บรรณานุกรม

ภาษาไทย

ประมวล กุลมาตย์. "การพิจารณาร่างพระราชบัญญัติมหาวิทยาลัย" (ข้อเสนอ
        ร่างพระราชบัญญัติต่อที่ประชุมสภาผู้แทนราษฎร), รัฐสภาสาร, 6
        (พฤษภาคม 2513), 27.

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กำแหง พลางกูร, "บทบาทวิทยาลัยเอกชน", วารสารสภาการศึกษาแห่งชาติ,
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ภาคผนวก

โปรแกรมที่ 1 EDIT – TRANS

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IDENTIFICATION DIVISION.
PROGRAM-ID. EDIT-TRANS.
AUTHOR. M.DUSADITHAM.
DATE-WRITTEN. FEB.2,1974.
DATE-COMPILED. 02/25/74.
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SOURCE-COMPUTER. 3300, MEMORY SIZE IS 16K WORDS.
OBJECT-COMPUTER. 3300, MEMORY SIZE IS 16K WORDS.
SPECIAL-NAMES.
        SWITCH 1 ON STATUS IS SW1ON.
        SWITCH 2 ON STATUS IS SW2ON.
        SWITCH 3 ON STATUS IS SW3ON.
        SWITCH 4 ON STATUS IS SW5ON.
        SWITCH 5 ON STATUS IS SW5ON.
        SWITCH 6 ON STATUS IS SW6ON.
        SYSTEM-INPUT-TAPE IS STD-IN.
        SYSTEM-OUTPUT-TAPE IS STD-OUT.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
        SELECT TAPE-OUT ASSIGN TO TAPE 01.
        SELECT PRINT-OUT ASSIGN TO TAPE 02.
        SELECT CARD-IN ASSIGN TO TAPE 03.

DATA DIVISION.
FILE SECTION.

FD CARD-IN RECORDING MODE IS DECIMAL, HIGH DENSITY BLOCK
        CONTAINS 10 RECORDS LABEL RECORD IS OMITTED DATA
        RECORD IS CARD-REC.
        01 CARD-REC1.
            03  FILLER PICTURE X(41).
            03 CARD-CHA PICTURE X OCCURS 30.
            03 FILLER PICTURE X(9).
        01 CARD-DETAILS.
            03 FILLER PICTURE X(35).
            03 COURSE-NUM PICTURE X(5).
            03 FILLER PICTURE X(40).
        01 CARD-REC.
            03 C-CODE PICTURE X.
                88 CK-C-CODE VALUES IS ' S '.
            03 C-DETAILS PICTURE X(79).
        01 CONTROL-CARD.
        03 CONTROL-CODE PICTURE X.
                88 CK-CONTROL-CODE VALUE    C .
        03 SEMESTER-HEAD PICTURE X(25).
        03 FILLER PICTURE X(54).
        01 F-CARD.
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        03 F-C-CODE PICTURE X.
            88 CK-F-CODE VALUE ' F' .
        03 F-CODE PICTURE X.
        03 F-NAME PICTURE X(35).
        03 FILLER PICTURE X(43).
    01 MASTER-CARD.
        03 M-C-CODE PICTURE X.
        03 M-STDNT-ID.
            05 STDNT-ID1 PICTURE X(3).
            05 STDNT-ID2 PICTURE X(05).
        03 M-SEX PICTURE X.
            88 CK-M-SEX VALUES ARE '1' '2' '3'.
        03 M-NAME PICTURE X(40).
        03 DOB PICTURE X(06).
        03 M-PROV PICTURE XX.
        03 M-OCC PICTURE X.
        03 M-TYPE PICTURE X.
        03 FILLER PICTURE X(20).
    01 SUBJ-CARD.
        03 S-C-CODE PICTURE X.
            88 CK-S-C-CODE VALUES IS '5'.
        03 S-STDNT-ID.
            05 FILLER PICTURE XX.
            05 S-FACULTY-CODE PICTURE X.
            88 CK-FACULTY-CODE VALUES ARE '1' THRU '7'.
            05 FILLER PICTURE X(5).
        03 S-STDNT-IDA REDEFINES S-STDNT-ID PICTURE X(8).
        03 FILLER PICTURE X.
        03 S-NAME PICTURE X(25).
        03 S-COURSE-NO.
            05 COURSE-ABBR PICTURE XX.
            05 COURSE-NO PICTURE XXX.
        03 FILLER PICTURE X.
        03 S-COURSE-NAME PICTURE X(30).
        03 S-SELECTION PICTURE X.
        03 S-LEC-HRS PICTURE X.
        03 S-LAB-HRS PICTURE X.
        03 S-CREDIT PICTURE 9.
        03 S-SREDITA REDEFINES S-CREDIT PICTURE X.
        03 FILLER PICTURE X(5).

FD TAPE-OUT RECORDING MODE IS DECIMAL, HIGH DENSITY LABEL
    RECORD IS STANDARD VALUE OF ID IS' 60010-401.'
    BLOCK CONTAINS 20 RECORDS DATA RECORD IS TAPE-REC.
    01 TAPE-REC.
        03 FILLER PICTURE X(80).
FD PRINT-OUT RECORDING MODE IS DECIMAL, HIGH DENSITY LABEL
    RECORD IS STANDARD VALUE OF ID IS #60010-402#
    BLOCK CONTAINS 8 RECORDS RECORD CONTAINS 136 CHARACTERS DATA
    RECORD IS PRINT-REC.
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01  PRINT-REC.
        03  PRT-CHAR PICTURE X.
        03  FILLER PICTURE X(135).


WORKINGS-STORAGE SECTION.
        77  FAC-TOT PICTURE 99999 VALUE ZEROS.
        77  II PICTURE 99.
        77  PAGE-CNT PICTURE 9999 VALUE ZEROS.
        77  LINE-CNT PICTURE 99 VALUE 5.
        77  ERR-NO PICTURE XX.
        77  ERR-CNT PICTURE 99.
        77  CR-CNT PICTURE 99 VALUE ZEROS.
        77  TEMP-F-CODE PICTURE X.
        77  ON1 PICTURE 9 VALUE ZEROS.
        77  TEMP-STDNT-ID PICTURE X(8).
        77  I PICTURE 99.
        77  ERR-FLAG PICTURE 99.
        77  SAVE-CARD PICTURE X(80) VALUE SPACES.
        77  SAVE-COURSE-NO PICTURE X(5) VALUE 'DR 101'.
        77  JJ COMPUTATIONAL-1.
        77  J COMPUTATIONAL-1.
01  HEAD1.
        03  H1-CHAR PICTURE X VALUE '1'.
        03  FILLER PICTURE X(18) VALUE SPACES.
        03  FILLER PICTURE X(44) VALUE
'R A M K H A M H A E N G   U N I V E R S I T Y'.
        03  FILLER PICTURE X(19) VALUE SPACES.
        03  FILLER PICTURE X(5) VALUE 'PAGE'.
        03  P-PAGE PICTURE ZZZ9.
01  HEAD2.
        03  H2-CHAR PICTURE X(24) VALUE SPACES.
        03  P-FAC-NAME PICTURE X(35).
01  HEAD3.
        03  FILLER PICTURE X(13) VALUE '0STUDENT NO. '.
        03  P-STDNT-ID1 PICTURE XXX.
        03  FILLER PICTURE X VALUE '-'.
        03  P-STDNT-ID2 PICTURE XXXXX.
        03  FILLER PICTURE XXX VALUE SPACES.
        03  P-STDNT-NAME PICTURE X(40).
01  HEAD4.
        03  H4-CHAR PICTURE X916) VALUE SPACES.
        03  P-SEMESTER PICTURE X(25).
        03  FILLER PICTURE X(11) VALUE SPACES.
        03  FILLER PICTURE X(30) VALUE 'LEC. LAB CR'.
        03  FILLER PICTURE X(8) VALUE 'ERR CODE'.
01  LINE 1.
        03  L1-CHAR PICTURE X VALUE SPACE.
        03  P-COURSE-ABBR PICTURE XXX.
        03  P-COURSE-NO PICTURE XXX.
        03  FILLER PICTURE X(4) VALUE SPACES.
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            03 P-COURSE-NAME PICTURE X(31).
            03 FILLER PICTURE X(6) VALUE SPACES.
            03 P-LEC-HRS PICTURE X.
            03 FILLER PICTURE X(5) VALUE SPACES.
            03 P-LAB-HRS PICTURE X.
            03 FILLER PICTURE X(5) VALUE SPACES.
            03 P-CREDIT PICTURE 9.
        01 TOT-LINE.
            03 TOT-CHAR PICTURE X(53) VALUE SPACES.
            03 FILLER PICTURE X(11) VALUE 'TOTAL      '.
            03 P-TOT-CR PICTURE Z9.
            03 FILLER PICTURE XXX VALUE SPACES.
            03 P-AST PICTURE XXX.
        01 TOT-LINE2.
            03 FILLER PICTURE X(32) VALUE SPACES.
            03 FILLER PICTURE X(7) VALUE 'TOTAL  '.
            03 P-FAC-TOT PICTURE ZZZZ9.
        01 ERR-LINE.
            03 ERR-CHAR PICTURE X VALUE SPACE.
            03 ERR-CHAR PICTURE X (112).
        01 ERR-CARD-AREAS.
            03 CARD-AND-ERR.
                05 FILLER PICTURE X.
                05 CARD-IMAGE PICTURE X(80).
                05 FILLER PICTURE XX.
                05 ERR-CODE-AREAS OCCURS 10.
                    07 ERR-CODE PICTURE XX.
                    07 FILLER PICTURE X.


PROCEDURE DIVISION.

START.

    OPEN INPUT CARD-IN.
    OPEN OUTPUT TAPE-OUT, PRINT-OUT.

INITIALIZE.
    MOVE SPACES TO ERR-CARD-AREAS.
    MOVE ZEROS TO I.
    MOVE ZEROS TO ERR-CNT.

READ-CONTROL-CARD.
    READ CARD-IN AT END STOP RUN.
    IF NOT CK-CONTROL-CODE DISPLAY # NO SEMASTER HEAD-CARD CODE INVALID#
    STOP RUN.
    MOVE SEMESTER-HEAD TO P-SEMESTER.

READ-F-CARD.
    READ CARD-IN AT END STOP RUN.
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            IF NOT CK-F-C-CODE DISPLAY 'FACULTY CARD MISSING' STOP RUN.

    MOVE-F-CARD.
         MOVE 0 TO 1, ERR-CNT.
         MOVE 5 TO LINE-CNT.
         MOVE F-NAME TO P-FAC-NAME.
         MOVE F-CODE TO TEMP-F-CODE.

    READ-SUBJ-CARD.
         READ CARD-IN AT END GO TO END-OF-CARD.
         MOVE 0 TO ERR-CNT.
         MOVE SPACES TO ERR-CARD-AREAS.
         GO TO CK-CONTROL-CARD.

    CHECK-C1.
         MOVE 0 TO J.

    CHECK-2.
         ADD 1 TO J.
         IF J GREATER 30 GO TO CHECK-EXIT.

    CHECK-C3.
         MOVE 0 TO JJ.

    CHECK-C4 .

         ADD 1 TO JJ.
         IF JJ GREATER 7 GO TO CHECK-C2.
         IF CARD-CHA(J) NOT EQUAL EBCDIC(JJ) GO TO CHECK-C4.
         MOVE BCD(JJ) TO CARD-CHA(J).
         GO TO CHECK-C2.

    CHECK-EXIT.
         EXIT.

