluate SQLCODE
014300          When 0
014400              Perform Skriv-Prislista-Rad
014500          When 100
014600              Set Klar to True
014700          When Other
014800              Perform SQL-Fel
014900      End-Evaluate
015000      .
015100*-----
015200      Stang-Cursor.
015300*-----
015400      Exec SQL
015500          CLOSE PRISER
015600      End-Exec
015700      .
015800*-----
015900      Skriv-Prislista-Rad.
016000*-----
016100      Evaluate True
016200          When WS-Sidnr = 0
016300              Perform Skriv-Prislista-Rubrik
016400          When Radnr-Max
016500              Perform Skriv-Prislista-Rubrik
016600              Set Radnr-Start to True
```

```

016700      End-Evaluate
016800      Perform Skriv-Prislista-Dryckrad
016900      .
017000*-----
017100 Skriv-Prislista-Rubrik.
017200*-----
017300      Add 1 to WS-Sidnr
017400      Move WS-Sidnr to R-Sidnr
017500      Write Listrad
017600          From Prislista-Rubrik
017700      Write Listrad
017800          From Prislista-Skiljerad
017900      .
018000*-----
018100 Skriv-Prislista-Dryckrad.
018200*-----
018300      Add 1 to WS-Radnr
018400      Move Drycknr   in DclDryck to D-Drycknr
018500      Move Drycknamn in DclDryck to D-Drycknamn
018600      Move Volym     in DclPris  to D-Volym
018700      Move Pris      in DclPris  to D-Pris
018800      Move Prdatum   in DclPris  to D-Prdatum
018900      Write Listrad From Prislista-Dryckrad
019000      .
019100*-----
019200 Skriv-Prislista-Slutrad.
019300*-----
019400      Write Listrad
019500          From Prislista-Skiljerad
019600      Write Listrad
019700          From Prislista-Slutrad
019800      .
019900*-----
020000 SQL-Fel.
020100*-----
020200      Move SQLCODE to WS-SQLCODE
020300      Display '*** SQL-Fel ***'
020400      Display 'SQLCODE   : ' WS-SQLCODE
020500      Display 'SQLSTATE  : ' SQLSTATE
020600      Display 'SQLMedd   : ' SQLERRMC(1:SQLERRML)
020700      Move 99 to Return-Code
020800      Set Klar to True
020900      .
021000*-----
021100 End Program OVN34.
021200*-----

```

Uppgift 5 – Prislista till fil, med brytning

```

000100 Identification Division.
000200 Program-Id. OVN35.
000300 Environment Division.
000400 Input-Output Section.
000500 File-Control.
000600      Select Lista Assign to LISTDD
000700          Organization is Sequential
000800          Access is Sequential

```

```
000900      .
001000
001100 Data Division.
001200 File Section.
001300 FD Lista Recording Mode F.
001400 01 Listrad   Pic X(120).
001500
001600 Working-Storage Section.
001700     Exec SQL
001800         Include SQLCA
001900     End-Exec.
002000
002100     Exec SQL
002200         Include DRYCK
002300     End-Exec.
002400
002500     Exec SQL
002600         Include PRIS
002700     End-Exec.
002800
002900     Exec SQL
003000         DECLARE PRISER CURSOR FOR
003100             SELECT
003200                 D.DRYCKNR,
003300                 D.DRYCKNAMN,
003400                 D.DSKOD,
003500                 P.VOLYM,
003600                 P.PRIS,
003700                 P.PRDATUM
003800             FROM
003900                 UTB00.DRYCK D JOIN UTB00.PRIS P
004000                 ON D.DRYCKNR = P.DRYCKNR
004100             WHERE
004200                 (P.DRYCKNR, P.VOLYM, P.PRDATUM) IN
004300                 (SELECT
004400                     P2.DRYCKNR,
004500                     P2.VOLYM,
004600                     MAX(P2.PRDATUM)
004700                 FROM
004800                     UTB00.PRIS P2
004900                 WHERE
005000                     P2.PRDATUM <= :WS-Sysin-Datum
005100                 GROUP BY
005200                     P2.DRYCKNR
005300                     ,P2.VOLYM)
005400             ORDER BY D.DSKOD, D.DRYCKNR,
005500             P.VOLYM
005500     End-Exec.
005600
005700 01 WS-Data.
005800 05 WS-Sidnr      Pic 9(02) Value 0.
005900 05 WS-Radnr     Pic 9(02) Value 0.
006000     88 Radnr-Start      Value 0.
006100     88 Radnr-Max       Value 55.
006200 05 WS-Old-Dskod Pic X(02) Value Space.
006300
006400 01 SQL-Data.
006500 05 WS-Datum     Pic X(10).
006600 05 WS-Tid      Pic X(10).
006700 05 WS-SQLCODE  Pic +(09).
006800
```

