INDICACIONES.

Tomando como base el siguiente código fuente, realizar las actividades solicitadas en este mismo documento.

CBL

```
      *-----------------------
       IDENTIFICATION DIVISION.
      *-----------------------
       PROGRAM-ID.    HPHMATCH
       AUTHOR.        BECA.
      *--------------------
       ENVIRONMENT DIVISION.
      *--------------------
       INPUT-OUTPUT SECTION.
       FILE-CONTROL.
           SELECT ENTRADA1   ASSIGN TO ENTRADA1
                             FILE STATUS IS WS-FS-A1.

           SELECT ENTRADB2   ASSIGN TO ENTRADB2
                             FILE STATUS IS WS-FS-B2.

           SELECT SALIDAS1   ASSIGN TO SALIDA1
                             FILE STATUS IS WS-FS-S1.

      *-------------
       DATA DIVISION.
      *-------------
       FILE SECTION.

       FD  ENTRADA1 RECORDING MODE F.
       01 REG-A1.
          05 A1-DIGITO       PIC 9(02).
          05 A1-SECUENCIA    PIC 9(02).
          05 A1-FOLIO        PIC 9(04).
          05 A1-RESTO        PIC X(162).

       FD  ENTRADB2 RECORDING MODE F.
       01 REG-B2.
          05 B2-DIGITO       PIC 9(02).
          05 B2-SECUENCIA    PIC 9(02).
          05 B2-FOLIO        PIC 9(04).
          05 B2-RESTO        PIC X(162).

       FD  SALIDAS1 RECORDING MODE F.
       01 REG-SAL.
          05 SAL-DIGITO      PIC 9(02).
          05 SAL-SECUENCIA   PIC 9(02).
          05 SAL-FOLIO       PIC 9(04).
          05 SAL-RESTO       PIC X(162).
      *
       WORKING-STORAGE SECTION.
       01 FLAGS.
         05 WS-FS-A1              PIC X(02) VALUE SPACE.
            88  FILE-A1-OK      VALUE '00'.
            88  FIN-FILE-A1     VALUE '10'.

         05 WS-FS-B2              PIC X(02) VALUE SPACE.
            88  FILE-B2-OK      VALUE '00'.
            88  FIN-FILE-B2     VALUE '10'.

         05 WS-FS-S1              PIC X(02) VALUE SPACE.
            88  FILE-S1-OK      VALUE '00'.
            88  FIN-FILE-S1     VALUE '10'.

       01 WS-CONTADORES.
         05 WS-LEIDOS-A1          PIC 9(04).
```

```
         05 WS-LEIDOS-B2          PIC 9(04).
         05 WS-ESCRITOS-S1        PIC 9(04).

       01 WS-LLAVES.
         05 WS-KEY-A1.
            10 KEY-A1-DIGITO      PIC 9(02).
            10 KEY-A1-FOLIO       PIC 9(04).
         05 WS-KEY-B2.
            10 KEY-B2-DIGITO      PIC 9(02).
            10 KEY-B2-FOLIO       PIC 9(04).

       01 FLAGS.
          05 FLAG-CURSOR       PIC X             VALUE SPACE.
             88 END-CURSOR                       VALUE 'Y'.
             88 NO-END-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.



      ************************************************
      *  SQL Table Declaration                       *
      ************************************************
               EXEC SQL DECLARE IBMUSER.EMP TABLE
                       (EMPNO    CHAR(3) NOT NULL,
                        FIRSTNME CHAR(15) NOT NULL,
                        MIDINII  CHAR(1) NOT NULL,
                        LASTNAME CHAR(15)NOT NULL,
                        WORKDEPT CHAR(3) NOT NULL,
                        PHONENO  INTEGER(4) NOT NULL,
                        HIREDATE DATE NOT NULL,
                        JOB      CHAR(15) NOT NULL,
                        EDLEVEL  INTEGER(2) NOT NULL,
                        SEX      CHAR(1) NOT NULL,
                        BIRTHDATE DATE NOT NULL,
                        SALARY   DECIMAL(9,2) NOT NULL,
                        BONUS    DECIMAL(9,2) NOT NULL,
                        COMM     DECIMAL(9,3) NOT NULL

                  END-EXEC.

