Práctica 8 - Academia Cobol 2023

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Código Fuente

```
*----------------------------------------------------------------*
 IDENTIFICATION DIVISION.
*----------------------------------------------------------------*
 PROGRAM-ID.    CBLDB21
 AUTHOR.        Victor Lavalle.


*_____*
*                                                                *
*                      "Practice 8"                              *
*                                                                *
* Instructions: Handle errors with SQLCODES, Commits and Rollback*
*                                                                *
*_____*



*----------------------------------------------------------------*
 ENVIRONMENT DIVISION.
*----------------------------------------------------------------*
 CONFIGURATION SECTION.
 INPUT-OUTPUT SECTION.
 FILE-CONTROL.
     SELECT REPOUT
           ASSIGN TO UT-S-REPORT.


*----------------------------------------------------------------*
 DATA DIVISION.
*----------------------------------------------------------------*
 FILE SECTION.
 FD  REPOUT
         RECORD CONTAINS 46 CHARACTERS
         LABEL RECORDS ARE OMITTED
         DATA RECORD IS REPREC.

 01 REPREC.
    05 ACCT-NOMBRE-O         PIC X(15).
    05 ACCT-STATE-O          PIC X(18).
    05 ACCT-SALDO-O          PIC $$,$$$,$$9.99.
```

```cobol
        WORKING-STORAGE SECTION.
       01 FLAGS.
          05 BANDERA-CURSOR        PIC X            VALUE SPACE.
             88 FIN-CURSOR                          VALUE 'Y'.
             88 NO-FIN-CURSOR                       VALUE 'N'.
      **********************************************************
             EXEC SQL INCLUDE SQLCA  END-EXEC.
      **********************************************************
       01 UD-ERROR-MESSAGE         PIC X(80)        VALUE SPACES.
       01 SQLCODES.
          05 SQLCODE0              PIC S9(9) COMP-5  VALUE 0.
          05 SQLCODE100            PIC S9(9) COMP-5  VALUE 100.


      **********************************************************
      * DECLARACION SQL DE LA TABLA                           *
      **********************************************************
             EXEC SQL DECLARE Z94474T TABLE
                     (ACCTNO CHAR(8) NOT NULL,
                      LIMIT DECIMAL(9,2) ,
                      BALANCE DECIMAL(9,2) ,
                      SURNAME CHAR(20) NOT NULL,
                      FIRSTN CHAR(15) NOT NULL,
                      ADDRESS1 CHAR(25) NOT NULL,
                      ADDRESS2 CHAR(20) NOT NULL,
                      ADDRESS3 CHAR(15) NOT NULL,
                      RESERVED CHAR(7) NOT NULL,
                      COMMENTS CHAR(50) NOT NULL)
             END-EXEC.
      **********************************************************
      * SQL CURSORS                                           *
      **********************************************************
             EXEC SQL DECLARE CURTABLA CURSOR FOR
                     SELECT FIRSTN, ADDRESS3, BALANCE FROM Z94474T
                     ORDER BY BALANCE DESC LIMIT 3
              END-EXEC.


      **********************************************************
      * VARIABLES HOST EN DONDE RECIBIMOS LA TABLA            *
      **********************************************************
       01 VARIABLES-HOST.
          02 ACCT-NOMBRE           PIC X(15).
          02 ACCT-DIRE3            PIC X(15).
          02 ACCT-SALDO            PIC S9(07)V99 COMP-3.

       01 UPDATE-CONSTANTS.
          05 WSC-UPD-NY-STATE      PIC X(08)        VALUE "New York".

       01 CALCULATE-VARIABLES.
          05 WSV-TOTAL-AVG         PIC S9(7)V99 COMP-3.
          05 WSV-PARG-NAME         PIC X(16).
```

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       01 LOG-MESSAGES.
          05 WSV-LOG-MESSAGE        PIC X(80)         VALUE SPACES.
          05  QMLOG-FD              PIC S9(4) BINARY  VALUE 0.
          05  QMLOG-RECORD          PIC X(80)         VALUE SPACES.


       01 ERROR-MESSAGES.
          05 WSC-ERR-MSG-CUR        PIC X(28)         VALUE
             "Error en operacion de cursor".