```

006900 01 SysinData.
007000     05 WS-Sysin-Datum Pic X(10).
007100
007200 01 Prislista-Dryckrad.
007300     05 D-Drycknr      Pic 9(05).
007400     05                      Pic X(03) Value Space.
007500     05 D-Drycknamn   Pic X(25).
007600     05                      Pic X(02) Value Space.
007700     05 D-Volym       Pic 9(05).
007800     05                      Pic X(02) Value Space.
007900     05 D-Pris       Pic 9(05).
008000     05                      Pic X(02) Value Space.
008100     05 D-Prdatum    Pic X(10).
008200
008300 01 Prislista-Rubrik.
008400     05                      Pic X(08) Value 'Drycknr'.
008500     05                      Pic X(27) Value 'Drycknamn'.
008600     05                      Pic X(07) Value 'Volym'.
008700     05                      Pic X(07) Value 'Pris'.
008800     05                      Pic X(12) Value 'Prisdatum'.
008900     05                      Pic X(05) Value 'Sida:'.
009000     05 R-Sidnr     Pic Z(02).
009100
009200 01 Prislista-Dsnamn.
009300     05                      Pic X(06) Value '-->> ('.
009400     05 Dskod       Pic X(02).
009500     05                      Pic X(04) Value ')'.
009600     05 Dsnamn     Pic X(40).
009700
009800 01 Prislista-Slutrad.
009900     05 Pic X(30) Value 'S L U T på Prislista'.
010000
010100 01 Prislista-Skiljerad.
010200     05 Pic X(120) Value All '-'.
010300
010400 01 Prislista-Tomrad.
010500     05 Pic X(120) Value Space.
010600
010700 01 Vilkoren      Pic X(08) Value Space.
010800     88 Klar      Value 'Klar'.
010900
011100 Procedure Division.
011200     Display '-->> Programmet startar...'
011300     Perform Initiera
011400     Perform SQL-Oppna-Cursor
011500     Perform SQL-Fetch-Cursor Until Klar
011600     Perform Avsluta
011700     Display '-->> Programmet avslutar...'
011800
011900     GoBack
012000     .
012100*-----
012200 Initiera.
012300*-----
012400     Open Output Lista
012500     Accept WS-Sysin-Datum From SYSIN
012600     .
012700*-----
012800 Avsluta.
012900*-----
013000     Perform Skriv-Prislista-Slutrad

```

```

013100      Close Lista
013200      .
013300*-----
013400 SQL-Öppna-Cursor.
013500*-----
013600      Exec SQL
013700          OPEN PRISER
013800      End-Exec
013900      .
014000*-----
014100 SQL-Fetch-Cursor.
014200*-----
014300      Exec SQL
014400          FETCH PRISER
014500          INTO
014600              :DCLDRYCK.DRYCKNR,
014700              :DCLDRYCK.DRYCKNAMN,
014800              :DCLDRYCK.DSKOD,
014900              :DCLPRIS.VOLYM,
015000              :DCLPRIS.PRIS,
015100              :DCLPRIS.PRDATUM
015200      End-Exec
015300
015400      Evaluate SQLCODE
015500          When 0
015600              Perform Skriv-Prislista-Rad
015700          When 100
015800              Set Klar to True
015900          When Other
016000              Perform SQL-Fel
016100      End-Evaluate
016200      .
016300*-----
016400 Stang-Cursor.
016500*-----
016600      Exec SQL
016700          CLOSE PRISER
016800      End-Exec
016900      .
017000*-----
017100 Skriv-Prislista-Rad.
017200*-----
017300      Evaluate True
017400          When WS-Sidnr = 0
017500              Perform Skriv-Prislista-Rubrik
017600              Perform Skriv-Prislista-Dsnamn
017700          When WS-Old-Dskod Not = Dskod in DclDryck
017800              Perform Skriv-Prislista-Rubrik
017900              Perform Skriv-Prislista-Dsnamn
018000          When Radnr-Max
018100              Perform Skriv-Prislista-Rubrik
018200              Set Radnr-Start to True
018300      End-Evaluate
018400      Perform Skriv-Prislista-Dryckrad
018500      .
018600*-----
018700 Skriv-Prislista-Rubrik.
018800*-----
018900      Add 1 to WS-Sidnr
019000      Move WS-Sidnr to R-Sidnr
019100      Write Listrad

```