    CK-CONTROL-CARD.
         IF C-CODE EQUAL #F# GO TO FACULTY-BRAKE.
         IF CK-C-CODE GO TO JUMP-ROUTE.
         MOVE 'L' TO ERR-NO.
         PERFORM STORE-ERR.
         WRITE PRINT-REC FROM CARD-AND-ERR.
         GO TO REAK-SUBJ-CARD.

    JUMP-ROUTE.
         IF C-CODE EQUAL 'O' GO TO EDIT-MASTER-CARD.
         GO TO EDIT-SUBJ-CARD.

    EDIT-MASTER-CARD.
         IF ON1 EQUAL 1 PERFORM WRITE-TOTAL E'LSE MOVE 1 TO ON1.
         MOVE 0 TO ERR-FLAG.
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        MOVE 0 TO ERR-CNT.
        MOVE ZEROS TO 1.
        MOVE M-STDNT-ID TO TEMP-STDNT-ID.
        IF S-FACULTY-CODE EQUAL TEMP-F-CODE GO TO CK-DUP-CARD.
        MOVE '2' TO ERR-NO.
        PERFORM STORE-ERR.

CK-DUP-CARD.
        IF CARD-REC NOT EQUAL SAVE-CARD GO TO STORE-CARD.
        MOVE '4' TO ERR-NO.
        PERFORM STORE-ERR.
        GO TO CK-DUP-CARD-EXIT.

STORE-CARD.
        MOVE CARD-REC TO SAVE-CARD.

CK-DUP-CARD-EXIT.
        EXIT.

E-M-C1.
        IF NOT CK-M-SEX
        PERFORM E-M-C3.
        IF DOB EQUAL SPACES
        PERFORM E-M-C3.
        IF M-PROV EQUAL SPACES
        PERFORM E-M-C3.
        IF M-OCC EQUAL SPACE
        PERFORM E-M-C3.
        IF M-OCC EQUAL SPACE
        PERFORM E-M-C3.
        IF M-NAME NOT EQUAL SPACES
        GO TO E-M-C2.
        MOVE '10' TO ERR-NO.
        PERFORM STORE-ERR.

E-M-C2.
        ADD 1 TO LINE-CNT.
        PERFORM TEST-LINE.
        MOVE STDNT-ID1 TO P-STDNT-ID1.
        MOVE STDNT-ID2 TO P-STDNT-ID2.
        MOVE M-NAME TO P-STDNT-NAME.
        WRITE PRINT-REC FROM HEAD3.
        WRITE PRINT-REC FROM HEAD4.
        GO TO E-M-C4.

E-M-C3.
        MOVE '11' TO ERR-NO.
        PERFORM STORE-ERR.

E-M-C4.
        IF ERR-CNT EQUAL 0
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        WRITE TAPE-REC FROM CARD-REC
        ELSE WRITE PRINT-REC FROM CARD-AND-ERR.
        GO TO READ-SUBJ-CARD.

EDIT-SUBJ-CARD.
        MOVE 0 TO ERR-FLAG.
        MOVE 0 TO ERR-CNT.
        IF S-STDNT-IDA NOT EQUAL TEMP-STDNT-ID MOVE '6' TO ERR-NO.
        PERFORM STORE-ERR.
        PERFORM CK-DUP-CARD THRU CK-DUP-CARD-EXIT.

E-S-C.
        EXAMINE S-COURSE-NO TALLYING ALL SPACE.
        IF TALLY EQUAL 0 GO TO E-S-C1.
        MOVE '3' TO ERR-NO.
        PERFORM STORE-ERR.

E-S-C1.
        IF S-CREDITA EQUAL SPACE MOVE '7' TO ERR-NO PERFORM STORE-ERR.

E-S-C2.
        IF S-NAME NOT EQUAL SPACES GO TO E-S-C3.
        MOVE '9' TO ERR-NO.
        PERFORM STORE-ERR.

E-S-C3.
        IF S-COURSE-NO NOT EQUAL SPACES GO TO E-S-C4.
        MOVE '8' TO ERR-NO.
        PERFORM STORE-ERR.

E-S-C4.
        IF ERR-CNT NOT EQUAL 0
        WRITE PRINT-REC FROM CARD-AND-ERR GO TO READ-SUBJ-CARD.
        ADD S-CREDIT TO CR-CNT.
        MOVE COURSE-ABBR TO P-COURSE-ABBR.
        MOVE COURSE-NO TO P-COURSE-NO.
        MOVE S-COURSE-NAME TO P-COURSE-NAME.
        MOVE S-LEC-HRS TO P-LEC-HRS.
        MOVE S-LAB-HRS TO P-LAB-HRS.
        MOVE S-CREDIT TO P-CREDIT.
        WRITE PRINT-REC FROM LINE1.
        IF ERR-CNT EQUAL 0 WRITE TAPE-REC FROM SUBJ-CARD.
        GO TO READ-SUBJ-CARD.

STORE-ERR.
        ADD 1 TO ERR-CNT.
        IF ERR-CNT EQUAL 1 MOVE CARD-REC TO CARD-IMAGE.
        MOVE ERR-NO TO ERR-CODE(ERR-CNT).

WRITE-TOTAL.
        MOVE CR-CNT TO P-TOT-CR.
```

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        MOVE SPACES TO P-AST.
        IF CR-CNT LESS THAN 9 MOVE '***' TO P-AST.
        IF CR-CNT GREATER THAN 21 MOVE '***' TO P-AST.
        WRITE PRINT-REC FROM TOT-LINE.
        ADD 1 TO FAC-TOT.
        MOVE SPACES TO ERR-CARD-AREAS.
        MOVE ZEROS TO CR-CNT.

   TEST-LINE.
        IF LINE-CNT GREATER 5 ADD 1 TO PAGE-CNT MOVE PAGE-CNT TO P-PAGE
        WRITE PRINT-REC FROM HEAD1 WRITE PRINT-REC FROM HEAD2 MOVE 1 TO
        LINE-CNT.

   FACULTY-BRAKE.
        PERFORM WRITE-TOTAL.
        MOVE FAC-TOT TO P-FAC-TOT.
        WRITE PRINT-REC FROM TOT-LINE2.
        MOVE ZEROS TO FAC-TOT.
        MOVE 0 TO ON1.

   FACULTY-BRAKE1.
        GO TO MOVE-F-CARD.

   END-OF-CARD.
        PERFORM FACULTY-BRAKE.
        CLOSE CARD-IN.
        CLOSE TAPE-OUT.
        CLOSE PRINT-OUT.
        STOP RUN.

   END PROGRAM.
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โปรแกรมที่ 2   TRANS UPDATE

```
   IDENTIFICATION DIVISION.
   PROGRAM-ID. TRANS UPDATE.
   AUTHOR. M.DUSADITHAM.
   DATE-WRITTEN. 02/14/74.
   DATE-COMPILED.
   ENVIRONMENT DIVISION.
   CONFIGURATION SECTION.
   SOURCE-COMPUTER. 3300, MEMORY SIZE IS 16K WORDS.
   OBJECT-COMPUTER. 3300, MEMORY SIZE IS 16K WORDS.
   SPECIAL-NAMES.
        SWITCH 1 ON STATUS IS SW1ON.
        SWITCH 2 ON STATUS IS SW2ON.
        SWITCH 3 ON STATUS IS SW3ON.
        SWITCH 4 ON STATUS IS SW4ON.
        SWITCH 5 ON STATUS IS SW5ON.
        SWITCH 6 ON STATUS IS SW6ON.
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```
            SYSTEM-INPUT-TAPE IS STD-IN.
            SYSTEM-OUTPUT-TAPE IS STD-OUTPUT.
      INPUT-OUTPUT SECTION.
      FILE-CONTROL.
            SELECT CORRECT-CARD ASSIGN TO SYSTEM-INPUT-TAPE.
            SELECT CORRECT-TAPE ASSIGN TO TAPE 01.
            SELECT OLD-MASTER ASSIGN TO TAPE 02.
            SELECT NEW-MASTER ASSIGN TO TAPE 03.
            SELECT PRT-FILE ASSIGN TO SYSTEM-OUTPUT-TAPE.
      I-O-CONTROL.
            SAME RECORD AREA FOR CORRECT-CARD, CORRECT-TAPE.

      DATA DIVISION.
      FILE SECTION.

      FD CORRECT-CARD LABEL RECORD IS OMITTED, DATA RECORD IS CONTROL-CARD.
            01 CONTROL-CARD.
                  03 C-CODE PICTURE X.
                        88 CK-C-CODE VALUES ARE 'C', 'T'.
                  03 FILLER PICTURE X(79).
            01 CARD-REC1.
                  03 FILLER PICTURE X(41).
                  03 CARD-CHA PICTURE X OCCURS 30.
                  03 FILLER PICTURE X(9).

      FD CORRECT-TAPE RECORDING MODE IS DECIMAL HIGH DENSITY LABEL
            RECORD ARE STANDARD VALUE OF ID IS '60010-401' BLOCK CONTAINS
            20 RECORDS, DATA RECORD IS TAPE-REC.
            01 TAPE-REC.
                  03 T-CODE PICTURE X.
                  03 T-ID PICTURE X(8).
                  03 T-DETAILS.
                        05 T-SEX PICTURE X.
                        05 T-NAME PICTURE X(25).
                        05 FILLER PICTURE X(5).
                        05 FILLER PICTURE X(39).
                  03 ACTION-CODE PICTURE X.
                  03 T-COURSE-NO PICTURE X(5).

      FD OLD-MASTER RECORDING MODE IS DECIMAL HIGH DENSITY LABEL
            RECORD ARE STANDARD VALUE OF ID IS '60010-401'
            BLOCK CONTAINS 20 RECORDS, DATA RECORD IS OLD-REC.
            01 OLD-REC.
                  03 O-CODE PICTURE X.
                  03 O-ID PICTURE X(8).
                  03 O-DETAILS.
                        05 O-SEX PICTURE X.
                        05 O-NAME PICTURE X(25).
                        05 FILLER PICTURE X(5).
                        05 FILLER PICTURE X(39).
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```
        03 FILLER PICTURE X.
        03 O-COURSE-NO PICTURE X(5).

FD NEW-MASTER RECORDING MODE IS DECIMAL HIGH DENSITY LABEL
    RECORD IS STANDARD VALUE OF ID IS '60010-401'
    BLOCK CONTAINS 20 RECORDS, DATA RECORD IS NEW-REC.
    01 NEW-REC.
        03 FILLER PICTURE X(85).

FD PRI-FILE RECORDING MODE IS DECIMAL LABEL RECORDS IS
    OMITTED DATA RECORD IS PRT-REC.
    01 PRT-REC PICTURE X(136).

WORKING-STORAGE SECTION.

    77 CONTROL-CODE PICTURE X.
    77 FLAG PICTURE 99.
    77 SAVE-ID PICTURE X(13).
    77 ALL-9 PICTURE X(13)VALUE '9999999999999'.
    77 LINE-CNT PICTURE 99 VALUE ZEROS.
    77 J COMPUTATIONAL-1.
    77 JJ COMPUTATIONAL-1.
    77 C-CNT PICTURE 999999 VALUE ZEROS.
    77 O-CNT PICTURE 999999 VALUE ZEROS.
    77 M-CNT PICTURE 999999 VALUE ZEROS.
    01 HEAD-1.
        03 FILLER PICTURE X(18) VALUE '1'.
        03 FILLER PICTURE C(022) VALUE 'CORRECTED CARD LISTING'.
    01 WORK-LINE.
        03 PRT-CHAR PICTURE X.
        03 PRT-CARD PICTURE X(80).
        03 PRT-MESSAGE PICTURE X(25).
        03 FILLER PICTURE X(30).
    01 KEY-AREAS.
        03 CORRECT-ID.
            05 CORRECT-ST-ID PICTURE X(8).
            05 CORRECT-C-NO PICTURE X(5).
        03 CORRECT-IDA REDEFINES CORRECT-ID PICTURE X(13).
        03 MASTER-ID.
            05 MASTER-ST-ID PICTURE X(8).
            05 CORRECT-C-NO PICTURE X(5).
        03 MASTER-IDA REDEFINES MASTER-ID PICTURE X(13).