          05 WSC-ERR-MSG-NOT-FOUND  PIC X(22)         VALUE
             "Registro no encontrado".

          05 WSC-ERR-MSG-EMPTY      PIC X(16)         VALUE
             "Registro vacio".

          05 WSC-ERR-MSG-PARG       PIC X(16)         VALUE
             "Error en parrafo".


       01 SUCCESS-MESSAGES.
          05 WSC-SUC-MSG-UPD        PIC X(21)         VALUE
             "Actualizacion exitosa".

          05 WSC-SUC-MSG-DEL        PIC X(19)         VALUE
             "Eliminacion exitosa".

          05 WSC-SUC-MSG-INS        PIC X(17)         VALUE
             "Insercion exitosa".

          05 WSC-SUC-MSG-COMMIT     PIC X(14)         VALUE
             "Commit exitoso".

          05 WSC-SUC-MSG-ROLLBACK   PIC X(16)         VALUE
             "Rollback exitoso".

          05 WSC-SUC-MSG-READ       PIC X(15)         VALUE
             "Lectura exitosa".

           05 WSC-SUC-MSG-CUR        PIC X(27)          VALUE
             "Operacion en cursor exitosa".

      *****************************************************
      * Print format for the report
      *****************************************************
       01 BREAKLINE.
          05 BLANK-SPACE            PIC X(50)         VALUE ALL " ".

       01 HEADER-1.
          05 FILLER                 PIC X(09)         VALUE 'Realizo: '
          .
          05 WSV-AUTHOR             PIC X(06).
```

```cobol
       01 HEADER-2.
          05 FILLER              PIC X(06)       VALUE
               'Nombre'.
          05 FILLER              PIC X(09)       VALUE SPACES.
          05 FILLER              PIC X(06)       VALUE
               'Estado'.
          05 FILLER              PIC X(12)       VALUE SPACES.

          05 FILLER              PIC X(05)       VALUE
               'Saldo'.


       01 FOOTER-LINES.
          05 FILLER              PIC X(44)       VALUE ALL "-".

       01 FOOTER-DATA-1.
          05 FILLER              PIC X(33)       VALUE
               'Promedio de saldo de clientes es:'.
          05 WSV-TOTAL-AVG-O     PIC $$,$$$,$$9.99.

      *-----------------------------------------------------------------*
       PROCEDURE DIVISION.
      *-----------------------------------------------------------------*
       EMPIEZO-PROGRAMA.
           OPEN OUTPUT REPOUT.
           SET NO-FIN-CURSOR TO TRUE
           PERFORM PROCESO-PRINCIPAL.

       FIN-PROGRAMA.
           CLOSE REPOUT.
           GOBACK.


       PROCESO-PRINCIPAL.
           PERFORM ESCRIBE-ENCABEZADO
      *
           PERFORM ABRO-CURSOR
           PERFORM UPDATE-RECORDS UNTIL FIN-CURSOR
           PERFORM CIERRO-CURSOR
           SET NO-FIN-CURSOR TO TRUE

      *
           PERFORM ABRO-CURSOR
           PERFORM LEO-CURSOR

           IF SQLCODE = SQLCODE100
              MOVE 'PROCESO-PRINCIPAL' TO WSV-PARG-NAME
              DISPLAY WSC-ERR-MSG-EMPTY ' en ' WSV-PARG-NAME ' SQLCODE:'
              SQLCODE

              STOP RUN
```

```cobol
          END-IF

*

          PERFORM CICLO-CURSOR UNTIL FIN-CURSOR
          PERFORM CIERRO-CURSOR
          PERFORM CALCULATE-AVG

          PERFORM ESCRIBE-FOOTER.



      CICLO-CURSOR.
          PERFORM ESCRIBE-REPORTE.
          PERFORM LEO-CURSOR.



      ABRO-CURSOR.
          EXEC SQL
               OPEN CURTABLA
          END-EXEC.

           MOVE 'ABRO-CURSOR' TO WSV-PARG-NAME

          PERFORM QMLOG-OPEN-CURSOR.



      LEO-CURSOR.
          EXEC SQL
               FETCH CURTABLA
               INTO :VARIABLES-HOST
          END-EXEC

          MOVE 'LEO-CURSOR' TO WSV-PARG-NAME

          PERFORM QMLOG-READ-CURSOR.



