```cobol
IDENTIFICATION DIVISION.
PROGRAM-ID. MAEST001.
AUTHOR. NELLIUD D. TORRES.
DATE-WRITTEN. 3 DE FEBRERO DE 1992.
DATE-COMPILED.
*INSTALLATION. UPR.
SECURITY.
*
*******************************************************************************
*      ESTE PROGRAMA LEERA UN ARCHIVO SECUENCIAL QUE CONTIENE INFORMACION  *
*      DE ESTUDIANTES Y CREARA UN ARCHIVO INDEX CON ESA INFORMACION.       *
*                                                                          *
*      POR:  NELLIUD D. TORRES                                             *
*    CLASE:  MIS-520                                                       *
*     PROF:  SEVERINO RAMOS                                                *
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*
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SOURCE-COMPUTER.  VAX-8530.
OBJECT-COMPUTER.  VAX-8530.
INPUT-OUTPUT SECTION.
FILE-CONTROL.

     SELECT STUDENT-FILE-SEQ  ASSIGN TO "ARCH_EST.SEQ".
*
     SELECT STUDENT-FILE-IDX  ASSIGN TO "ARCH_EST.IDX"
         ORGANIZATION IS INDEXED
         ACCESS MODE IS SEQUENTIAL
         RECORD KEY IS STD-NUMBER-IDX.
*
     SELECT PRINT-FILE        ASSIGN TO "PRINTER-FILE.PRT".
*
DATA DIVISION.
FILE SECTION.

FD  STUDENT-FILE-SEQ
    LABEL RECORDS ARE STANDARD
    RECORD CONTAINS 78 CHARACTERS
    DATA RECORD IS STUDENT-RECORD-SEQ.
01  STUDENT-RECORD-SEQ.
    02  STD-NUMBER-SEQ                  PIC X(9).
    02  STD-NAME-SEQ                    PIC X(15).
    02  STD-FACULTY-SEQ                 PIC X(4).
    02  STD-PROMEDIO-SEQ                PIC 9V99.
    02  STD-DIRECCION1-SEQ              PIC X(15).
    02  STD-DIRECCION2-SEQ              PIC X(15).
    02  STD-PUEBLO-SEQ                  PIC X(12).
    02  STD-ZIP-CODE-SEQ                PIC X(5).
*
FD  STUDENT-FILE-IDX
    LABEL RECORDS ARE STANDARD
    RECORD CONTAINS 80 CHARACTERS
    DATA RECORD IS STUDENT-RECORD-IDX.
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01    STUDENT-RECORD-IDX.
      02  STD-NUMBER-IDX                    PIC X(9).
      02  STD-NAME-IDX                      PIC X(15).
      02  STD-FACULTY-IDX                   PIC X(4).
      02  STD-PROMEDIO-IDX                  PIC 9V99.
      02  STD-DIRECCION1-IDX                PIC X(15).
      02  STD-DIRECCION2-IDX                PIC X(15).
      02  STD-PUEBLO-IDX                    PIC X(14).
      02  STD-ZIP-CODE-IDX                  PIC X(5).

 FD   PRINT-FILE
      LABEL RECORDS ARE OMITTED
      RECORD CONTAINS 133 CHARACTERS
      DATA RECORD IS PRINT-RECORD.

 01   PRINT-RECORD                          PIC X(133).
 *
 WORKING-STORAGE SECTION.
 *
 01   WORK-AREAS.
      02 EOF                                PIC 9    VALUE ZERO.
      02 IK-SWITCH                          PIC 9    VALUE ZERO.
      02 TOTAL-READ                         PIC 9999 VALUE ZEROES.
      02 TOTAL-DISK                         PIC 9999 VALUE ZEROES.
      02 TOTAL-IK                           PIC 9999 VALUE ZEROES.

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 01   IK-LINE.
      02 FILLER                             PIC X(5)  VALUE SPACES.
      02 IK-RECORD-OUT                      PIC X(80).
      02 FILLER                             PIC X(5)  VALUE SPACES.
      02 FILLER                             PIC X(37) VALUE
         "RECORD DUPLICADO O FUERA DE SECUENCIA".

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 01   TOTAL-LINE.