PROCEDURE DIVISION.

OPEN-FILES.
    OPEN INPUT CORRECT-CARD.
    OPEN INPUT OLD-MASTER.
    OPEN OUTPUT NEW-MASTER.
    OPEN OUTPUT PRT-FILE.
```

```
READ-CONTROL-CARD.
      READ CORRECT-CARD AT END STOP RUN.
      IF NOT CK-C-CODE DISPLAY 'INVALID CONTROL-CARD OR CONTROL-CARD
      MISSING', STOP RUN.
      MOVE SPACES TO WORK-LINE.
      MOVE C-CODE TO CONTROL-CODE.
      IF CONTROL-CODE EQUAL 'C' GO TO READ-CORRECT.
      OPEN INPUT CORRECT-TAPE.
      ALTER READ-C TO PROCEED TO READ-T.

READ-CORRECT SECTION.

READ-C.
      GO TO READ-C1.

READ-C1.
      READ CORRECT-CARD AT END GO TO SET-ID.
      ADD 1 TO C-CNT.
      IF T-CODE EQUAL ZERO MOVE SPACES TO CORRECT-C-NO
      ELSE MOVE T-COURSE-NO TO CORRECT-C-NO.
      MOVE T-ID TO CORRECT-ST-ID.
      GO TO SET-FLAG.

READ-T.
      READ CORRECT-TAPE AT END GO TO SET-ID.
      ADD 1 TO C-CNT.
      IF T-CODE EQUAL ZERO MOVE SPACES TO CORRECT-C-NO ELSE MOVE
      T-COURSE-NO TO CORRECT-C-NO.
      MOVE T-ID TO CORRECT-ST-ID.
      GO TO SET-FLAG.

SET-ID.
      MOVE ALL-9 TO CORRECT-IDA.

SET-FLAG.
      MOVE ZERO TO FLAG.

PART-2 SECTION.

READ-OLD-MASTER.
      READ OLD-MASTER AT END MOVE ALL-9 TO MASTER-IDA GO TO COMPARE-ID.
      ADD 1 TO O-CNT.
      IF O-CODE EQUAL ZERO MOVE SPACES TO MASTER-C-NO
      ELSE MOVE O-COURSE-NO TO MASTER-C-NO.
      MOVE o-ID TO MASTER-ST-ID.

COMPARE-ID.
      IF CORRECT-IDA GREATER MASTER-IDA GO TO MASTER-LOW.
      IF CORRECT-IDA LESS THAN MASTER-IDA GO TO MASTER-HIGH.

MASTER-EQUAL.
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        IF CORRECT-IDA EQUAL ALL-9 GO TO CLOSE-FILES.
        IF ACTION-CODE NOT EQUAL 'A' GO TO MASTER-EQ1.
        GO TO MASTER-HIGH1.

MASTER-EQ1.
        IF ACTION-CODE EQUAL 'D' GO TO MASTER-EQ2.
        MOVE TAPE-REC TO PRT-CARD.
        MOVE 'INVALID CARD CODE' TO PRT-MASSAGE.
        PERFORM PRT-ROUT.
        GO TO READ-C.

MASTER-EQ2.
        IF T-DETAILS NOT EQUAL O-DETAILS GO TO MASTER-EQ3.
        MOVE TAPE-REC TO PRT-CARD.
        MOVE 'RECORD DELETED' TO PRT-MESSAGE.
        PERFORM PRT-ROUT.
        GO TO READ-C.

MASTER-EQ3.
        ADD 1 TO FLAG.
        IF FLAG EQUAL 1 MOVE MASTER-IDA TO SAVE-ID.
        IF MASTER-IDA EQUAL SAVE-ID WRITE NEW-REC FROM OLD-REC
        ADD 1 TO M-CNT GO TO READ-OLD-MASTER.

MASTER-EQ4.
        MOVE TAPE-REC TO PRT-CARD.
        MOVE 'NOT FOUND IN MASTER' TO PRT-MASSAGE.
        PERFORM PRT-ROUT.
        GO TO MASTER-HIGH2.

MASTER-LOW
        WRITE NEW-REC FROM OLD-REC.
        ADD 1 TO M-CNT.
        GO TO READ-OLD-MASTER.

MASTER-HIGH.
        IF ACTION-CODE EQUAL 'A' GO TO MASTER-HIGH1.
        MOVE TAPE-REC TO PRT-CARD.
        MOVE 'NOT FOUND IN MASTER' TO PRT-MESSAGE.
        PERFORM PRT-ROUT.
        GO TO MASTER-HIGH2.

MASTER-HIGH1.
        MOVE TAPE-REC TO PRT-CARD.
        MOVE 'RECORD ADDED' TO PRT-MESSAGE.
        PERFORM PRT-ROUT.
        WRITE NEW-REC FROM TAPE-REC.
        ADD 1 TO M-CNT.

MASTER-HIGH2.
        PERFORM READ-CORRECT.
```

```
        GO TO COMPARE-ID.

PRT-ROUT.
        ADD 1 TO LINE-CNT.
        IF LINE-CNT EQ 1 WRITE PRT-REC FROM HEAD-1 MOVE '-' TO PRT-CHAR
        ELSE MOVE ' ' TO PRT-CHAR.
        WRITE PRT-REC FROM WORK-LINE.
        IF LINE-CNT EQUAL 55 MOVE ZEROS TO LINE-CNT.

CHECK-C1.
        MOVE 0 TO J.

CHECK-C2.
        ADD 1 TO J.
        IF J GREATER 30 GO TO CHECK-EXIT.

CHECK-C3.
        MOVE 0 TO JJ.

CHECK-C4.
        ADD 1 TO JJ.
        IF JJ GREATER 7 GO TO CHECK-C2.
        IF CARD-CHA(J) NOT EQUAL EBCDIC(JJ) GO TO CHECK-C4.
        MOVE BCD(JJ) TO CARD-CHA(J).
        GO TO CHECK-C2.

CHECK-EXIT.
        EXIT.

CLOSE-FILES.
        DISPLAY 'CORRECT' C-CNT UPON STD-OUT.
        DISPLAY 'OLD MASTER' O-CNT UPON STD-OUT.
        DISPLAY 'NEW MASTER' M-CNT UPON STD-OUT.
        CLOSE OLD-MASTER.
        CLOSE NEW-MASTER.
        CLOSE CORRECT-CARD.
        IF CONTROL-CODE EQUAL 'T'
        CLOSE CORRECT-TAPE.
        STOP RUN.

END PROGRAM.
```

โปรแกรมที่ 3 SEPARATE

```
IDENTIFICATION DIVISION.
PROGRAM-ID. SEPARATE.
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SOURCE-COMPUTER. 3300, MEMORY SIZE IS 16K WORDS.
OBJECT-COMPUTER. 3300, MEMORY SIZE IS 16K WORDS.
SPECIAL-NAMES.
        SWITCH 1 ON STATUS IS SW1ON.
        SWITCH 2 ON STATUS IS SW2ON.
        SWITCH 3 ON STATUS IS SW3ON.
        SWITCH 4 ON STATUS IS SW4ON.
        SWITCH 5 ON STATUS IS SW5ON.
        SWITCH 6 ON STATUS IS SW6ON.
        SYSTEM-OUTPUT-TAPE IS STD-OUT.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
        SELECT TAPE-IN ASSIGN TO TAPE 01.
        SELECT CARD-O ASSIGN TO TAPE 02.
        SELECT COURSE-CARD ASSIGN TO TAPE 03.
        SELECT PRT-FILE ASSIGN TO SYSTEM-OUTPUT-TAPE.
I-O-CONTROL.
        SAME RECORD AREA FOR TAPE-IN, CARD-O,COURSE-CARD.

DATA DIVISION.
FILE SECTION.

FD CARD-O RECORDING MODE IS DECIMAL, HIGH DENSITY LABEL
        RECORD IS STANDARD VALUE OF ID IS '60010-401'
        BLOCK CONTAINS 20 RECORDS DATA RECORD IS CARD-O-REC.
        01 CARD-O-REC PICTURE X(80).

FD COURSE-CARD RECORDING MODE IS DECIMAL, HIGH DENSITY LABEL
        RECORD IS STANDARD VALUE OF ID IS '60010-401'
        BLOCK CONTAINS 20 RECORDS DATA RECORD IS COURSE-CARD-REC.
        01 COURSE-CARD-REC PICTURE X(80).

FD TAPE-IN RECORDING MODE IS DECIMAL, HIGH DENSITY LABEL
        RECORD IS STANDARD VALUE OF ID IS '60010-401'
        BLOCK CONTAINS 20 RECORDS DATA RECORD IS TAPE-IN-REC.
        01 TAPE-IN-REC.
                03 CARD-CODE PICTURE X.
                        88 CK-CARD O VALUE 'O'.
                03 STD-ID PICTURE X(8).
                03 FILLER PICTURE X(26).
                03 COURSE-NO PICTURE X(5).
                03 FILLER PICTURE X(40).
        01 TAPE-IN-REC2.
                03 COL1-79 PICTURE X(79).
                03 FILLER PICTURE X.
```

```
FD PRT-FILE LABEL RECORD IS OMITTED DATA RECORD IS PRT-REC.
     01 PRT-REC.
           03 PRT-CHAR PICTURE X.
           03 PRT-CARD PICTURE X.(80)

WORKING-STORAGE SECTION.
     77 SAVE-CARD PICTURE X(79) VALUE SPACES.
     77 CARDO-CNT PICTURE 9(6) VALUE ZEROS.
     77 COURSE-CARD-CNT PICTURE 9(6) VALUE ZEROS.
     01 SAVE-KEY.
           03 S-STD-ID PICTURE X(8).
           03 S-COURSE-NO PICTURE X(5).
           SAVE-KEYA REDEFINES SAVE-KEY PICTURE X(13).
     01 CURRENT-KEY.
           03 C-STD-ID PICTURE X(8).
           03 C-COURSE-NO PICTURE X(5).
     01 CURRENT-KEYA REDEFINES CURRENT-KEY PICTURE X(13).

PROCEDURE DIVISION.

OPEN-FILES.
     OPEN INPUT TAPE-IN.
     OPEN OUTPUT CARD-O.
     OPEN OUTPUT COURSE-CARD.
     OPEN OUTPUT PRT-FILE.
     MOVE SPACE TO PRT-CHAR.
     MOVE SPACES TO SAVE-KEYA.

READ-TAPE-IN.
     READ TAPE-IN AT END GO TO CLOSE-FILES.
     MOVE STD-ID TO C-STD-ID.
     MOVE COURSE-NO TO C-COURSE-NO.

CK-DUP-CARD.
     IF SAVE-KEYA NOT EQUAL CURRENT-KEYA GO TO STORE-CARD.
     MOVE TAPE-IN-REC TO PRT-CARD.
     WRITE PRT-REC.
     GO TO READ-TAPE-IN.

STORE-CARD.
     MOVE STD-ID TO S-STD-ID.
     MOVE COURSE-NO TO S-COURSE-NO.
     IF NOT CK-CARD 0 GO TO WRITE-COURSE-CARD.
     ADD 1 TO CARDO-CNT.