      CIERRO-CURSOR.
          EXEC SQL
               CLOSE CURTABLA
          END-EXEC.

          MOVE "CIERRO-CURSOR." TO WSV-PARG-NAME

          PERFORM QMLOG-CLOSE-CURSOR .


      ****************************************************
      * Paragraphs to print out the report of the data  *
```

```cobol
      ***************************************************
       ESCRIBO-AUTOR.
           MOVE 'Victor' TO WSV-AUTHOR.
           WRITE REPREC FROM HEADER-1.


       ESCRIBE-REPORTE.
           INITIALIZE REPREC
           MOVE ACCT-NOMBRE TO ACCT-NOMBRE-O
           MOVE ACCT-DIRE3 TO ACCT-STATE-O
           MOVE ACCT-SALDO TO ACCT-SALDO-O
           WRITE REPREC AFTER ADVANCING 1 LINES.

       ESCRIBE-ENCABEZADO.
           PERFORM ESCRIBO-AUTOR
           WRITE REPREC FROM BREAKLINE AFTER ADVANCING 1 LINES
           WRITE REPREC FROM HEADER-2
           WRITE REPREC FROM BREAKLINE.

       ESCRIBE-FOOTER.
           MOVE WSV-TOTAL-AVG TO WSV-TOTAL-AVG-O
           WRITE REPREC FROM BREAKLINE
           WRITE REPREC FROM FOOTER-LINES AFTER ADVANCING 1 LINES
           WRITE REPREC FROM FOOTER-DATA-1.

      ***************************************************
      * The EVALUATE-SQLCODES subroutine evaluates the   *
      * SQLCODE value and sets flags accordingly.        *
      ***************************************************
       EVALUATE-SQLCODES.

           EVALUATE SQLCODE
               WHEN SQLCODE0
                   SET NO-FIN-CURSOR TO TRUE
               WHEN SQLCODE100
                   SET FIN-CURSOR TO TRUE
                   MOVE 'EVALUATE-SQLCODES' TO WSV-PARG-NAME
                   DISPLAY WSC-ERR-MSG-EMPTY ' al ejecutar '
                   WSV-PARG-NAME ' - SQLCIDE:' SQLCODE
               WHEN OTHER
                   PERFORM SQL-ROLLBACK
                   DISPLAY WSC-SUC-MSG-ROLLBACK ' al ejecutar '
                   WSV-PARG-NAME ' - SQLCIDE:' SQLCODE
                   STOP RUN
           END-EVALUATE.

      ***************************************************
      * Root function that calls the other function below*
      ***************************************************
       UPDATE-RECORDS.
           PERFORM LEO-CURSOR
```

```cobol
           IF SQLCODE = 0
              PERFORM UPDATE-NY-RECORD
           END-IF.



      ******************************************************
      * Update the state to New York to the best clients *
      ******************************************************
       UPDATE-NY-RECORD.
           EXEC SQL
                UPDATE Z94474T
                SET ADDRESS3 = :WSC-UPD-NY-STATE
                WHERE BALANCE IN (
                SELECT BALANCE
                FROM Z94474T
                ORDER BY BALANCE DESC
                FETCH FIRST 3 ROWS ONLY)
           END-EXEC

           MOVE "UPDATE-NY-RECORD" TO WSV-PARG-NAME

           PERFORM QMLOG-UPDATE.

      ******************************************************
      * Calculates the average of all the balances       *
      ******************************************************
       CALCULATE-AVG.
           EXEC SQL
                SELECT AVG(BALANCE)
                INTO :WSV-TOTAL-AVG
                FROM Z94474T
           END-EXEC

           MOVE "CALCULATE-AVG" TO WSV-PARG-NAME

           PERFORM QMLOG-READ

           PERFORM SQL-COMMIT

           MOVE WSV-TOTAL-AVG TO WSV-TOTAL-AVG-O.



      ******************************************************
      * SQL-COMMIT procedure to commit the changes        *
      ******************************************************
       SQL-COMMIT.
           EXEC SQL
                  COMMIT
           END-EXEC.
```

```cobol
      *****************************************************
      * SQL-ROLLBACK procedure to restore data           *
      *****************************************************
       SQL-ROLLBACK.
           EXEC SQL
                 ROLLBACK
           END-EXEC.