```
019200          From Prislista-Tomrad
019300      Write Listrad
019400          From Prislista-Rubrik
019500      Write Listrad
019600          From Prislista-Skiljerad
019700      .
019800*-----
019900 Skriv-Prislista-Dryckrad.
020000*-----
020100      Add 1 to WS-Radnr
020200      Move Drycknr   in DclDryck to D-Drycknr
020300      Move Drycknamn in DclDryck to D-Drycknamn
020400      Move Volym    in DclPris  to D-Volym
020500      Move Pris     in DclPris  to D-Pris
020600      Move Prdatum  in DclPris  to D-Prdatum
020700      Write Listrad From Prislista-Dryckrad
020800      .
020900*-----
021000 Skriv-Prislista-Dsnamn.
021100*-----
021200      Exec SQL
021300          Select
021400              Dsnamn
021500          Into
021600              :Prislista-Dsnamn.Dsnamn
021700          From
021800              UTB00.DRSLAG
021900          Where
022000              Dskod = :DclDryck.Dskod
022100      End-Exec
022200      If SQLCODE = +100
022300          Move '*** I/U ***' to Dsnamn
022310              in Prislista-Dsnamn
022400      End-If
022500      Move Dskod in DclDryck to WS-Old-Dskod
022600              Dskod in Prislista-Dsnamn
022700      Write Listrad from Prislista-Tomrad
022800      Write Listrad from Prislista-Dsnamn
022900      .
023000*-----
023100 Skriv-Prislista-Slutrad.
023200*-----
023300      Write Listrad
023400          From Prislista-Skiljerad
023500      Write Listrad
023600          From Prislista-Slutrad
023700      .
023800*-----
023900 SQL-Fel.
024000*-----
024100      Move SQLCODE to WS-SQLCODE
024200      Display '*** SQL-Fel ***'
024300      Display 'SQLCODE   : ' WS-SQLCODE
024400      Display 'SQLSTATE  : ' SQLSTATE
024500      Display 'SQLMedd   : ' SQLERRMC(1:SQLERRML)
024600      Move 99 to Return-Code
024700      Set Klar to True
024800      .
024900*-----
025000 End Program OVN35.
```

025100*-----

Övning 4 – COBOL INSERT

Uppgift 1 – Kontroll av indata

```
000100 Identification Division.
000200 Program-Id. OVN41.
000300 Environment Division.
000400 Input-Output Section.
000500 File-Control.
000600     Select DATAIN Assign to DATADD
000700     Organization is Sequential
000800     Access is Sequential
000900     .
001000 Data Division.
001100
001200 File Section.
001300 FD Datain Recording Mode F.
001400 01 Datain-Post Pic X(80).
001500
001600 Working-Storage Section.
001700     Exec SQL
001800     Include SQLCA
001900     End-Exec
002000     .
002100     Exec SQL
002200     Include DRYCK
002300     End-Exec
002400     .
002500     Exec SQL
002600     Include PRIS
002700     End-Exec
002800     .
002900 01 WS-Datain-Post.
003000     05 WS-In-Drycknr           Pic 9(05).
003100     05                         Pic X(06).
003200     05 WS-In-Volym             Pic 9(04).
003300     05                         Pic X(05).
003400     05 WS-In-Pris              Pic 9(04).
003500     05                         Pic X(05).
003600     05 WS-In-Prdatum           Pic X(10).
003700
003800 01 Villkor                     Pic 9(01) Value 0.
003900     88 Klar                     Value 1.
004000
004100 01 SQL-Data.
004200     05 WS-SQLCODE             Pic +(09).
004300
004400
004500 Procedure Division.
004600     Display '-->> Programmet startar...'
004700     Perform Oppna-Datain
004800     Perform Laes-Datain Until Klar
004900     Perform Stang-Datain
005000     Display '-->> Programmet avslutar...'
005100
005200     GoBack
005300     .
005400*-----
005500 Oppna-Datain.
```