               EXEC SQL DECLARE IBMUSER.DEPT TABLE
                       (DEPTNO   CHAR(3) NOT NULL,
                        DEPTNAME CHAR(16) NOT NULL,
                        MGRNO    INTEGER(6) ,
                        ADMRDEPT CHAR(3),
                        LOCATION CHAR(15),
                        MANAGER  CHAR(15),
                  END-EXEC.



      ************************************************
      * SQL Cursors                                  *
      ************************************************
           EXEC SQL
            DECLARE TABLE1 CURSOR FOR SELECT * FROM IBSMUSER.EMP
           END-EXEC.

           EXEC SQL
            DECLARE TABLE2 CURSOR FOR SELECT * FROM IBSMUSER.DEPT
           END-EXEC.
```

```
      ******************************************************
      * HOST variables where we fetch and store the tables*
      ******************************************************
       01 HOST-VARIABLES-1.
          02 TBL1-EMPNO           PIC X(3).
          02 TBL1-FIRSTNME        PIC X(15).
          02 TBL1-MIDINII         PIC X(1).
          02 TBL1-LASTNAME        PIC X(15).
          02 TBL1-WORKDEPT        PIC X(3).
          02 TBL1-PHONENO         PIC 9(4).
          02 TBL1-HIREDATE        PIC X(10).
          02 TBL1-JOB             PIC X(15).
          02 TBL1-EDLEVEL         PIC 9(2).
          02 TBL1-SEX             PIC X(1).
          02 TBL1-BIRTHDATE       PIC X(10)
          02 TBL1-SALARY          PIC X(9)V99.
          02 TBL1-BONUS           PIC X(9)V99.
          02 TBL1-COMM            PIC X(9)V99

       01 HOST-VARIABLES-2.
          02 TBL2-DEPTNO          PIC X(3).
          02 TBL2-DEPTNAME        PIC X(16).
          02 TBL2-MGRNO           PIC 9(6).
          02 TBL2-ADMRDEPT        PIC X(15).
          02 TBL2-LOCATION        PIC X(15).
          02 TBL2-MANAGER         PIC X(15).



       PROCEDURE DIVISION.
      *------------------
       0000-CONTROL.
           PERFORM 1000-INICIO
           PERFORM 2000-PROCESA UNTIL FIN-FILE-A1 AND
                                      FIN-FILE-B2
           3000-OPEN-CURSORS
           4000-READ-CURSORS
           5000-CLOSE-CURSORS

           PERFORM 4000-FIN
           STOP RUN.
      *
       1000-INICIO.
           PERFORM 1100-INICIALIZAR-VAR
           PERFORM 1200-ABRIR-ARCHS
           PERFORM 1300-LEER-ARCH-A1
           PERFORM 1400-LEER-ARCH-B2

      *
       1100-INICIALIZAR-VAR.
           INITIALIZE WS-CONTADORES WS-LLAVES
           SET NO-END-CURSOR TO TRUE.
      *
       1200-ABRIR-ARCHS.
           OPEN INPUT   ENTRADA1
                        ENTRADB2
           OPEN OUTPUT  SALIDAS1
           EVALUATE TRUE
              WHEN FILE-A1-OK AND FILE-B2-OK AND FILE-S1-OK
                 CONTINUE
              WHEN OTHER
                 DISPLAY 'ERROR FILE STATUS A1...' WS-FS-A1
                 DISPLAY 'ERROR FILE STATUS B2...' WS-FS-B2
                 DISPLAY 'ERROR FILE STATUS S1...' WS-FS-S1
                 STOP RUN
           END-EVALUATE.
      *
```

```
       1300-LEER-ARCH-A1.