WRITE-CARDO.
     WRITE CARD-O-REC.
     GO TO READ-TAPE-IN
```

```
CLOSE-FILES.
     DISPLAY 'CARD-O' CARDO-CNT UPON STD-OUT.
     DISPLAY 'COURSE-CARD' COURSE-CARD-CNT UPON STD-OUT.
     CLOSE CARD-O.
     CLOSE COURSE-CARD.
     CLOSE PRT-FILE.
     STOP RUN.

END PROGRAM.
```

โปรแกรมที่ 4 LIST-COURSE

```
INDENTIFICATION DIVISION
PROGRAM-ID. LIST-COURSE.
AUTHOR. M.DUSADITHAM.
DATE-WRITTEN. 02/14/74.
DATE-COMPILED.
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SOURCE-COMPUTER. 3300, MEMORY SIZE IS 16K WORDS.
OBJECT-COMPUTER. 3300, MEMORY SIZE IS 16K WORDS.
SPECIAL-NAMES.
     SWITCH 1 ON STATUS IS SW1ON.
     SWITCH 2 ON STATUS IS SW2ON.
     SWITCH 3 ON STATUS IS SW3ON.
     SWITCH 4 ON STATUS IS SW4ON.
     SWITCH 5 ON STATUS IS SW5ON.
     SYSTEM-INPUT-TAPE IS STD-IN.
     SYSTEM-OUTPUT-TAPE IS STD-OUT.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
     SELECT TAPE-IN ASSIGN TO TAPE 01.
     SELECT REPORT-FILE ASSIGN TO TAPE 02.
     SELECT SUMMY-FILE ASSIGN TO TAPE 03.

DATA DIVISION.
FILE SECTION.

FD TAPE-IN RECORDING MODE IS DECIMAL, HIGH DENSITY LABEL
     RECORD ARE STANDARD VALUE OF ID IS '60010-401'
     BLOCK CONTAINS 20 RECORDS, DATA RECORD IS INPUT-REC.
     01 INPUT-REC.
          03 I-REC-CODE PICTURE X.
          03 I-STD-ID.
               05 I-STD-ID1 PICTURE XXX.
               05 I-STD-ID2 PICTURE X(5).
          03 FILLER PICTURE X.
          03 I-STD-NAME PICTURE X(25).
          03 I-COURSE.
               05 I-COURSE-NO PICTURE X(5).
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        05 FILLER PICTURE X.
            05 I-COURSE-NAME PICTURE X(30).
        03 FILLER PICTURE X(9).


FD REPORT-FILE RECORDING MODE IS DECIMAL, HIGH DENSITY LABEL
      RECORD IS STANDARD VALUE OF ID IS '60010-402'
      BLOCK CONTAINS 8 RECORDS DATA RECORD IS PRINT-REC.
      01 PRINT-REC PICTURE X(136).


FD SUMMY-FILE RECORDING MODE IS DECIMAL HIGH DENSITY LABEL
      RECORD IS OMITTED DATA RECORD IS PRNT-SUM.
      01 PRNT-SUM.
        03 SUM-AREA PICTURE X(136).


WORKING-STORAGE SECTION.
      77 PAGE-NO PICTURE 9(5) VALUE ZEROS.
      77 LINE-CNT PICTURE 99 VALUE ZEROS.
      77 RUNNING-NO PICTURE 9(6) VALUE ZEROS.
      77 SUB-TOTAL PICTURE 9(6) VALUE ZEROS.
      77 GRAND-TOTAL PICTURE 9(6) VALUE ZEROS.
      77 SAVE-C-NO PICTURE X(5).
      77 SAVE-C-NAME PICTURE X(30) VALUE SPACES.
      77 FLAG PICTURE 9 VALUE ZERO.
      77 SUM-LINE PICTURE 99 VALUE 80.
      77 SUM-PAGE-NO PICTURE 9(05) VALUE ZERO.
      01 HEAD-1.
        03 H1-CNTL PICTURE X VALUE '1'.
        03 P-COURSE PICTURE X(36).
        03 FILLER PICTURE X(7) VALUE SPACES.
        03 FILLER PICTURE X(54) VALUE 'TOTAL     ATTEND     ABSENT'.
        03 FILLER PICTURE X(27) VALUE 'G P F    REMARDS     PAGE'.
        03 P-PAGE-NO PICTURE ZZZZ9.
        03 FILLER PICTURE X(6) VALUE SPACES.
      01 DETAILS-LINE.
        03 D-CNTL PICTURE X VALUE '-'.
        03 P-RUNNING-NO PICTURE 9(6).
        03 FILLER PICTURE X VALUE SPACES.
        03 P-STD-ID1 PICTURE XXX.
        03 FILLER PICTURE X VALUE '-'.
        03 P-STD-ID2 PICTURE XXXXX.
        03 FILLER PICTURE X VALUE SPACES.
        03 P-STD-NAME PICTURE X(25).
        03 FILLER PICTURE XX VALUE SPACES.
        03 DASH PICTURE X(33) VALUE ALL '-'.
        03 FILLER PICTURE X(58) VALUE SPACES.
      01 DUMMY-LINE PICTURE X(136) VALUE '-'.
      01 TOTAL- LINE.
        03 T-CNTL PICTURE X VALUE '-'.
        03 FILLER PICTURE X(29) VALUE SPACES.
        03 P-TOTAL-HEAD PICTURE X(14).
        03 P-TOTAL PICTURE ZZZ,ZZ9.
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                     03 FILLER PICTURE X(85) VALUE SPACES.
               01 SUMMY-HEAD-1.
                     03 FILLER PICTURE X(51) VALUE '1'.
                     03 FILLER PICTURE X(20) VALUE 'COURSE LIST SUMMARY'.
                     03 FILLER PICTURE X(50) VALUE SPACES.
                     03 FILLER PICTURE X(06) VALUE 'PAGE'
                     03 SUM-PAGE PICTURE ZZZZ9.
                     03 FILLER PICTURE X(04) VALUE SPACES.
               01 SUMMY-HEAD-2.
                     03 FILLER PICTURE X(25) VALUE '-'.
                     03 FILLER PICTURE X(09) VALUE 'COURSE-NO'.
                     03 FILLER PICTURE X(12) VALUE SPACES.
                     03 FILLER PICTURE X(12) VALUE 'COURSE TITLE'.
                     03 FILLER PICTURE X(24) VALUE SPACES.
                     03 FILLER PICTURE X(14) VALUE 'TOTAL STUDENTS'.
                     03 FILLER PICTURE X(40) VALUE SPACES.
               01 SUMMY-DTL.
                     03 SUM-CTRL PICTURE X(01) VALUE '0'.
                     03 FILLER PICTURE X(25) VALUE SPACES.
                     03 SUM-COURSE PICTURE X(05) VALUE SPACES.
                     03 FILLER PICTURE X(06) VALUE SPACES.
                     03 SUM-C-NAME PICTURE X(30) VALUE SPACES.
                     03 FILLER PICTURE X(19) VALUE SPACES.
                     03 SUM-TOT PICTURE 9(06) VALUE ZERO.
                     03 FILLER PICTURE X(44) VALUE SPACES.

       PROCEDURE DIVISION.

       START.
               OPEN INPUT TAPE-IN.
               OPEN OUTPUT REPORT-FILE.
               OPEN OUTPUT SUMMY-FILE.

       READ-CARDO.
               READ TAPE-IN AT END STOP RUN.
               IF I-REC-CODE EQUAL '0' GO TO READ-CARDO.
               GO TO CK-FIRST-REC.

       READ-INPUT.
               READ TAPE-IN AT END GO TO PRINT-TOTAL.

       CK-FIRST-REC.
               IF FLAG NOT EQUAL 0 GO TO COMPARE-C-NO.
               MOVE 1 TO FLAG.

       STORE-C-NO.
               MOVE I-COURSE-NO TO SAVE-C-NO.
               MOVE I-COURSE-NAME TO SAVE-C-NAME.
               MOVE I-COURSE TO P-COURSE.
               MOVE ZEROS TO SUB-TOTAL.
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COMPARE-C-NO.
    IF I-COURSE-NO NOT EQUAL SAVE-C-NO GO TO COURSE-BRAKE.

MOVE-TO-D-LINE.
    ADD 1 TO RUNNING-NO.
    MOVE RUNNING-NO TO P-RUNNING-NO.
    MOVE I-STD-ID1 TO P-STD-ID1.
    MOVE I-STD-ID2 TO P-STD-ID2.
    MOVE I-STD-NAME TO P-STD-NAME.
    ADD 1 TO SUB-TOTAL.

PRINT-ROUT.
    ADD 1 TO LINE-CNT.
    IF LINE-CNT NOT EQUAL 1 GO TO PRINT-1.
    ADD 1 TO PAGE-NO.
    MOVE PAGE-NO TO P-PAGE-NO.
    WRITE PRINT-REC FROM HEAD-1.

PRINT-1.
    WRITE PRINT-REC FROM DUMMY-LINE.
    WRITE PRINT-REC FROM DETAILS-LINE.
    IF LINE-CNT EQUAL 10 MOVE ZERO TO LINE-CNT.

    GO TO READ-INPUT.

COURSE-BRAKE.
    MOVE SAVE-C-NO TO SUM-COURSE.
    MOVE SAVE-C-NAME TO SUM-C-NAME.
    MOVE SUB-TOTAL TO SUM-TOT.
    PERFORM SUMMARY-RTN.
    MOVE SUB-TOTAL TO P-TOTAL.
    MOVE 'STUDENT TOTAL' TO P-TOTAL-HEAD.
    WRITE PRINT-REC FROM DUMMY-LINE.
    WRITE PRINT-REC FROM TOTAL-LINE.
    ADD SUB-TOTAL TO GRAND-TOTAL.
    MOVE ZERO TO RUNNING-NO, LINE-CNT.
    MOVE ZEROS TO PAGE-NO.

JUMP-TO-STORE.
    GO TO STORE-C-NO.

PRINT-TOTAL.
    PERFORM COURSE-BRAKE.
    MOVE 'ALL TOTAL' TO P-TOTAL-HEAD.
    MOVE GRAND-TOTAL TO P-TOTAL.
    WRITE PRINT-REC FROM TOTAL-LINE.
    GO TO CLOSE-FILES.

SUMMARY-RTN.
    IF SUM-LINE GREATER THAN 50 PERFORM SUM-HEADING.
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        WRITE PRNT-SUM FROM SUMMY-DTL.
        ADD 2 TO SUM-LINE.
        MOVE 'O' TO SUM-CTRL.

    SUM-HEADING.
        ADD 1 TO SUM-PAGE-NO.
        MOVE SUM-PAGE-NO TO SUM-PAGE.
        MOVE '-' TO SUM-CTRL.
        WRITE PRNT-SUM FROM SUMMY-HEAD-1.
        WRITE PRNT-SUM FROM SUMMY-HEAD-2.
        MOVE 8 TO SUM-LINE.

    CLOSE-FILES.
        WRITE PRNT-SUM FROM TOTAL-LINE.
        CLOSE TAPE-IN.
        CLOSE REPORT-FILE.
        CLOSE SUMMY-FILE.
        STOP RUN.