```
005600*-----
005700      Open Input DATAIN
005800      Display '-->> Datin öppnad...'
005900      .
006000*-----
006100 Laes-Datin.
006200*-----
006300      Read DATAIN Into WS-Datin-Post
006400      At End
006500      Set Klar to True
006600      Not At End
006700      Perform Behandla-Datin-Post
006800      End-Read
006900      .
007000*-----
007100 Behandla-Datin-Post.
007200*-----
007300
007400      Move WS-In-Drycknr to Drycknr in Dcldryck
007500
007600      Exec SQL
007700      Select
007800      Drycknamn
007900      Into
008000      :Drycknamn
008100      From
008200      UTB00.DRYCK
008300      Where
008400      Drycknr = :Dcldryck.Drycknr
008500      End-Exec
008600
008700      Evaluate SQLCODE
008800      When 0
008900      Continue
009000      When 100
009100      Display '*** Fel Drycknr: '
009110      WS-In-Drycknr
009200      When Other
009300      Perform SQL-Fel
009400      End-Evaluate
009500      .
009600*-----
009700 Stang-Datin.
009800*-----
009900      Close Datin
010000      Display '-->> Datin stängd...'
010100      .
010200*-----
010300 SQL-Fel.
010400*-----
010500      Move SQLCODE to WS-SQLCODE
010600      Display '*** SQL-Fel ***'
010700      Display 'SQLCODE : ' WS-SQLCODE
010800      Display 'SQLSTATE : ' SQLSTATE
010900      Display 'SQLMedd : ' SQLERRMC(1:SQLERRML)
011000      Move 99 to Return-Code
011100      Set KLAR to True
011200      .
011300*-----
011400 End Program OVN41.
```

011500*-----

Uppgift 2 – INSERT av godkända rader

```

000100 Identification Division.
000200 Program-Id. OVN42.
000300 Environment Division.
000400 Input-Output Section.
000500 File-Control.
000600     Select DATAIN Assign to DATADD
000700         Organization is Sequential
000800         Access is Sequential
000900     .
001000 Data Division.
001100
001200 File Section.
001300 FD Datain Recording Mode F.
001400 01 Datain-Post Pic X(80).
001500
001600 Working-Storage Section.
001700     Exec SQL
001800         Include SQLCA
001900     End-Exec
002000     .
002100     Exec SQL
002200         Include DRYCK
002300     End-Exec
002400     .
002500     Exec SQL
002600         Include PRIS
002700     End-Exec
002800     .
002900 01 WS-Datain-Post.
003000     05 WS-In-Drycknr Pic 9(05).
003100     05                               Pic X(06).
003200     05 WS-In-Volym Pic 9(04).
003300     05                               Pic X(05).
003400     05 WS-In-Pris Pic 9(04).
003500     05                               Pic X(05).
003600     05 WS-In-Prdatum Pic X(10).
003700
003800 01 Villkor Pic 9(01) Value 0.
003900     88 Klar Value 1.
004000
004100 01 SQL-Data.
004200     05 WS-SQLCODE Pic +(09).
004300     05 WS-Antal-Rader Pic 9(04) Value 0.
004400
004500
004600 Procedure Division.
004700     Display '-->> Programmet startar...'
004800     Perform Oppna-Datain
004900     Perform Laes-Datain Until Klar
005000     Perform Stang-Datain
005100     Display '-->> ' WS-Antal-Rader

```

```
005110          ' rader behandlade'
005200      Display '-->> Programmet avslutar...'
005300
005400      GoBack
005500      .
005600*-----
005700      Oppna-Datain.
005800*-----
005900          Open Input DATAIN
006000      Display '-->> Datain öppnad...'
006100      .
006200*-----
006300      Laes-Datain.
006400*-----
006500          Read DATAIN Into WS-Datain-Post
006600          At End
006700          Set Klar to True
006800          Not At End
006900          Perform Behandla-Datain-Post
007000      End-Read
007100      .
007200*-----
007300      Behandla-Datain-Post.
007400*-----
007500
007600      Add 1 to WS-Antal-Rader
007700      Move WS-In-Drycknr to Drycknr in Dcldryck
007800
007900      Exec SQL
008000          Select
008100              Drycknamn
008200          Into
008300              :Drycknamn
008400          From
008500              UTB00.DRYCK
008600          Where
008700              Drycknr = :Dcldryck.Drycknr
008800      End-Exec
008900
009000      Evaluate SQLCODE
009100          When 0
009200              Perform SQL-Insert-Pris
009300          When 100
009400              Display '*** Fel Drycknr: '
009410                  WS-In-Drycknr
009500          When Other
009600              Display '*** Annat fel vid Select '
009610                  WS-In-Drycknr
009700              Perform SQL-Fel
009800      End-Evaluate
009900      .
010000*-----
010100      SQL-Insert-Pris.
010200*-----
010400      Move Ws-In-Volym to Volym in DclPris
010500      Move Ws-In-Pris to Pris in DclPris
010600      Move Ws-In-Prdatum to Prdatum in DclPris
010700      Exec SQL
010800      Insert
010900          Into UTB00.Pris
011000      Values
```