           READ ENTRADA1
           EVALUATE TRUE
              WHEN FILE-A1-OK
                 ADD 1 TO WS-LEIDOS-A1
                 MOVE A1-DIGITO TO KEY-A1-DIGITO
                 MOVE A1-FOLIO  TO KEY-A1-FOLIO
              WHEN FIN-FILE-A1
                 CONTINUE
              WHEN OTHER
                 DISPLAY 'ERROR FILE STATUS A1...' WS-FS-A1
           END-EVALUATE.
      *
       1400-LEER-ARCH-B2.
           READ ENTRADB2
           EVALUATE TRUE
              WHEN FILE-B2-OK
                 ADD 1 TO WS-LEIDOS-B2
                 MOVE B2-DIGITO TO KEY-B2-DIGITO
                 MOVE B2-FOLIO  TO KEY-B2-FOLIO
              WHEN FIN-FILE-B2
                 CONTINUE
              WHEN OTHER
                 DISPLAY 'ERROR FILE STATUS B2...' WS-FS-B2
           END-EVALUATE.
      *

       2000-PROCESA.
           EVALUATE TRUE
             WHEN WS-KEY-A1 = WS-KEY-B2
                PERFORM 2100-ESCRIBIR-SALIDA
                PERFORM 1300-LEER-ARCH-A1
                PERFORM 1400-LEER-ARCH-B2
             WHEN WS-KEY-A1 < WS-KEY-B2
                PERFORM 1300-LEER-ARCH-A1
             WHEN WS-KEY-A1 > WS-KEY-B2
                PERFORM 1400-LEER-ARCH-B2
           END-EVALUATE.
      *
       2100-ESCRIBIR-SALIDA.
           MOVE A1-DIGITO        TO SAL-DIGITO
           MOVE A1-SECUENCIA     TO SAL-SECUENCIA
           MOVE A1-FOLIO         TO SAL-FOLIO
           MOVE A1-RESTO         TO SAL-RESTO
           WRITE REG-SAL
           EVALUATE TRUE
              WHEN FILE-S1-OK
                 ADD 1 TO WS-ESCRITOS-S1
              WHEN OTHER
                 DISPLAY 'ERROR FILE STATUS S1...' WS-FS-S1
           END-EVALUATE.
      *

       3000-OPEN-CURSORS.
           PERFORM 3100-OPEN-CURSOR-1
           PERFORM 3200-OPEN-CURSOR-2
      *
       3100-OPEN-CURSOR-1
           EXEC SQL
                OPEN TABLE1
                END-EXEC.
           PERFORM 6000-EVALUATE-SQLCODES.
      *
       3200-OPEN-CURSOR-2
           EXEC SQL
                OPEN TABLE2
                END-EXEC.
           PERFORM 3600-EVALUATE-SQLCODES.
      *
        4000-READ-CURSORS.
```

```
           PERFORM 4100-READ-CURSOR-1
           PERFORM 4200-READ-CURSOR-2.

         4100-READ-CURSOR-1.
            EXEC SQL
                 FETCH CURTABLE
                 INTO :HOST-VARIABLES-1
                 END-EXEC.
            PERFORM 6000-EVALUATE-SQLCODES.
        *
         4200-READ-CURSOR-1.
            EXEC SQL
                 FETCH CURTABLE
                 INTO :HOST-VARIABLES-1
                 END-EXEC.
            PERFORM 6000-EVALUATE-SQLCODES.
        *

         5000-CLOSE-CURSORS.
            PERFORM 5100-READ-CURSOR-1
            PERFORM 5200-READ-CURSOR-2.
        *
         5100-CLOSE-CURSORS-1.
            EXEC SQL
                 CLOSE TABLE1
                 END-EXEC.
            PERFORM 6000-EVALUATE-SQLCODES.
        *
         5200-CLOSE-CURSOR-2.
            EXEC SQL
                 CLOSE TABLE2
                 END-EXEC.
            PERFORM 6000-EVALUATE-SQLCODES.
