APPENDIX J - PL/I EXAMPLES

This chapter covers the following topics:

- Example 1
- Example 2
- Example 3

Example 1

```
PEX1 : PROC OPTIONS(MAIN);
/*     AN EXAMPLE OF SOFT COUPLING WITH A SEARCH CRITERION WHICH
       CONTAINS FIELDS TAKEN FROM TWO FILES. THE FIELDS PERSONNEL-ID
       NAME, FIRST-NAME, BIRTH AND SEX (FROM THE MAIN FILE,
       PERSONNEL-ID) ARE PRINTED FOR RECORDS THAT SATISFY THE
       FOLLOWING CONDITION:
           PERSONNEL-ID BETWEEN 10000001 AND 19999999
           MODEL-YEAR-MAKE >
           CLASS = 'C'                                              */
/*                                                                  */
  DCL 1  START_STRUC,
         2  START_MODEL          CHAR(20)     INIT('MERCEDES-BENZ'),
         2  START_YEAR_MAKE      PIC '(2)9'   INIT(86);
  DCL    START_MODEL_YEAR_MAKE   CHAR(22)     BASED(ADDR(START_STRUC));
/*                                                                  */
  DCL 1  HEADER,
         2  FILLER1              CHAR(12)     INIT('PERSONNEL-ID'),
         2  FILLER2              CHAR(8)      INIT(' '),
         2  FILLER3              CHAR(4)      INIT('NAME'),
         2  FILLER4              CHAR(13)     INIT(' '),
         2  FILLER5              CHAR(10)     INIT('FIRST-NAME'),
         2  FILLER6              CHAR(8)      INIT(' '),
         2  FILLER7              CHAR(5)      INIT('BIRTH'),
         2  FILLER8              CHAR(1)      INIT(' '),
         2  FILLER9              CHAR(3)      INIT('SEX');
  DCL 1  HEADER2                 CHAR(64)     INIT((64)'*');
  DCL 1  LINE1,
         2  FILLER1              CHAR(2)      INIT(' '),
         2  PERSONNEL_NR         CHAR(8)      INIT(' '),
         2  FILLER2              CHAR(3)      INIT(' '),
         2  LAST_NAME            CHAR(20)     INIT(' '),
         2  FILLER3              CHAR(1)      INIT(' '),
         2  F_NAME               CHAR(20)     INIT(' '),
         2  FILLER4              CHAR(1)      INIT(' '),
         2  BIRTHDAY             CHAR(6)      INIT(' '),
         2  FILLER5              CHAR(1)      INIT(' '),
         2  KIND                 CHAR(1)      INIT(' ');
/*                                                                  */
              EXEC ADABAS
           BEGIN DECLARE SECTION
              END-EXEC

/*                                                                  */
              EXEC ADABAS
           DECLARE EMPL CURSOR FOR
           SELECT PERSONNEL-ID, NAME, FIRST-NAME, BIRTH, SEX
```

```
          FROM EMPLOYEES, VEHICLES
          WHERE EMPLOYEES.PERSONNEL-ID = VEHICLES.PERSONNEL-ID
                AND PERSONNEL-ID BETWEEN '10000001' AND '19999999'
                AND VEHICLES.MODEL-YEAR-MAKE > :START_MODEL_YEAR_MAKE
                AND VEHICLES.CLASS = 'C'
               END-EXEC
/*                                                                  */
          PUT SKIP EDIT (HEADER) (A);
          PUT SKIP EDIT (HEADER2) (A);
          PUT SKIP;
/*                                                                  */
               EXEC ADABAS
          OPEN EMPL
               END-EXEC
/*                                                                  */
               EXEC ADABAS
          FETCH EMPL
               END-EXEC
/*                                                                  */
          DO WHILE (ADACODE *= 3);
               PERSONNEL_NR = PERSONNEL_ID;
               LAST_NAME = NAME;
               F_NAME = FIRST_NAME;
               BIRTHDAY = BIRTH;
               KIND = SEX;
               PUT SKIP EDIT (LINE1) (A);
                    EXEC ADABAS
               FETCH EMPL
                    END-EXEC
          END;
/*                                                                  */
               EXEC ADABAS
          CLOSE EMPL
               END-EXEC
/*                                                                  */
               EXEC ADABAS
          DBCLOSE
               END-EXEC
/*                                                                  */
END PEX1;
```

Example 2

```
PEX2 : PROC OPTIONS(MAIN);
/*      DELETE AN EMPLOYEE RECORD AND RELEASE ALL CARS WHICH ARE
        ASSIGNED TO THIS EMPLOYEE. A PRIVATE CARS WILL BE DELETED
        AND A COMPANY CAR WILL BE MADE A POOL-CAR WHICH IS IDENTIFIED
        BY ITS PERSONNEL-ID CONTAINING ONLY THE COUNTRY CODE.