      *****************************************************
      * Functions to print a log of the program running  *
      *****************************************************

       QMLOG-READ.
           EVALUATE SQLCODE
               WHEN SQLCODE0
                     DISPLAY WSC-SUC-MSG-READ ' en ' WSV-PARG-NAME
               WHEN OTHER
                     DISPLAY WSC-ERR-MSG-PARG ' - ' WSV-PARG-NAME
                     PERFORM EVALUATE-SQLCODES
           END-EVALUATE.



       QMLOG-UPDATE.
           EVALUATE SQLCODE
               WHEN SQLCODE0
                     DISPLAY WSC-SUC-MSG-UPD ' en ' WSV-PARG-NAME
                     ' - SQLCODE: ' SQLCODE
               WHEN OTHER
                     DISPLAY WSC-ERR-MSG-PARG ' ' WSV-PARG-NAME ' '
                     PERFORM EVALUATE-SQLCODES
           END-EVALUATE.



       QMLOG-READ-CURSOR.
           EVALUATE SQLCODE
               WHEN SQLCODE0
                     DISPLAY WSC-SUC-MSG-CUR ' en ' WSV-PARG-NAME
               WHEN OTHER
                     DISPLAY WSC-ERR-MSG-CUR ' ' WSV-PARG-NAME
                     PERFORM EVALUATE-SQLCODES
           END-EVALUATE.




       QMLOG-OPEN-CURSOR.
           EVALUATE SQLCODE
               WHEN SQLCODE0
                     DISPLAY WSC-SUC-MSG-CUR ' en ' WSV-PARG-NAME
               WHEN OTHER
                     DISPLAY WSC-ERR-MSG-CUR ' ' WSV-PARG-NAME
```

```cobol
                 PERFORM EVALUATE-SQLCODES
            END-EVALUATE.




        QMLOG-CLOSE-CURSOR.
            EVALUATE SQLCODE
                WHEN SQLCODE0
                    DISPLAY WSC-SUC-MSG-CUR ' en ' WSV-PARG-NAME
                WHEN OTHER
                    DISPLAY WSC-ERR-MSG-CUR ' ' WSV-PARG-NAME
                    PERFORM EVALUATE-SQLCODES
            END-EVALUATE.
```

Salida

```
  Z94474.CBL(CBLDB21).cbl      CBLDB21R.JOB02923.SYSOUT      CBLDB21R.JOB02923.REPORT  ✕
   1    Realizo: Victor
   2
   3    Nombre          Estado           Saldo
   4
   5    William J.      New York         $8,118,313.14
   6    John F.         New York         $5,084,035.13
   7    Gerald          New York         $5,051,318.40
   8
   9    ------------------------------------------
  10    Promedio de saldo de clientes es:  $511,204.61
  11    |
```

```
  Z94474.CBL(CBLDB21).cbl      CBLDB21R.JOB02923.SYSOUT  ✕   CBLDB21R.JOB02923.REPORT
   1    Operacion en cursor exitosa en ABRO-CURSOR
   2    Operacion en cursor exitosa en LEO-CURSOR
   3    Actualizacion exitosa en UPDATE-NY-RECORD - SQLCODE: 0000000000
   4    Operacion en cursor exitosa en LEO-CURSOR
   5    Actualizacion exitosa en UPDATE-NY-RECORD - SQLCODE: 0000000000
   6    Operacion en cursor exitosa en LEO-CURSOR
   7    Actualizacion exitosa en UPDATE-NY-RECORD - SQLCODE: 0000000000
   8    Error en operacion de cursor LEO-CURSOR
   9    Registro vacio   al ejecutar EVALUATE-SQLCODE - SQLCIDE:0000000100
  10    Operacion en cursor exitosa en CIERRO-CURSOR.
  11    Operacion en cursor exitosa en ABRO-CURSOR
  12    Operacion en cursor exitosa en LEO-CURSOR
  13    Operacion en cursor exitosa en LEO-CURSOR
  14    Operacion en cursor exitosa en LEO-CURSOR
  15    Error en operacion de cursor LEO-CURSOR
  16    Registro vacio   al ejecutar EVALUATE-SQLCODE - SQLCIDE:0000000100
  17    Operacion en cursor exitosa en CIERRO-CURSOR.
  18    Lectura exitosa en CALCULATE-AVG
  19    |
```