```

011100      (:Dcldryck.Drycknr ,
011200      :Volym,
011300      :Pris,
011400      Date(:Prdatum))
011500      End-Exec
011600
011700      Evaluate SQLCODE
011800      When 0
011900*          Display '+++ Drycknr : ' Ws-In-Drycknr
012000*          ' nytt prisdatum ' Ws-In-Prdatum
012100      Continue
012200      When Other
012300          Perform SQL-Fel
012400      End-Evaluate
012500      .
012600*-----
012700      Stang-Datain.
012800*-----
012900      Close Datain
013000      Display '-->> Datain stängd...'
013100      .
013200*-----
013300      SQL-Fel.
013400*-----
013500      Move SQLCODE to WS-SQLCODE
013600      Display '*** SQL-Fel ***'
013700      Display 'SQLCODE : ' WS-SQLCODE
013800      Display 'SQLSTATE : ' SQLSTATE
013900      Display 'SQLMedd : ' SQLERRMC(1:SQLERRML)
014000      Move 99 to Return-Code
014100      Set KLAR to True
014200      .
014300*-----
014400      End Program OVN42.
014500*-----

```

Uppgift 3 – INSERT med felhantering

```

000100      Identification Division.
000200      Program-Id. OVN43.
000300      Environment Division.
000400      Input-Output Section.
000500      File-Control.
000600          Select DATAIN Assign to DATADD
000700          Organization is Sequential
000800          Access is Sequential
000900      .
001000      Data Division.
001100
001200      File Section.
001300      FD Datain Recording Mode F.
001400      01 Datain-Post Pic X(80).
001500
001600      Working-Storage Section.

```

```

001700      Exec SQL
001800          Include SQLCA
001900      End-Exec
002000      .
002100      Exec SQL
002200          Include DRYCK
002300      End-Exec
002400      .
002500      Exec SQL
002600          Include PRIS
002700      End-Exec
002800      .
002900 01 WS-Datain-Post.
003000      05 WS-In-Drycknr Pic 9(05).
003100      05                               Pic X(06).
003200      05 WS-In-Volym   Pic 9(04).
003300      05                               Pic X(05).
003400      05 WS-In-Pris    Pic 9(04).
003500      05                               Pic X(05).
003600      05 WS-In-Prdatum Pic X(10).
003700
003800 01 Villkor          Pic 9(01) Value 0.
003900      88 Klar          Value 1.
004000
004100 01 SQL-Data.
004200      05 WS-SQLCODE    Pic +(09).
004300
004400 01 Raknare.
004500      05 Antal-Rader   Pic 9(04) Value 0.
004600      05 Antal-Dublett Pic 9(04) Value 0.
004700      05 Antal-Insert  Pic 9(04) Value 0.
004800      05 Antal-FelDrycknr Pic 9(04) Value 0.
004900      05 Antal-AnnatFel Pic 9(04) Value 0.
005000
005100
005200 Procedure Division.
005300      Display '-->> Programmet startar...'
005400      Perform Oppna-Datain
005500      Perform Laes-Datain Until Klar
005600      Perform Stang-Datain
005700      Perform Skriv-Inforader
005800      Display '-->> Programmet avslutar...'
005900
006000      GoBack
006100      .
006200*-----
006300 Oppna-Datain.
006400*-----
006500      Open Input DATAIN
006600      Display '-->> Datain öppnad...'
006700      .
006800*-----
006900 Laes-Datain.
007000*-----
007100      Read DATAIN Into WS-Datain-Post
007200          At End
007300          Set Klar to True
007400          Not At End
007500          Perform Behandla-Datain-Post
007600      End-Read
007700      .

```



