

APPENDIX J - PL/I EXAMPLES

This chapter covers the following topics:

- Example 1
- Example 2
- Example 3

Example 1

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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

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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

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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
/*

```

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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 &

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

```

Example 3

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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 (' ');

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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

```

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/*                                                                    */
    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;

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                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;
                /*****

```