                                                                    */
/*                                                                  */
DCL    PERSONNEL_NUMBER           CHAR(8)        INIT ('20007100');
DCL    EMPLOYEE_ISN               FIXED BIN(31)  INIT(0);
DCL 1  COUNTRY_NUM,
       2 COUNTRY_NO               CHAR(1)        INIT (' ') ,
       2 FILLER                   CHAR(14)       INIT (' ');
DCL    COUNTRY_NUMBER             CHAR(15) BASED(ADDR(COUNTR_NUM));
/*                                                                  */
                EXEC ADABAS
           BEGIN DECLARE SECTION
                END-EXEC
/*                                                                  */
```

```
              EXEC ADABAS
            READ LOGICAL
            DECLARE VEH1 CURSOR FOR
            SELECT REG-NUM, PERSONNEL-ID, CLASS
            FROM VEHICLES
            WHERE PERSONNEL-ID GE :PERSONNEL-NUMBER
            OPTIONS HOLD
            ORDER BY PERSONNEL-ID
                 END-EXEC
/*
 *** FIND EMPLOYEE
                                                                      */
                EXEC ADABAS
           FIND
           SELECT
           FROM EMPLOYEES EMPLOYEES_1
           WHERE PERSONNEL-ID = :PERSONNEL_NUMBER
           OPTIONS HOLD
                END-EXEC
/*
***      IF THE PERSONNEL-ID EXISTS DELETE THE EMPLOYEE AND READ THE
***      VEHICLES FILE
                                                                      */
           IF EMPLOYEES_1.QUANTITY = 1 THEN
           DO;
              EMPLOYEE_ISN = EMPLOYEES_1.ISN;
              CALL DELETE_EMPLOYEE;
              CALL READ_VEHICLES_FILE;
           END;
           ELSE
            PUT SKIP EDIT
           ('NO EMPLOYEE FOUND WITH PERSONNEL-ID ',PERSONNEL_NUMBER)(A);
/*                                                                    */
                EXEC ADABAS
           DBCLOSE
                END-EXEC
/*********************************************************************/

DELETE_EMPLOYEE : PROC;
/*                                                                    */
                EXEC ADABAS
           DELETE
           FROM EMPLOYEES
           WHERE ISN = :EMPLOYEE_ISN
                END-EXEC
/*                                                                    */
           PUT SKIP EDIT
          ('EMPLOYEE ',PERSONNEL_NUMBER,' HAS BEEN DELETED')(A);
/*                                                                    */
END DELETE_EMPLOYEE;
/*********************************************************************/
READ_VEHICLES_FILE : PROC;
/*                                                                    */
                EXEC ADABAS
           OPEN VEH1
                END-EXEC
/*                                                                    */
                EXEC ADABAS
           FETCH VEH1
                END-EXEC
/*                                                                    */
           DO WHILE (ADACODE *= 3 &
```

```
                    VEHICLES.PERSONNEL_ID = PERSONNEL_NUMBER);
               IF CLASS = 'P' THEN
               DO;
                    EXEC ADABAS
                 DELETE
                 FROM VEHICLES
                 WHERE CURRENT OF VEH1
                    END-EXEC
                 PUT SKIP EDIT
                ('PRIVATE CAR ',REG_NUM,' HAS BEEN DELETED')(A);
               END;
               ELSE
               DO;
                 COUNTRY_NUMBER = VEHICLES.PERSONNEL_ID;
                 VEHICLES.PERSONNEL_ID = COUNTRY_NO;
                    EXEC ADABAS
                 UPDATE VEHICLES
                 WHERE CURRENT OF VEH1
                    END-EXEC
                 PUT SKIP EDIT
                ('COMPANY CAR ',REG_NUM,' HAS BEEN UPDATED')(A);
               END;
/*                                                                    */
                  EXEC ADABAS
               FETCH VEH1
                  END-EXEC
/*                                                                    */
         END;
/*                                                                    */
            EXEC ADABAS
         CLOSE VEH1
            END-EXEC
/*                                                                    */
            EXEC ADABAS
         COMMIT WORK
            END-EXEC
/*                                                                    */
END READ_VEHICLES_FILE;
/*                                                                    */
END PEX2;
```

Example 3

```
PEX3 : PROC OPTIONS(MAIN);
/*      SALARY INCREASE.