```
007800*-----
007900 Behandla-Datain-Post.
008000*-----
008100     Add 1 to Antal-Rader
008200     Move WS-In-Drycknr to Drycknr in Dcldryck
008300
008400     Exec SQL
008500     Select
008600         Drycknamn
008700     Into
008800         :Drycknamn
008900     From
009000         UTB00.DRYCK
009100     Where
009200         Drycknr = :Dcldryck.Drycknr
009300     End-Exec
009400
009500     Evaluate SQLCODE
009600     When 0
009700         Perform SQL-Insert-Pris
009800     When 100
009900         Display '*** Fel Drycknr: '
009910             WS-In-Drycknr
010000         Add 1 to Antal-FelDrycknr
010100     When Other
010200         Perform SQL-Fel
010300     End-Evaluate
010400     .
010500*-----
010600 SQL-Insert-Pris.
010700*-----
010800
010900     Move Ws-In-Volym to Volym in DclPris
011000     Move Ws-In-Pris to Pris in DclPris
011100     Move Ws-In-Prdatum to Prdatum in DclPris
011200     Exec SQL
011300     Insert
011400         Into UTB00.Pris
011500     Values
011600         (:Dcldryck.Drycknr,
011700         :Volym,
011800         :Pris,
011900         Date(:Prdatum))
012000     End-Exec
012100
012200     Evaluate SQLCODE
012300     When 0
012400         Add 1 to Antal-Insert
012500     When 100
012600         Display '*** Fel Drycknr: '
012610             WS-In-Drycknr
012700     When -803
012800         Display '*** Dublett : ' WS-Datain-Post
012900         Add 1 to Antal-Dublett
013000     When Other
013100         Add 1 to Antal-AnnatFel
013200         Perform SQL-Fel
013300     End-Evaluate
013400     .
013500*-----
013600 Stang-Datain.
```

```
013700*-----
013800      Close Datin
013900      Display '-->> Datin stängd...'
014000      .
014100*-----
014200      Skriv-Inforader.
014300*-----
014400      Display '-----'
014500      Display 'A N T A L      Behandlade rader : '
014600      Display '      Antal-Rader
014700      Display '      Korrekta Insert      : '
014800      Display '      Antal-Insert
014900      Display '      Dubletter          : '
015000      Display '      Antal-Dublett
015100      Display '      Felaktiga Drycknr : '
015200      Display '      Antal-FelDrycknr
015300      Display '      Andra fel          : '
015400      Display '      Antal-AnnatFel
015500      Display '-----'
015600      .
015700*-----
015800      SQL-Fel.
015900*-----
016000      Move SQLCODE to WS-SQLCODE
016100      Display '*** SQL-Fel ***'
016200      Display 'SQLCODE : ' WS-SQLCODE
016300      Display 'SQLSTATE : ' SQLSTATE
016400      Display 'SQLMedd : ' SQLERRMC(1:SQLERRML)
016500      Move 99 to Return-Code
016600      Set KLAR to True
016700      .
016800*-----
016900      End Program OVN43.
017000*-----
```

Övning 5 – COBOL DELETE

Uppgift 1 – DELETE med felhantering

```
000100 Identification Division.
000200 Program-Id. OVN51.
000300 Environment Division.
000400 Input-Output Section.
000500 File-Control.
000600     Select DATAIN Assign to DATADD
000700     Organization is Sequential
000800     Access is Sequential
000900     .
001000 Data Division.
001100
001200 File Section.
001300 FD Datain Recording Mode F.
001400 01 Datain-Post Pic X(80).
001500
001600 Working-Storage Section.
001700     Exec SQL
001800     Include SQLCA
001900     End-Exec
002000     .
002100     Exec SQL
002200     Include DRYCK
002300     End-Exec
002400     .
002500     Exec SQL
002600     Include PRIS
002700     End-Exec
002800     .
002900 01 WS-Datain-Post.
003000     05 WS-In-Drycknr Pic 9(05).
003100     05                               Pic X(06).
003200     05 WS-In-Volym   Pic 9(04).
003300     05                               Pic X(05).
003400     05 WS-In-Pris    Pic 9(04).
003500     05                               Pic X(05).
003600     05 WS-In-Prdatum Pic X(10).
003700
003800 01 Villkor          Pic 9(01) Value 0.
003900     88 Klar          Value 1.
004000
004100 01 SQL-Data.
004200     05 WS-SQLCODE    Pic +(09).
004300
004400 01 Raknare.
004500     05 Antal-Rader   Pic 9(04) Value 0.
004600     05 Antal-DeleteFel Pic 9(04) Value 0.
004700     05 Antal-Delete   Pic 9(04) Value 0.
004800     05 Antal-FelDrycknr Pic 9(04) Value 0.
004900     05 Antal-AnnatFel  Pic 9(04) Value 0.
005000
005100
005200 Procedure Division.
005300     Display '-->> Programmet startar...'
005400     Perform Oppna-Datain
005500     Perform Laes-Datain Until Klar
```