      02 FILLER                             PIC X(5)  VALUE SPACES.
      02 FILLER                             PIC X(23) VALUE
         "TOTAL RECORDS LEIDOS = ".
      02 TOTAL-READ-OUT                     PIC Z,ZZ9.
      02 FILLER                             PIC X(27)  VALUE
         "   TOTAL RECORDS EN DISCO = ".
      02 TOTAL-DISK-OUT                     PIC Z,ZZ9.
      02 FILLER                             PIC X(27)  VALUE
         "   TOTAL RECORDS ERRONEOS = ".
      02 TOTAL-IK-OUT                       PIC Z,ZZ9.

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 PROCEDURE DIVISION.
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     ************************************************************************
     **                   MODULO PRINCIPAL DEL PROGRAMA.                   *
     ************************************************************************
     *
     0100-BEGIN.
         OPEN INPUT STUDENT-FILE-SEQ, OUTPUT STUDENT-FILE-IDX, PRINT-FILE.
         READ STUDENT-FILE-SEQ AT END MOVE 1 TO EOF.
         PERFORM 0200-CALC-RTN UNTIL EOF = 1.
         PERFORM 0400-TOTAL-RTN.
         CLOSE STUDENT-FILE-SEQ, STUDENT-FILE-IDX, PRINT-FILE.
         STOP RUN.
     *
     ************************************************************************
     ** ESTA RUTINA MUEVE LOS CAMPOS NECESAREOS PARA CREAR EL RECORD EN EL  *
     ** ARCHIVO INDEX. ADEMAS CALCULA LA CANTIDAD DE RECORDS LEIDOS Y EN DISCO.*
     ************************************************************************
     *
     0200-CALC-RTN.

         MOVE ZEROES TO IK-SWITCH.
         ADD 1 TO TOTAL-READ.

         MOVE STD-NUMBER-SEQ          TO    STD-NUMBER-IDX.
         MOVE STD-NAME-SEQ            TO    STD-NAME-IDX.
         MOVE STD-FACULTY-SEQ         TO    STD-FACULTY-IDX.
         MOVE STD-PROMEDIO-SEQ        TO    STD-PROMEDIO-IDX.
         MOVE STD-DIRECCION1-SEQ      TO    STD-DIRECCION1-IDX.
         MOVE STD-DIRECCION2-SEQ      TO    STD-DIRECCION2-IDX.
         MOVE STD-PUEBLO-SEQ          TO    STD-PUEBLO-IDX.
         MOVE STD-ZIP-CODE-SEQ        TO    STD-ZIP-CODE-IDX.
         WRITE STUDENT-RECORD-IDX INVALID KEY
             PERFORM 0300-INVALID-KEY-RTN.
         IF IK-SWITCH NOT EQUAL 1
             ADD 1 TO TOTAL-DISK.
          READ STUDENT-FILE-SEQ AT END MOVE 1 TO EOF.

     *
     ************************************************************************
     ** ESTA RUTINA SE UTILIZA UNICAMENTE EN CASO DE QUE OCURRA UN INVALID KEY *
     ** AL ESCRIBIR UN RECORD EN EL ARCHIVO INDEX. SE ESCRIBE EN UN REPORTE EL *
     ** CONTENIDO DEL RECORD RECHAZADO..                                   *
     ************************************************************************
     *
     0300-INVALID-KEY-RTN.

         MOVE 1                    TO  IK-SWITCH.
         ADD  1                    TO  TOTAL-IK.
         MOVE STUDENT-RECORD-IDX   TO  IK-RECORD-OUT.
         WRITE PRINT-RECORD FROM IK-LINE AFTER ADVANCING 2 LINES.

     *
     ************************************************************************
     ** AQUI SE ESCRIBE EN EL REPORTE LOS TOTALES QUE SE CALCULARON EN EL PRO- *
     ** GRAMA.                                                             *
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*
0400-TOTAL-RTN.

    MOVE  TOTAL-READ      TO  TOTAL-READ-OUT.
    MOVE  TOTAL-DISK      TO  TOTAL-DISK-OUT.
    MOVE  TOTAL-IK        TO  TOTAL-IK-OUT.
    WRITE PRINT-RECORD FROM  TOTAL-LINE AFTER ADVANCING 2 LINES.
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