    END PROGRAM.
```

โปรแกรมที่ 5   GENERATE GRADE

```
    IDENTIFICATION DIVISION.
    PROGRAM-ID. GENERATE GRADE.
    AUTHOR. M.DUSADITHAM.
    DATE-WRITTEN. 02/14/74.
    DATE-COMPILED.
    ENVIRONMENT DIVISION.
    CONFIGURATION SECTION.
    SOURCE-COMPUTER. 3300, MEMORY SIZE IS 16K WORDS.
    OBJECT-COMPUTER. 3300, MEMORY SIZE IS 16K WORDS.
    SPECIAL-NAMES.
        SWITCH 1 ON STATUS IS SW1ON.
        SWITCH 2 ON STATUS IS SW2ON.
        SWITCH 3 ON STATUS IS SW3ON.
        SWITCH 4 ON STATUS IS SW4ON.
        SWITCH 5 ON STATUS IS SW5ON.
        SWITCH 6 ON STATUS IS SW6ON.
        SYSTEM-INPUT-TAPE IS STD-IN.
        SYSTEM-OUTPUT-TAPE IS STD-OUT.
    INPUT-OUTPUT SECTION.
    FILE-CONTROL.
        SELECT DATA-IN ASSIGN TO SYSTEM-INPUT-TAPE.
        SELECT TAPE-OUT ASSIGN TO TAPE 01.
    I-O-CONTROL.
        SAME RECORD AREA FOR DATA-IN TAPE-OUT.
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```
DATA DIVISION.
FILE SECTION

FD DATA-IN LABEL RECORD IS OMITTED DATA RECORD IS REC-IN.
    01 REC-IN.
        03 GRADE PICTURE X.
            88 CK-GRADE VALUES ARE 'G', 'P'.
        03 FILLER PICTURE X(79).
    01 REC-IN2.
        03 FILLER PICTURE X(78).
        03 GRADE-OUT PICTURE X.
        03 FILLER PICTURE X.

FD TAPE-OUT RECORDING MODE IS DECIMAL, HIGH DENSITY LABEL
    RECORD IS STANDARD VALUE OF ID IS ' 60010-401'
    BLOCK CONTAINS 20 RECORDS DATA RECORD IS REC-OUT.
    01 REC-OUT.
        03 FILLER PICTURE X(80).

WORKING-STORAGE SECTION.
    77 SAVE-GRADE PICTURE X.
    77 REC-CNT PICTURE 9(6) VALUE ZEROS.

PROCEDURE DIVISION.

OPEN-FILES.
    OPEN INPUT DATA-IN.
    OPEN OUTPUT TAPE-OUT.

READ-CONTROL-CARD.
    READ DATA-IN AT END STOP RUN.
    IF NOT CK-GRADE DISPLAY 'INVALID CONTROL CARD, STOP RUN',STOP RUN.

STORE-GRADE.
    MOVE GRADE TO SAVE-GRADE.

READ-DATA.
    READ DATA-IN AT END GO TO CLOSE-FILES.
    IF CK-GRADE GO TO STORE-GRADE.
    MOVE SAVE-GRADE TO GRADE-OUT.
    WRITE REC-OUT.
    ADD 1 TO REC-CNT.
    GO TO READ-DATA.

CLOSE-FILES.
    DISPLAY 'RECORD-OUT' REC-CNT UPON STD-OUT.
    CLOSE DATA-IN.
    CLOSE TAPE-OUT.
    STOP RUN.

END PROGRAM.
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โปรแกรมที่ 6 GRADE REPORT

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IDENTIFICATION DIVISION.
PROGRAM-ID. GRADE REPORT.
AUTHOR. M.DUSADITHAM.
DATE-WRITTEN. 02/14/74.
DATE-COMPILED.
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SOURCE-COMPUTER. 3300 MEMORY SIZE IS 16K WORDS.
OBJECT-COMPUTER. 3300 MEMORY SIZE IS 16K WORDS.
SPECIAL-NAMES.
        SWITCH 1 ON STATUS IS SW1ON.
        SWITCH 2 ON STATUS IS SW2ON.
        SWITCH 3 ON STATUS IS SW3ON.
        SWITCH 4 ON STATUS IS SW4ON.
        SWITCH 5 ON STATUS IS SW5ON.
        SWITCH 6 ON STUSTU IS SW6ON.
        SYSTEM-INPUT-TAPE IS STD-IN.
        SYSTEM-OUTPUT-TAPE IS STD-OUT.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
        SELECT COURSE-CARD ASSIGN TO TAPE 01.
        SELECT REPORT-FILE ASSIGN TO TAPE 02.
        SELECT CARD-IN ASSIGN TO SYSTEM-INPUT-TAPE.

DATA DIVISION.
FILE SECTION.

FD CARD-IN LABEL RECORD IS OMITTED DATA RECORD IS CONTROL-CARD.
        01 CONTROL-CARD.
            03 SEMESTER PICTURE X(32).
            03 FILLER PICTURE X(48).

FD REPORT-FILE RECORDING MODE IS DECIMAL, HIGH DENSITY BLOCK
        CONTAINS 8 RECORDS LABEL RECORD IS STANDARD VALUE OF ID IS
        '60010-401' DATA RECORD IS REPORT-LINE.
        01 REPORT-LINE PICTURE X(080).

FD COURSE-CARD RECORDING MODE IS DECIMAL, HIGH DENSITY LABEL
        RECORD IS STANDARD VALUE OF ID IS '60010-401'.
        BLOCK CONTAINS 20 RECORDS DATA RECORD IS COURSE-CARD-REC.
        01 COURSE-CARD-REC.
            03 CARD-CODE PICTURE X.
            03 STD-ID1 PICTURE XXX.
            03 STD-ID2 PICTURE X(5).
            03 SEX PICTURE X.
            03 STD-NAME PICTURE X(25).
            03 COURSE-NO PICTURE X(5).
            03 FILLER PICTURE X.
            03 COURSE-NAME PICTURE X(30).
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              03 FILLER PICTURE X(7).
              03 GRADE PICTURE X.
                  88 CK-GP VALUES ARE 'G' 'P'.
                  88 CK-F VALUES ARE '-', ' '.
              03 FILLER PICTURE X.

      WORKING-STORAGE SECTION.
              77 SAVE-COURSE-NO PICTURE X(5) VALUE '*****'.
              77 PAGE-CNT PICTURE 9(4) VALUE ZEROS.
              77 LINE-CNT PICTURE 99 VALUE 49.
              77 X1 COMPUTATIONAL-1 VALUE ZERO.
              77 Y1 COMPUTATIONAL-1 VALUE ZERO.
              01 HEAD-1.
                  03 FILLER PICTURE X(39) VALUE '1RAMKHAMHAENG UNIVERSITY'.
                  03 FILLER PICTURE X(41) VALUE ' G R A D E   R E P O R T'.
              01 HEAD-2.
                  03 FILLER PICTURE X(35) VALUE '0'.
                  03 P-SEMESTER PICTURE X(32).
                  03 FILLER PICTURE X(5) VALUE 'PAGE '.
                  03 P-PAGE PICTURE ZZZ9.
                  03 FILLER PICTURE X(4) VALUE SPACES.
              01 HEAD-3.
                  03 FILLER PICTURE X(12) VALUE '0COURSE NO.'.
                  03 P-COURSE-NO PICTURE X(5).
                  03 FILLER PICTURE X VALUE SPACE.
                  03 P-COURSE-NAME PICTURE X(30).
                  03 FILLER PICTURE X(32) VALUE SPACES.
              01 HEAD-4.
                  03 FILLER PICTURE X(80) VALUE '0STUDENT ID. GRADE NAME'.
              01 G-LINE.
                  03 G-CHAR PICTURE X.
                  03 P-STD-ID1 PICTURE X(3).
                  03 P-DASH PICTURE X VALUE '-'.
                  03 P-STD-ID2 PICTURE X(5).
                  03 FILLER PICTURE X(6) VALUE SPACES.
                  03 P-GRADE PICTURE X.
                  03 FILLER PICTURE X(4) VALUE SPACES.
                  03 P-STD-NAME PICTURE X(40).
                  03 FILLER PICTURE X(19) VALUE SPACES.
              01 TOT-LINE.
                  03 FILLER PICTURE X(10) VALUE '0'.
                  03 P-T-COURSE-NO PICTURE X(5).
                  03 FILLER PICTURE X(5) VALUE SPACES.
                  03 FILLER PICTURE X(2) VALUE 'G='.
                  03 G-CNT PICTURE 9(05) VALUE ZERO.
                  03 FILLER PICTURE XXX VALUE SPACES.
                  03 FILLER PICTURE X(2) VALUE 'P='.
                  03 P-CNT PICTURE 9(05) VALUE ZERO.
                  03 F-HEAD PICTURE X(5) VALUE '   F='.
                  03 F-CNT PICTURE 9(05).
                  03 F-CNTA REDEFINES F-CNT PICTURE X(5).
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            03 F-CNTA REDEFINES  F-CNT PICTURE X(5).
            03 FILLER PICTURE X(33) VALUE SPACES.
        01 SUM-COUNTERS.
            03 SUM-AREA OCCURS 3000 TIMES.
                05 SUM-COURSE PICTURE X(05).
                05 SUM-G PICTURE 9(05).
        01 SUM-OT.
            03 SUM-AR OCCURS 300 TIMES.
                05 SUM-P PICTURE 9(05).
                05 SUM-F PICTURE 9(05).


PROCEDURE DIVISION.

OPEN-FILES.
    OPEN INPUT COURSE-CARD.
    OPEN INPUT CARD-IN.
    OPEN OUTPUT REPORT-FILE.
    MOVE SPACES TO SUM-COUNTERS.

READ-SM-CARD.
    MOVE SPACES TO SUM-OT.
    READ CARD-IN AT END STOP RUN.
    MOVE SEMESTER TO P-SEMESTER.

READ-TAPE-IN.
    READ COURSE-CARD AT END MOVE '99999' TO COURSE-NO.

COMPARE-ID.
    IF COURSE-NO NOT EQUAL SAVE-COURSE-NO GO TO COURSE-BRAKE.

COMP-ID-1.
    MOVE STD-ID1 TO P-STD-ID1.
    MOVE STD-ID2 TO P-STD-ID2.
    MOVE STD-NAME TO P-STD-NAME.
    IF NOT CK-GP MOVE '-' TO P-GRADE ELSE MOVE GRADE TO P-GRADE.
    MOVE SPACE TO G-CHAR.
    IF LINE-CNT NOT EQUAL 49 GO TO PRINT-G-LINE.

WRITE-HEADING.
    WRITE REPORT-LINE FROM HEAD-1.
    ADD 1 TO PAGE-CNT.
    MOVE PAGE-CNT TO P-PAGE.
    WRITE REPORT-LINE FROM HEAD-2.
    WRITE REPORT-LINE FROM HEAD-3.
    WRITE REPORT-LINE FROM HEAD-4.
    MOVE '0' TO G-CHAR.
    MOVE ZEROS TO LINE-CNT.

PRINT-G-LINE.
    WRITE REPORT-LINE FROM G-LINE.
    ADD 1 TO LINE-CNT.
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```
        IF GRADE EQUAL 'G' ADD 1 TO G-CNT.
        IF GRADE EQUAL 'P' ADD 1 TO P-CNT.
        IF CK-F ADD 1 TO F-CNT.
        GO TO READ-TAPE-IN.

COURSE-BRAKE.
        MOVE '   F=' TO F-HEAD.
        IF SW1ON GO TO WRT-TOT-LINE.
        IF F-CNT EQUAL ZEROS MOVE SPACES TO F-CNTA, F-HEAD.