```
005600      Perform Stang-Datain
006300      Display '-->> Programmet avslutar...'
006400      Perform Skriv-Summering
006500
006600      GoBack
006700      .
006800*-----
006900 Oppna-Datain.
007000*-----
007100      Open Input DATAIN
007200      Display '-->> Datain öppnad...'
007300      .
007400*-----
007500 Laes-Datain.
007600*-----
007700      Read DATAIN Into WS-Datain-Post
007800      At End
007900      Set Klar to True
008000      Not At End
008100      Perform Behandla-Datain-Post
008200      End-Read
008300      .
008400*-----
008500 Behandla-Datain-Post.
008600*-----
008700      Add 1 to Antal-Rader
008800      Move WS-In-Drycknr to Drycknr in Dcldryck
008900
009000      Exec SQL
009100      Select
009200      Drycknamn
009300      Into
009400      :Drycknamn
009500      From
009600      UTB00.DRYCK
009700      Where
009800      Drycknr = :Dcldryck.Drycknr
009900      End-Exec
010000
010100      Evaluate SQLCODE
010200      When 0
010300      Perform SQL-Delete-Pris
010400      When 100
010500      Display '*** Fel Drycknr: '
010510      WS-In-Drycknr
010600      Add 1 to Antal-FelDrycknr
010700      When Other
010800      Add 1 to Antal-AnnatFel
010900      Perform SQL-Fel
011000      End-Evaluate
011100      .
011200*-----
011300 SQL-Delete-Pris.
011400*-----
011500
011600      Move Ws-In-Drycknr to Drycknr in DclPris
011700      Move Ws-In-Prdatum to Prdatum in DclPris
011800      Move Ws-In-Volym to Volym in DclPris
011900      Exec SQL
012000      Delete
012100      From UTB00.Pris
```

```

012200      Where
012300          Drycknr = :Dclpris.Drycknr
012400          And
012500          Prdatum = Date(:Dclpris.Prdatum)
012600          And
012700          Volym    = :Dclpris.Volym
012800      End-Exec
012900
013000      Add 1 to Antal-Rader
013100      Evaluate SQLCODE
013200          When 0
013300              Add 1 to Antal-Delete
013400          When 100
013500              Display '*** Fel vid DELETE '
013600                  WS-Datain-Post
013700              Add 1 to Antal-DeleteFel
013800          When Other
013900              Display '*** Annat fel      '
014000                  WS-Datain-Post
014100              Add 1 to Antal-AnnatFel
014200              Perform SQL-Fel
014300      End-Evaluate
014400      .
014500*-----
014600      Stang-Datain.
014700*-----
014800      Close Datain
014900      Display '-->> Datain stängd...'
015000      .
015100*-----
015200      Skriv-Summering.
015300*-----
015400      Display '-----'
015500      Display 'A N T A L      Behandlade rader   : '
015600              Antal-Rader
015700      Display '                Korrekta Delete   : '
015800              Antal-Delete
015900      Display '                Felaktiga Delete   : '
016000              Antal-DeleteFel
016100      Display '                Felaktiga Drycknr : '
016200              Antal-FelDrycknr
016300      Display '                Andra fel         : '
016400              Antal-AnnatFel
016500      Display '-----'
016600      .
016700*-----
016800      SQL-Fel.
016900*-----
017000      Move SQLCODE to WS-SQLCODE
017100      Display '*** SQL-Fel ***'
017200      Display 'SQLCODE   : ' WS-SQLCODE
017300      Display 'SQLSTATE  : ' SQLSTATE
017400      Display 'SQLMedd   : ' SQLERRMC(1:SQLERRML)
017500      Move 99 to Return-Code
017600*      Set KLAR to True
017700      .
017800*-----
017900      End Program OVN51.
018000*-----

```