        THIS PROGRAM INCREASES THE SALARY OF EVERY EMPLOYEE BY
        4 PERCENT.
        THE DEPARTMENT, THE OVERALL AMOUNT OF PAY RISE FOR THE
        DEPARTMENT AND THE PAY RISE FOR ALL DEPARTMENTS WILL BE PRINTED
        OUT.
        THE PROGRAM IS RESTARTABLE. AFTER AN ABNORMAL TERMINATION THE
        PROGRAM EXECUTION WOULD RESTART WITH THE LAST DEPARTMENT
        WHOSE SALARY UPDATE HAD BEEN COMPLETED BEFORE THE ABEND
        OCCURED.
                                                                      */
/*                                                                    */
DCL 1  COMM_DATA,
       2 COMMIT_DEPARTMENT    CHAR(6)       INIT (' '),
       2 COMMIT_SUM           FIXED DEC(10) INIT (0);
DCL    COMMIT_DATA            CHAR(12) BASED(ADDR(COMM_DATA));
DCL    START_DEPT             CHAR(6)       INIT (' ');
```

```
DCL    IND                   FIXED BIN(15) INIT (0);
DCL    I                     FIXED BIN(15) INIT (0);
DCL    J                     FIXED BIN(15) INIT (0);
DCL    NEW_SALARY            FIXED DEC(9)  INIT (0);
DCL    INCREASE              FIXED DEC(9)  INIT (0);
DCL    SUM_DEPARTMENT        FIXED DEC(10) INIT (0);
DCL    SUM_TOTAL             FIXED DEC(11) INIT (0);
/*                                                                  */
DCL 1 HEADER,
      2 FILLER1              CHAR(10)      INIT ('DEPARTMENT'),
      2 FILLER2              CHAR(15)      INIT (' '),
      2 FILLER3              CHAR(15)      INIT ('SALARY INCREASE');
DCL 1 LINE1,
      2 FILLER1              CHAR(3)       INIT (' '),
      2 DEPARTMENT           CHAR(6)       INIT (' '),
      2 FILLER2              CHAR(16)      INIT (' '),
      2 SUM_DEPT             PIC 'Z,ZZZ,ZZZ,ZZ9';
DCL 1 FOOT_LINE,
      2 FILLER1              CHAR(21)  INIT ('TOTAL SALARY INCREASE'),
      2 FILLER               CHAR(3)   INIT (' : '),
      2 TOTAL_SUM_DEPT       PIC 'ZZ,ZZZ,ZZZ,ZZZ';
/*                                                                  */
           EXEC ADABAS
          BEGIN DECLARE SECTION
           END-EXEC

/*                                                                  */
           EXEC ADABAS
          HISTOGRAM
          DECLARE EMP1 CURSOR FOR
          SELECT  DEPT
          FROM EMPLOYEES EMPLOYEES_1
          WHERE DEPT GE :COMMIT_DEPARTMENT
          GROUP BY DEPT
           END-EXEC
/*                                                                  */
           EXEC ADABAS
          READ LOGICAL
          DECLARE EMP2 CURSOR FOR
          SELECT PERSONNEL-ID, DEPT, SALARY, INCOME(COUNT)
          FROM EMPLOYEES
          WHERE DEPT GE :START_DEPT
          OPTIONS HOLD
          ORDER BY DEPT
           END-EXEC
/*                                                                  */
           EXEC ADABAS
          CONNECT 'INCREASE'
          UPD=EMPLOYEES
          AND USERDATA INTO :COMMIT_DATA
           END-EXEC
/*
          A HISTOGRAM STATEMENT IS USED TO ASCERTAIN THE NUMBER OF
          EMPLOYEES PER DEPARTMENT
                                                                    */
           EXEC ADABAS
          OPEN EMP1
           END-EXEC
/*                                                                  */
           EXEC ADABAS
          FETCH EMP1
           END-EXEC
```

```
/*                                                                  */
          IF COMMIT_DATA *= ' ' THEN CALL RESTART;
/*                                                                  */
          START_DEPT = EMPLOYEES_1.DEPT;
/*                                                                  */
               EXEC ADABAS
          OPEN EMP2
               END-EXEC
/*                                                                  */
          PUT SKIP EDIT (HEADER) (A);