WRT-TOT-LINE.
        WRITE REPORT-LINE FROM TOT-LINE.
        ADD 1 TO X1.
        IF X1 GR 300 DISPLAY '-SUMMARY COUNTER EXCEEDS 300' UPON
        STD-OUT, GO TO FINAL-CLOSE.
        MOVE SAVE-COURSE-NO TO SUM-COURSE (X1).
        MOVE G-CNT TO SUM-G (X1).
        MOVE P-CNT TO SUM-P (X1).
        MOVE F-CNT TO SUM-F (X1).
        IF COURSE-NO EQUAL '99999' GO TO CLOSE-FILES.
        MOVE COURSE-NO TO SAVE-COURSE-NO.
        MOVE COURSE-NO TO P-COURSE-NO, P-T-COURSE-NO.
        MOVE COURSE-NAME TO P-COURSE-NAME.
        MOVE ZEROS TO PAGE-CNT, G-CNT, P-CNT, F-CNT.
        MOVE 49 TO LINE-CNT GO TO COMPARE-ID.

SUM-HEADING.
        ADD 1 TO PAGE-CNT.
        MOVE PAGE-CNT TO P-PAGE.
        WRITE REPORT-LINE FROM HEAD-1.
        WRITE REPORT-LINE FROM HEAD-2.
        MOVE ZERO TO LINE-CNT.

CLOSE-FILES.
        MOVE 50 TO LINE-CNT.
        MOVE ZERO TO PAGE-CNT.
        MOVE 1 TO Y1.

WRAP-UP.
        ADD 1 TO Y1.
        IF Y1 GREATER THAN X1 GO TO FINAL-CLOSE.
        MOVE SUM-COURSE (Y1) TO P-T-COURSE-NO.
        MOVE SUM-G (Y1) TO G-CNT.
        MOVE SUM-P (Y1) TO P-CNT.
        MOVE SUM-F (Y1) TO F-CNT.
        MOVE '   F=' TO F-HEAD.
        IF SW1ON GO TO CK-LINE.
        IF F-CNT EQUAL TO ZERO MOVE SPACES TO F-CNTA, F-HEAD.

CK-LINE.
```

```
        IF LINE-CNT GREATER THAN 27 PERFORM SUM-HEADING.
        WRITE REPORT-LINE FROM TOT-LINE.
        ADD 1 TO LINE-CNT.
        GO TO WRAP-UP.

    FINAL-CLOSE.
        CLOSE CARD-IN.
        CLOSE COURSE-CARD.
        CLOSE REPORT-FILE.
        STOP RUN.

    END PROGRAM.
```

โปรแกรมที่ 7   UPDATE GRADE

```
    IDENTIFICATION DIVISION.
    PROGRAM-ID. UPDATE GRADE.
    AUTHOR. M.DUSADITHAM.
    DATE-WRITTEN. 02/14/74
    DATE-COMPILED.
    ENVIRONMENT DIVISION.
    CONFIGURATION SECTION.
    SOURCE-COMPUTER. 3300, MEMORY SIZE 16K WORDS.
    OBJECT-COMPUTER. 3300, MEMORY SIZE 16K WORDS.
    SPECIAL-NAMES.
        SWITCH 1 ON STATUS IS SW1ON.
        SWITCH 2 ON STATUS IS SW2ON.
        SWITCH 3 ON STATUS IS SW3ON.
        SWITCH 4 ON STATUS IS SW4ON.
        SWITCH 5 ON STATUS IS SW5ON.
        SWITCH 6 ON STATUS IS SW5ON.
        SYSTEM-INPUT-TAPE IS STD-IN.
        SYSTEM-OUTPUT-TAPE IS STD-OUT.
    INPUT-OUTPUT SECTION.
    FILE-CONTROL.
        SELECT COURSE-CARD ASSIGN TO TAPE 01.
        SELECT GRADE-CARD ASSIGN TO TAPE 02.
        SELECT NEW-COURSE-CARD ASSIGN TO TAPE 03.
        SELECT PRINT-FILE ASSIGN TO SYSTEM-OUTPUT-TAPE.
    I-O-CONTROL.
        SAME RECORD AREA FOR COURSE-CARD, NEW-COURSE-CARD.

    DATA DIVISION.
    FILE SECTION.

    FD COURSE-CARD RECORDING MODE IS DECIMAL, HIGH DENSITY LABEL
        RECORD IS STANDARD VALUE OF ID IS '60010-401' BLOCK
        CONTAINS 20 RECORDS DATA RECORD IS OLD-REC.
```

```
01 OLD-REC.
        03 O-CODE PICTURE X.
        03 O-ID PICTURE X(8).
        03 FILLER PICTURE X(26).
        03 O-COURSE-NO PICTURE X(5).
        03 FILLER PICTURE X(38).
        03 O-GRADE PICTURE X.
        03 FILLER PICTURE X.

FD GRADE-CARD RECORDING MODE IS DECIMAL, HIGH DENSITY LABEL
        RECORD IS STANDARD VALUE OF ID IS '60010-401'
        BLOCK CONTAINS 20 RECORD DATA RECORD IS G-REC.
        01 G-REC.
        03 G-CODE PICTURE X.
        03 G-ID PICTURE X(8).
        03 FILLER PICTURE X(26).
        03 G-COURSE-NO PICTURE X(5).
        03 FILLER PICTURE X(38).
        03 G-GRADE PICTURE X.
        03 FILLER PICTURE X.

FD PRINT-FILE LABEL RECORD IS OMITTED DATA RECORD IS PRT-REC.
        01 PRT-REC PICTURE X(136).

FD NEW-COURSE-CARD RECORDING MODE IS DECIMAL, HIGH DENSITY
        LABEL RECORD IS STANDARD VALUE OF ID IS '60010-401'
        BLOCK CONTAINS 20 RECORDS DATA RECORD IS NEW-REC.
        01 NEW-REC PICTURE X(80).

WORKING-STORAGE SECTION.
        77 LINE-CNT PICTURE 99 VALUE 55.
        77 PAGE-CNT PICTURE 9(5) VALUE ZEROS.
        77 G-CNT PICTURE 9(6) VALUE ZEROS.
        77 P-CNT PICTURE 9(6) VALUE ZEROS.
        77 F-CNT PICTURE 9(6) VALUE ZEROS.
        77 ALL-9 PICTURE X(13) VALUE '999999999999.'.
        77 TRANS-CNT PICTURE 9(6) VALUE ZEROS.
        77 MASTER-IN-CNT PICTURE 9(6) VALUE ZEROS.
        77 MASTER-OUT-CNT PICTURE 9(6) VALUE ZWEOS.
        01 HEAD-1.
        03 FILLER PICTURE X(40) VALUE '1'.
        03 FILLER PICTURE X980) VALUE 'UPDATED INFORMATION'.
        03 FILLER PICTURE X(11) VALUE '       PAGE '.
        03 P-PAGE PICTURE 9(5).
        01 KEY-AREAS.
        03 C-KEY PICTURE X(13).
        03 C-KEYA REDEFINES C-KEY.
            05 C-KEY1 PICTURE X(5).
            05 C-KEY2 PICTURE X(98).
        03 G-KEY PICTURE X(13).
        03 G-KEYA REDEFINES G-KEY.
            05 G-KEY1 PICTURE X(5).
```

```
            05 G-KEY2 PICTURE X(8).
        01 MESSAGE1.
                03 FILLER PICTURE X VALUE SPACE.
                03 CARD-IMAGE PICTURE X(80).
                03 FILLER PICTURE X(55) VALUE 'DO NOT FOUND IN MASTER'.

    PROCEDURE DIVISION.

    OPEN-FILES.
        OPEN INPUT GRADE-CARD.
        OPEN INPUT COURSE-CARD.
        OPEN OUTPUT NEW-COURSE-CARD.
        OPEN OUTPUT PRINT-FILE.

    READ-T.
        READ GRADE-CARD AT END GO TO SET-HIGH-VALUE.

    SET-KEY.
        MOVE G-COURSE-NO TO G-KEY1.
        MOVE G-ID TO G-KEY2.
        ADD 1 TO TRANS-CNT.
        GO TO READ-GRADE-EXIT.

    SET-HIGH-VALUE.
        MOVE ALL-9 TO G-KEY.

    READ-GRADE-EXIT.
        EXIT.

    READ-COURSE-CARD.
        READ COURSE-CARD AT END MOVE ALL-9 TO C-KEY GO TO COMPARE-ID.
        MOVE O-COURSE-NO TO C-KEY1.
        MOVE O-ID TO C-KEY2.
        ADD 1 TO MASTER-IN-CNT.

    COMPARE-ID.
        IF C-KEY LESS THAN G-KEY.
        GO TO MASTER-LOW.
        IF C-KEY EQUAL G-KEY GO TO MASTER-EQ.
        GO TO MASTER-HIGH.

    MASTER-LOW.
        MOVE '-' TO O-GRADE.
        WRITE NEW-REC.
        ADD 1 TO F-CNT.
        ADD 1 TO MASTER-OUT-CNT.
        GO TO READ-COURSE-CARD.

    MASTER-EQ.
        IF C-KEY EQUAL ALL-9 GO TO END-OF-UPDATE.
```

```
            MOVE G-GRADE TO O-GRADE.
            WRITE NEW-REC.
            IF G-GRADE EQUAL 'G' ADD 1 TO G-CNT ELSE ADD 1 TO P-CNT.
            ADD 1 TO MASTER-OUT-CNT.
            GO TO READ-T.

        MASTER-HIGH.
            MOVE G-REC TO CARD-IMAGE.
            IF LINE-CNT NOT EQUAL 55 GO TO MASTER-HIGH1.
            MOVE 0 TO LINE-CNT.
            ADD 1 TO PAGE-CNT.
            MOVE PAGE-CNT TO P-PAGE.
            WRITE PRT-REC FROM HEAD-1.

        MASTER-HIGH1.
            WRITE PRT-REC FROM MESSAGE1.
            ADD 1 TO LINE-CNT.
            PERFORM READ-T THRU READ-GRADE-EXIT.
            GO TO COMPARE-ID.

        END-OF-UPDATE.
            DISPLAY 'G-CNT' G-CNT UPON STD-OUT.
            DISPLAY 'P-CNT' P-CNT UPON STD-OUT.
            DISPLAY 'F-CNT' F-CNT UPON STD-OUT.
            DISPLAY 'TRANS-IN' TRANS-CNT UPON STD-OUT.
            DISPLAY 'MASTER-IN' MASTER-IN-CNT UPON STD-OUT.
            DISPLAY 'MASTER-OUT' MASTER-OUT-CNT UPON STD-OUT.

        CLOSE-FILES.
            CLOSE COURSE-CARD.
            CLOSE NEW-COURSE-CARD.
            CLOSE PRINT-FILE.
            CLOSE GRADE-CARD.
            STOP RUN.

        END PROGRAM.
```

โปรแกรมที่ 8   TRANSCRIPT

```
        INDENTIFICATION DIVISION.
        PROGRAM-ID. TRANSCRIPT.
        AUTHOR. M.DUSADITHAM.
        DATE-WRITTEN. 02/14/74.
        DATE-COMPILED.
        ENVIRONMENT DIVISION.
        CONFIGURATION SECTION.
        SOURCE-COMPUTER. 3300, MEMORY SIZE IS 16K WORDS.
        OBJECT-COMPUTER. 3300, MEMORY SIZE IS 16K WORDS.
        SPECIAL-NAMES.
```

```
            SWITCH 1 ON STATUS IS SW1ON.
            SWITCH 2 ON STATUS IS SW2ON.
            SWITCH 3 ON STATUS IS SW3ON.
            SWITCH 4 ON STATUS IS SW4ON.
            SWITCH 5 ON STATUS IS SW5ON.
            SWITCH 6 ON STATUS IS SW6ON.
            SYSTEM-INPUT-TAPE IS STD-IN.
            SYSTEM-OUTPUT-TAPE IS STD-OUT.
    INPUT-OUTPUT SECTION.
    FILE-CONTROL.
            SELECT TAPE-IN ASSIGN TO TAPE 01.
            SELECT REPORT-FILE ASSIGN TO TAPE 02.
            SELECT G-FILE ASSIGN TO TAPE 03.
            SELECT CARD-IN ASSIGN TO SYSTEM-INPUT-TAPE.
            SELECT ERR-FILE ASSIGN TO SYSTEM-OUTPUT-TAPE.
    I-O-CONTROL.
            SAME RECORD AREA FOR REPORT-FILE, ERR-FILE.