        *
        6000-EVALUATE-SQLCODES.
                 EVALUATE SQLCODE
                   WHEN SQLCODE0
                     SET NO-END-CURSOR TO TRUE
                   WHEN SQLCODE100
                     SET END-CURSOR TO TRUE
                   WHEN OTHER
                     MOVE 'ERROR EN CURSOR' TO UD-ERROR-MESSAGE
                     STOP RUN
                END-EVALUATE.


       *
        7000-FIN.
            PERFORM 7100-CERRAR-ARCHS
            PERFORM 7200-DESPLEGAR-CIFRAS-CONTROL.
       *
        7100-CERRAR-ARCHS.
            CLOSE ENTRADA1
                  ENTRADB2
                  SALIDAS1
            EVALUATE TRUE
               WHEN FILE-A1-OK AND FILE-B2-OK AND FILE-S1-OK
                  CONTINUE
               WHEN OTHER
                  DISPLAY 'ERROR FILE STATUS A1...' WS-FS-A1
                  DISPLAY 'ERROR FILE STATUS B2...' WS-FS-B2
                  DISPLAY 'ERROR FILE STATUS S1...' WS-FS-S1
                  STOP RUN
            END-EVALUATE.
       *
        7200-DESPLEGAR-CIFRAS-CONTROL.
            DISPLAY '****************************************'
            DISPLAY '***  C I F R A S  D E  C O N T R O L ***'
            DISPLAY '***  REGS. LEIDOS A1.........' WS-LEIDOS-A1
            DISPLAY '***  REGS. LEIDOS B2.........' WS-LEIDOS-B2
```

```
           DISPLAY '***  REGS. ESCRITOS S1.......' WS-ESCRITOS-S1
           DISPLAY '***  F I N   D E   E J E C U C I O N  ***'
           DISPLAY '****************************************'.
```

JCL

```
//HPHMATCH JOB 1,NOTIFY=&SYSUID
//***************************************************/
//* Copyright Contributors to the COBOL Programming Course
//* SPDX-License-Identifier: CC-BY-4.0
//***************************************************/
//COBRUN  EXEC IGYWCL
//COBOL.SYSIN  DD DSN=&SYSUID..CBL(HPHMATCH),DISP=SHR
//LKED.SYSLMOD DD DSN=&SYSUID..LOAD(HPHMATCH),DISP=SHR
//***************************************************/
// IF RC = 0 THEN
//***************************************************/
//RUN     EXEC PGM=HPHMATCH
//STEPLIB   DD DSN=&SYSUID..LOAD,DISP=SHR
//ENTRADA1  DD DSN=&SYSUID..DATA.MATCH.A1,DISP=SHR
//ENTRADB2  DD DSN=&SYSUID..DATA.MATCH.B2,DISP=SHR
//SALIDA1   DD SYSOUT=*,OUTLIM=15000
//SYSOUT    DD SYSOUT=*,OUTLIM=15000
//CEEDUMP   DD DUMMY
//SYSUDUMP  DD DUMMY
//SYSIN DD DSN=MY.COBOL.SOURCE(DB2PROG),DISP=SHR
//SYSDBOUT DD SYSOUT=*
//SYSDBMON DD SYSOUT=*
//SYSOUT DD SYSOUT=*
//DBRMLIB DD DSN=DB2.RUNLIB.LOAD,DISP=SHR
//DB2SSID DD DSN=DB2.SSID,DISP=SHR
//***************************************************/
// ELSE
// ENDIF
```

1.- Modificar ambos componentes para eliminar los 2 archivos de entrada y sustituirlos por 2 cursores.

- ✔ El primer cursor debe de leer todas las filas y columnas de la tabla IBMUSER.EMP
- ✔ El segundo cursor debe de leer todas las filas y columnas de la tabla IBMUSER.DEPT
- ✔ El programa debe de conservar su funcionalidad de match.
- ✔ Marcar con amarillo los cambios realizados en el código fuente.