          PUT SKIP LIST ((40)'*');
          PUT SKIP;
/*                                                                  */
          DO WHILE (ADACODE *= 3);
             CALL HIST_EMPL;
          END;

/*                                                                  */
               EXEC ADABAS
          CLOSE EMP1
               END-EXEC
/*                                                                  */
               EXEC ADABAS
          CLOSE EMP2
               END-EXEC
/*                                                                  */
          PUT SKIP;
          PUT SKIP LIST ((50)'-');
          PUT SKIP;
          TOTAL_SUM_DEPT = SUM_TOTAL;
          PUT SKIP EDIT (FOOT_LINE) (A);
          COMMIT_DATA = ' ';
/*                                                                  */
               EXEC ADABAS
          DBCLOSE
          USERDATA = :COMMIT_DATA
               END-EXEC
/*******************************************************************/
RESTART : PROC;
          PUT SKIP LIST ('LAST PROGRAM RUN TERMINATED ABNORMALLY');
          PUT SKIP EDIT ('LAST DEPARTMENT WAS: ',COMMIT_DEPARTMENT)(A);
/*                                                                  */
               EXEC ADABAS
           FETCH EMP1
              END-EXEC
END RESTART;
/*******************************************************************/

HIST_EMPL : PROC;
/*
          THE EMPLOYEES FILE WILL BE READ UNTIL ALL RECORDS FOR THE
          DEPARTMENT HAVE BEEN PROCESSED AND THE SALARY HAS BEEN
          UPDATED
                                                                    */
          DO J=1 BY 1 TO EMPLOYEES_1.QUANTITY;
                    EXEC ADABAS
               FETCH EMP2
                    END-EXEC
/*           THE SALARY INCREASE CAN BE EXECUTED WHEN THE COUNT OF THE
             PERIODIC GROUP IS LESS THAN 40.                        */
               IF C_INCOME <= 40 THEN
                  CALL SALARY_INCREASE;
```

```
               ELSE
                  PUT SKIP EDIT
                 ('UPDATE PERSON ',PERSONNEL_ID,' NOT POSSIBLE')(A);
          END;
/*                                                                    */
          DEPARTMENT = EMPLOYEES.DEPT;
          SUM_DEPT = SUM_DEPARTMENT;
          SUM_DEPARTMENT = 0;
          PUT SKIP EDIT (LINE1) (A);
/*                                                                    */
          COMMIT_DEPARTMENT = EMPLOYEES.DEPT;
          COMMIT_SUM = SUM_TOTAL;
              EXEC ADABAS
          COMMIT WORK
          USERDATA = :COMMIT_DATA
              END-EXEC
/*                                                                    */
               EXEC ADABAS
          FETCH EMP1
              END-EXEC
/*                                                                    */
END HIST_EMPL;
/*********************************************************************/
SALARY_INCREASE : PROC;
          INCREASE = SALARY(1) * 0.04;
          NEW_SALARY = SALARY(1) + INCREASE;
          IND = C_INCOME + 1;
/*                                                                    */
          DO I=C_INCOME BY -1 TO 0;
               SALARY(IND) = SALARY(I);
               IND = IND - 1;
          END;
/*                                                                    */
          SALARY(1) = NEW_SALARY;
/*                                                                    */
              EXEC ADABAS
          UPDATE EMPLOYEES
          WHERE CURRENT OF EMP2
              END-EXEC
/*                                                                    */
          SUM_DEPARTMENT = SUM_DEPARTMENT + INCREASE;
          SUM_TOTAL = SUM_TOTAL + INCREASE;
END SALARY_INCREASE;
/*                                                                    */
END PEX3;
```