    DATA DIVISION.
    FILE SECTION.

    FD TAPE-IN RECORDING MODE IS DECIMAL HIGH DENSITY BLOCK
            CONTAINS 20 RECORDS LABEL RECORD IS STANDARD VALUE OF ID IS
            '60010-401' DATA RECORD IS TAPE-IN-REC.
            01 TAPE-IN-REC.
                    03 CARD-CODE PICTURE X.
                    03 STD-ID.
                        05 STD-ID1 PICTURE XXX.
                        05 STD-ID2 PICTURE X(5).
                    03 STD-IDA REDEFINES STD-ID PICTURE X(8).
                    03 SEX PICTURE X.
                    03 STD-NAME PICTURE X(25).
                    03 COURSE-NO.
                        05 COURSE-NO1 PICTURE XX.
                        05 COURSE-NO2 PICTURE XXX.
                    03 FILLER PICTURE X.
                    03 COURSE-NAME PICTURE X(30).
                    03 SECTION PICTURE X.
                    03 LEC-HR PICTURE 9.
                    03 LAB-HR PICTURE X.
                    03 CREDIT PICTURE 9.
                    03 FILLER PICTURE XXX.
                    03 GRADE PICTURE X.
                        88 CK-GRADE VALUE ARE 'G', 'P'.
                    03 FILLER PICTURE X.

    FD REPORT-FILE RECORDING MODE IS DECIMAL, HIGH DENSITY BLOCK
            CONTAINS 8 RECORDS LABEL RECORD IS STANDARD VALUE OF ID
            IS '60010-402' DATA RECORD IS PRT-REC.
            01 PRT-REC.
                    03 FILLER PICTURE X(80).
```

```
FD G-FILE RECORDING MODE IS DECIMAL, HIGH DENSITY LABEL
     RECORD IS STANDARD VALUE OF ID IS '60010-401'
     BLOCK CONTAINS 8 RECORDS DATA RECORD IS ALL-G-LINE.
     01 ALL-G-LINE PICTURE X(80).

FD ERR-FILE RECORDING MODE IS DECIMAL LABEL RECORD IS
     OMITTED DATA RECORD IS ERR-LINE.
     01 ERR-LINE PICTURE X(80).

FD CARD-IN RECORDING MODE IS DECIMAL LABEL RECORD IS OMITTED
     DATA RECORD IS CARD-REC.
     01 CARD-REC.
          03 SEMESTER-NAME PICTURE X(25).
          03 FILLER PICTURE X(55).

WORKING-STORAGE SECTION.
     77 SAVE-ID PICTURE X(8).
     77 SAVE-ID1 PICTURE XXX.
     77 G-FLAG PICTURE 9.
     77 G-CNT PICTURE 99.
     77 PAGE-CNT PICTURE 9(5) VALUE ZEROS.
     77 LINE-CNT PICTURE 99 VALUE ZEROS.
     77 CR-CNT PICTURE 99.
     77 STUDENT-CNT PICTURE 9 VALUE 4.
     77 END-FLAG PICTURE 9 VALUE ZERO.
     77 G-FLAG PICTURE 9(5) VALUE 1.
     77 I COMPUTATIONAL-1.
     77 J COMPUTATIONAL-1.
     77 K COMPUTATIONAL-1 VALUE 1.
     01 SUMMARY-AREAS.
          03 AREAS OCCURS 100 TIMES.
               05 GSTD-ID1 PICTURE XXX.
               05 GSTD-ID2 PICTURE X(5).
               05 GSTD-NAME PICTURE X(25).
               05 NO-OF-G PICTURE 99.
     01 SUMMARY-HEAD.
          03 FILLER PICTURE X(19) VALUE '1STUDENT-ID.'.
          03 FILLER PICTURE X(21) VALUE 'NAME'.
          03 FILLER PICTURE X(40) VALUE 'NO. OF G CREDIT'.
     01 SUM-WORK-LINE.
          03 FILLER PICTURE X VALUE ZEROS.
          03 P-GSTD-ID1 PICTURE XXX.
          03 FILLER PICTURE X VALUE '-'.
          03 P-GSTD-ID2 PICTURE X(5).
          03 FILLER PICTURE XXX VALUE SPACES.
          03 P-GSTD-NAME PICTURE X(25).
          03 FILLER PICTURE X(5) VALUE SPACES.
          03 P-NO-OF-G PICTURE 9.
          03 FILLER PICTURE X(8) VALUE SPACES.
          03 FILLER PICTURE X(26) VALUE SPACES.
```

```
01 G-AREA.
    03 SAVE-LINE PICTURE X(80) OCCURS 15 TIMES.
01 HEADING-LINE.
    03 H-CHAR PICTURE X VALUE '-'.
    03 FILLER PICTURE X(24) VALUE SPACES.
    03 P-SEMESTER PICTURE X(25).
    03 FILLER PICTURE X(30) VALUE SPACES.
01 COURSE-LINE.
    03 C-CHAR PICTURE X.
    03 FILLER PICTURE X(6) VALUE SPACES.
    03 P-COURSE-NO1 PICTURE XX.
    03 FILLER PICTURE X VALUE SPACES.
    03 P-COURSE-NO2 PICTURE XXX.
    03 FILLER PICTURE X(05) VALUE SPACES.
    03 P-COURSE-NAME PICTURE X(43).
    03 P-LEC-HR PICTURE 9.
    03 FILLER PICTURE X(5) VALUE SPACES.
    03 P-LAB-HR PICTURE X.
    03 FILLER PICTURE X(4) VALUE SPACES.
    03 P-CREDIT PICTURE 9.
    03 P-CREDITA REDEFINES P-CREDIT PICTURE X.
    03 FILLER PICTURE X(3) VALUE SPACES.
    03 P-GRADE PICTURE X.
    03 FILLER PICTURE X(3) VALUE SPACES.
01 TOTAL-LINE.
    03 FILLER PICTURE X(4) VALUE SPACES.
    03 P-STD-ID1 PICTURE XXX.
    03 FILLER PICTURE X VALUE '-'.
    03 P-STD-ID2 PICTURE X(5).
    03 FILLER PICTURE X(32) VALUE SPACES.
    03 TOT-CR-REG PICTURE 99.
    03 FILLER PICTURE X(5) VALUE SPACES.
    03 TOT-CREDIT PICTURE 99.
    03 FILLER PICTURE X(23) VALUE SPACES.
    03 FILLER PICTURE XXX VALUE '**  '.
01 DUMMY-LINE PICTURE X(80) VALUE '0'.
01 FIRST-LINE.
    03 FILLER PICTURE X(69) VALUE '1'.
    03 FILLER PICTURE X(5) VALUE 'PAGE '.
    03 P-PAGE PICTURE ZZZZ9.
    03 FILLER PICTURE X VALUE SPACE.


PROCEDURE DIVISION.

OPEN-FILES.
    OPEN INPUT TAPE-IN.
    OPEN INPUT CARD-IN.
    OPEN OUTPUT REPORT-FILE.
    OPEN OUTPUT G-FILE.
    OPEN OUTPUT ERR-FILE.
```

```
READ-C-CARD.
     READ CARD-IN AT END DISPLAY 'CONTROL CARD MISSING' STOP RUN.
     MOVE SEMESTER-NAME TO P-SEMESTER.

READ-FIRST-REC.
     READ TAPE-IN AT END GO TO END-OFF-TAPE.
     MOVE CREDIT TO LEC-HR.
     GO TO STORE-ID.

READ-TAPE-IN.
     READ TAPE-IN AT END MOVE 1 TO END-FLAG GO TO END-OF-TAPE.
     MOVE CREDIT TO LEC-HR.

COMPARE-ID.
     IF STD-IDA NOT EQUAL SAVE-ID GO TO PRT-TOTAL.
     ADD 1 TO LINE-CNT.
     MOVE COURSE-NO1 TO P-COURSE-NO1.
     MOVE COURSE-NO2 TO P-COURSE-NO2.
     MOVE LEC-HR TO P-LEC-HR.
     ADD CREDIT TO TOT-CR-REG.
     ADD CREDIT TO CR-CNT.
     MOVE COURSE-NAME TO P-COURSE-NAME.
     IF LAB-HR EQUAL SPACE MOVE '-' TO P-LAB-HR ELSE MOVE LAB-HR
     TO P-LAB-HR.
     IF NOT CK-GRADE MOVE '-' TO P-GRADE, P-CREDITA ELSE MOVE
     CREDIT TO P-CREDIT MOVE GRADE TO P-GRADE ADD CREDIT TO
     TOT-CREDIT.
     IF LINE-CNT EQUAL 1 MOVE '0' TO C-CHAR ELSE MOVE SPACE TO C-CHAR.
     WRITE PRT-REC FROM COURSE-LINE.
     ADD 1 TO J.

     MOVE COURSE-LINE TO SAVE-LINE(J).
     IF GRADE NOT EQUAL 'G' GO TO READ-TAPE-IN.
     ADD CREDIT TO G-CNT.
     ADD 1 TO G-FLAG.
     GO TO READ-TAPE-IN.

STORE-ID.
     MOVE ZEROS TO J.
     MOVE ZERO TO G-CNT.
     MOVE ZERO TO G-FLAG.
     MOVE STD-IDA TO SAVE-ID.
     MOVE STD-ID1 TO SAVE-ID1.
     MOVE STD-ID1 TO P-STD-ID1.
     MOVE STD-ID2 TO P-STD-ID2.
     MOVE STD-ID1 TO GSTD-ID1(K).
     MOVE STD-ID2 TO GSTD-ID2(K).
     MOVE STD-NAME TO GSTD-NAME(K).
     IF STUDENT-CNT NOT EQUAL 4 GO TO STORE-ID1.
     MOVE ZEROS TO STUDENT-CNT.
```

```
        ADD 1 TO PAGE-CNT.
        MOVE PAGE-CNT TO P-PAGE.
        MOVE SPACE TO H-CHAR.
        WRITE PRT-REC FROM FIRST-LINE.
        WRITE PRT-REC FROM DUMMY-LINE.
        GO TO STORE-ID2.

STORE-ID1.
        WRITE PRT-REC FROM DUMMY-LINE.
        MOVE '_' TO H-CHAR.


STORE-ID2.
        WRITE PRT-REC FROM HEADING-LINE.
        MOVE G-PAGE TO P-PAGE.
        ADD 1 TO J.
        MOVE FIRST-LINE TO SAVE-LINE(J).
        ADD 1 TO J.
        MOVE DUMMY-LINE TO SAVE-LINE(J).
        ADD 1 TO J.
        MOVE HEADING-LINE TO SAVE-LINE(J).
        ADD 1 TO STUDENT-CNT.
        MOVE ZEROS TO LINE-CNT.
        MOVE ZERO TO CR-CNT.
        MOVE ZERO TO TOT-CR-REG.
        MOVE ZERO TO TOT-CREDIT.
        GO TO COMPARE-ID.

PRT-5G-STD.
        ADD 1 TO I.
        MOVE SAVE-LINE(I) TO ALL-G-LINE.
        WRITE ALL-G-LINE.

PRT-TOTAL.

        WRITE PRT-REC FROM TOTAL- LINE.
        IF STD-ID1 NOT EQUAL SAVE-ID1 MOVE 4 TO STUDENT-CNT
        MOVE ZEROS TO PAGE-CNT.
        IF CR-CNT GREATER 21 WRITE ERR-LINE FROM TOTAL-LINE.
        IF CR-CNT LESS THAN 9 WRITE ERR-LINE FROM TOTAL-LINE.
        IF G-FLAG LESS 5 GO TO PRT-TOTAL-1.
        IF G-CNT LESS 15 GO TO PRT-TOTAL-1.
        ADD 1 TO G-PAGE.
        ADD 1 TO J.
        MOVE TOTAL-LINE TO SAVE-LINE(J).
        MOVE ZEROS TO I.
        PERFORM PRT-5G-STD J TIMES.
        MOVE G-FLAG TO NO-OF-G(K).
        MOVE G-CNT TO G-CREDIT(K).
        ADD 1 TO K.
```

```
PRT-TOTAL-1.
      IF END-FLAG EQUAL 1 GO TO PRT-SUMMARY.
      GO TO STORE-ID.

END-OF-TAPE.
      PERFORM PRT-TOTAL.

PRT-SUMMARY.
      WRITE ALL-G-LINE FROM SUMMARY-HEAD.
      MOVE ZEROS TO 1.

PRT-SUMMARY1.
      ADD 1 TO I.
      IF I EQUAL K GO TO PRT-SUMMARY-EXIT.
      MOVE GSTD-ID1(I) TO P-GSTD-ID1.
      MOVE GSTD-ID2(I) TO P-GSTD-ID2.
      MOVE GSTD-NAME(I) TO P-GSTD-NAME.
      MOVE NO-OF-G(I) TO P-NO-OF-G.
      MOVE G-CREDIT(I) TO P-G-CREDIT.
      WRITE ALL-G-LINE FROM SUM-WORK-LINE.
      GO TO PRT-SUMMARY1.

PRT-SUMMARY-EXIT.
      EXIT.

CLOSE-FILES.
      CLOSE TAPE-IN.
      CLOSE CARD-IN.
      CLOSE ERR-FILE.
      CLOSE REPORT-FILE.
      CLOSE G-FILE.
      STOP RUN.

END PROGRAM.
```
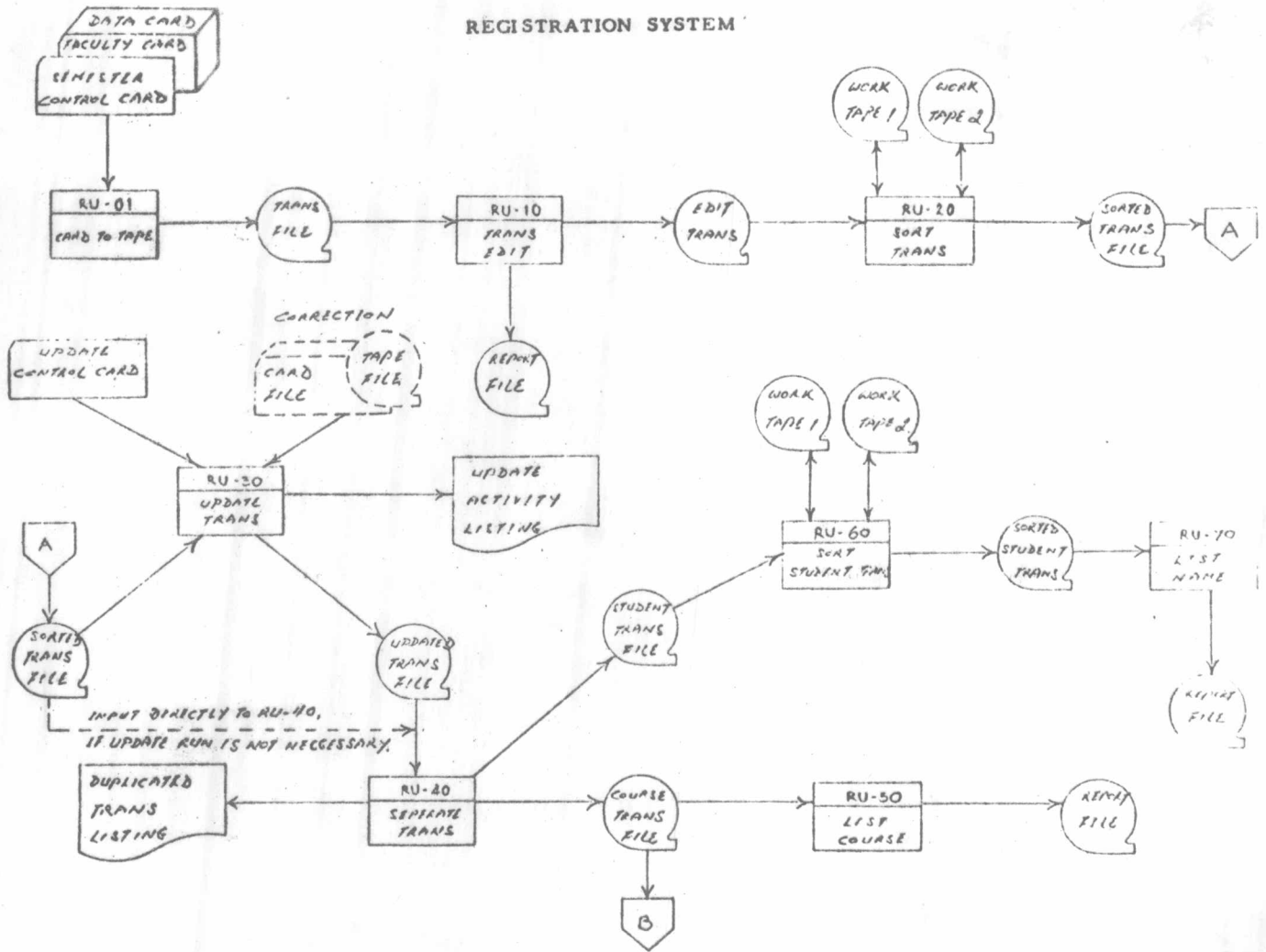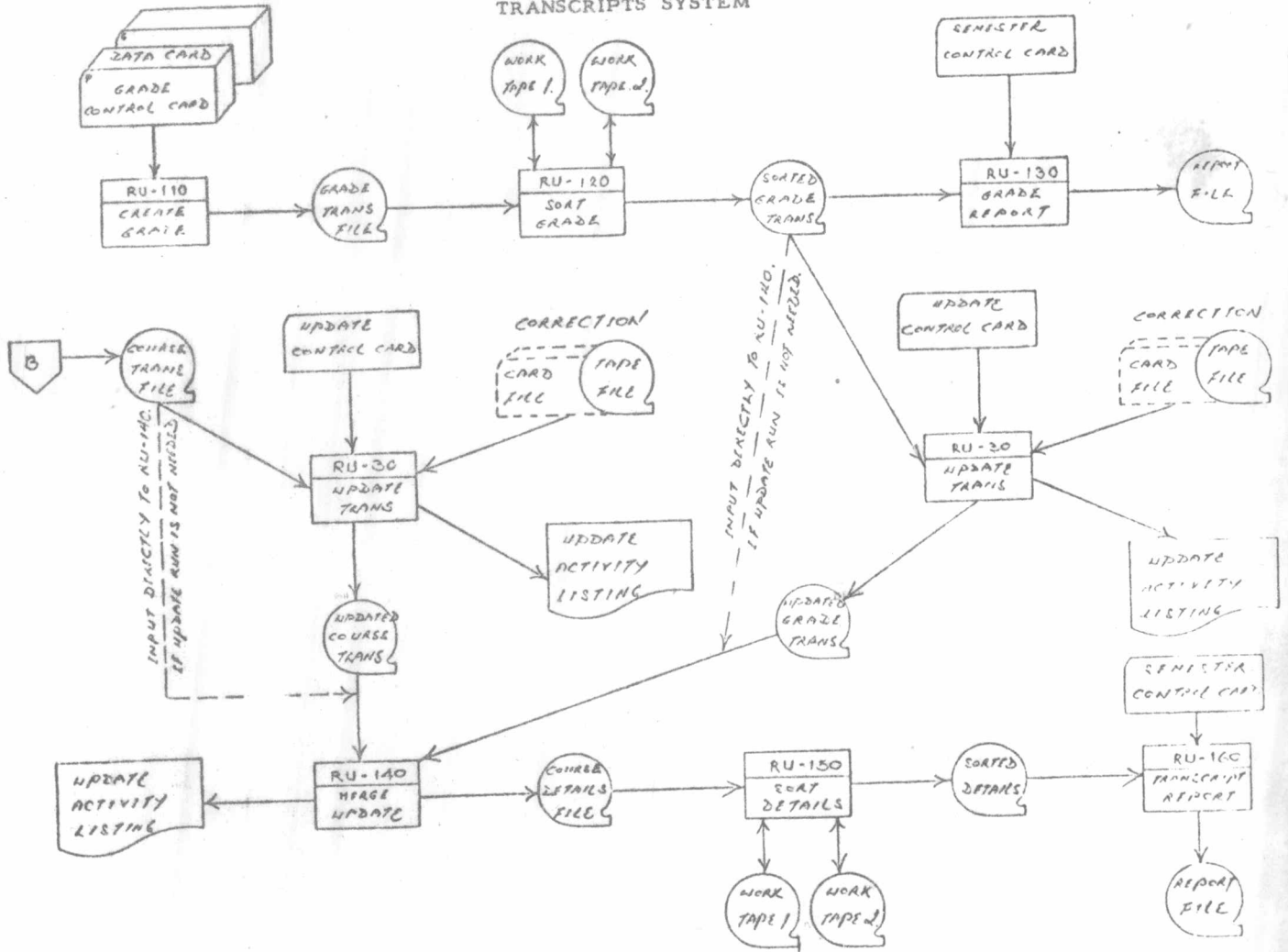
REGISTRATION SYSTEM

DATA CARD
FACULTY CARD
SEMESTER CONTROL CARD

RU-01
CARD TO TAPE

TRANS FILE

RU-10
TRANS EDIT

EDIT TRANS

WORK TAPE 1   WORK TAPE 2

RU-20
SORT TRANS

SORTED TRANS FILE

A

CORRECTION

UPDATE CONTROL CARD

CARD FILE   TAPE FILE

REPORT FILE

RU-30
UPDATE TRANS

UPDATE ACTIVITY LISTING

A

SORTED TRANS FILE

INPUT DIRECTLY TO RU-40,
IF UPDATE RUN IS NOT NECESSARY.

UPDATED TRANS FILE

STUDENT TRANS FILE

WORK TAPE 1   WORK TAPE 2

RU-60
SORT STUDENT TRANS

SORTED STUDENT TRANS

RU-70
LIST NAME

REPORT FILE

DUPLICATED TRANS LISTING

RU-40
SEPERATE TRANS

COURSE TRANS FILE

RU-50
LIST COURSE

REPORT FILE

B

TRANSCRIPTS SYSTEM

ประวัติการศึกษา

ผู้เขียนวิทยานิพนธ์	นายมรกต กุษฎีธรรม
วุฒิการศึกษา	ปริญญาการศึกษาบัณฑิต วิทยาลัยวิชาการศึกษาประสานมิตร ปี พ.ศ. 2510
ตำแหน่งปัจจุบัน	อาจารย์โท มหาวิทยาลัยรามคำแหง