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*
*   WHEN KEYING A COBOL PROGRAM, THERE ARE TWO MARGINS THAT
*   REQUIRE CONSIDERATION.  THE 'A' MARGIN (COLUMNS 8 TO 11) AND
*   THE 'B' MARGIN (COLUMNS 12 TO 72).  ALL DIVISION NAMES,
*   SECTION NAMES, PARAGRAPH NAMES, FD'S, AND 01 AND 77 LEVELS
*   MUST BEGIN IN THE 'A' MARGIN, WHILE THE REST OF THE COBOL
*   STATEMENTS MUST BEGIN IN THE 'B' MARGIN.  (IMPORTANT - DO NOT
*   KEY PAST COLUMN 72 IN COBOL, BECAUSE THIS AREA IS RESERVED
*   FOR IDENTIFICATION OR SEQUENCING AND IS IGNORED BY THE
*   COMPILER.  THE BLANK LINES SEEN AT APPROPRIATE PLACES IN
*   THE PROGRAM ARE INSERTED BY THE PROGRAMMER TO GREATLY
*   IMPROVE PROGRAM READABILITY.  THEY ARE IGNORED BY THE
*   COMPILER, AND SHOULD BE USED IN ALL COBOL PROGRAMS FOR
*   READABILITY.
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*****
IDENTIFICATION DIVISION.
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*
*   IN THE IDENTIFICATION DIVISION,  THE ONLY REQUIRED STATEMENT
*   IS PROGRAM-ID.  THE OTHERS GIVE PERTINANT INFORMATION
*   ABOUT THE PROGRAM.  THE REMARKS PARAGRAPH USUALLY CONTAINS A
*   BRIEF DESCRIPTION OF THE PROGRAM, FILE INPUT, ETC.  THIS
*   PROVIDES A SIMPLE WAY TO FURTHER DOCUMENT YOUR PROGRAM AND
*   WILL BE EXPECTED ON ALL ASSIGNMENTS.
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PROGRAM-ID.
BILLING.
AUTHOR.
GEORGE FOWLER-ED CHRISTENSON.
INSTALLATION.
TEXAS A & M UNIVERSITY-CSUS.
DATE-WRITTEN.
SEPTEMBER 8, 1985- JANUARY 31, 1991.
DATE-COMPILED.

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*
*   ASSIGNMENT NUMBER
*   DATE ASSIGNED
*   DATE DUE
*   PURPOSE:          THIS IS A BILLING PROGRAM FOR THE CIRCLE
*   CLUB RESTAURANT AND BAR. IT CALCULATES THE TOTAL AMOUNT DUE
*   FROM EACH CUSTOMER AND A GRAND TOTAL DUE FROM ALL ACCOUNTS.
*   THERE ARE DISCOUNTS ALLOWED UNDER CERTAIN CONDITIONS.  THEY
*   ARE:
*       2 PERCENT FOR A RESTAURANT BILL OVER $200.00
*       5 PERCENT FOR A BAR BILL OVER $400.00
*       3 PERCENT FOR A TOTAL BILL OVER $1,000.00 AFTER
*       OTHER DISCOUNTS HAVE BEEN SUBTRACTED.
*
*   INPUT FILE SPECIFICATIONS:
*

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COLUMNS	DESCRIPTION
1- 3	MEMBERSHIP NUMBER
5-29	MEMBER NAME
31-48	MEMBER ADDRESS
49-53	RESTAURANT BILL
55-59	BAR BILL
61-65	ANY OTHER CHARGES
67-72	PAST DUE AMOUNT

THE OUTPUT CONTAINS MEMBERSHIP NUMBER, NAME, ADDRESS, AND AMOUNT DUE. THE SUMMARY CONTAINS THE TOTAL AMOUNT DUE FROM ALL CUSTOMERS.

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ENVIRONMENT DIVISION

ENVIRONMENT DIVISION.

IN COBOL, ALL ASPECTS OF THE DATA PROCESSING PROBLEM THAT DEPEND ON THE PHYSICAL CHARACTERISTICS OF A SPECIAL COMPUTER ARE WITHIN THE ENVIRONMENT DIVISION OF THE SOURCE PROGRAM. THUS A CHANGE IN COMPUTERS ENTAILS MAJOR CHANGES IN ONLY THE ENVIRONMENT DIVISION. THE ENVIRONMENT DIVISION IS DIVIDED INTO TWO SECTIONS: THE CONFIGURATION SECTION AND THE INPUT-OUTPUT SECTION. THE CONFIGURATION SECTION HAS THREE PARAGRAPHS WHICH WE WILL USE: SOURCE-COMPUTER, OBJECT-COMPUTER, AND SPECIAL-NAMES. THE INPUT-OUTPUT SECTION TELLS THE COMPUTER WHICH HARDWARE DEVICES ARE REQUIRED FOR I/O.

CONFIGURATION SECTION.

SOURCE-COMPUTER.

PC.

OBJECT-COMPUTER.

PC.

INPUT-OUTPUT SECTION.

FILE-CONTROL.

SELECT CUSTOMER-FILE
 ASSIGN TO "CUSTOMER.DAT".

SELECT REPORT-FILE
 ASSIGN TO "BILLING.RPT".

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*
*                                DATA DIVISION
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DATA DIVISION.

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*****
*
*  THE  DATA  DIVISION  OF  A  COBOL  PROGRAM  CONTAINS  THE
*  DESCRIPTION OF ALL INFORMATION TO BE PROCESSED BY THE PRO-
*  GRAM.  FIRST IS THE SECTION THAT CONTAINS A DESCRIPTION OF
*  ALL EXTERNALLY STORED DATA.  THERE IS ALWAYS ONE FD (FILE
*  DESCRIPTION) FOR EACH SELECT CLAUSE IN THE INPUT-OUTPUT
*  SECTION OF THE ENVIRONMENT DIVISION.  THE NEXT PART IS THE
*  WORKING-STORAGE SECTION WHICH CONTAINS DESCRIPTIONS OF ALL
*  RECORDS THAT ARE NOT PART OF EXTERNAL FILES, BUT ARE DEVEL-
*  OPED AND PROCESSED INTERNALLY.  EXAMPLES OF WORKING-STORAGE
*  AREAS ARE TOTALS COUNTERS, DESCRIPTIONS OF HEADINGS AND
*  DETAILED DESCRIPTIONS OF INPUT-OUTPUT RECORDS.
*
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FILE SECTION.

```
FD  CUSTOMER-FILE
    RECORD CONTAINS 72 CHARACTERS
    BLOCK CONTAINS 88 RECORDS
    LABEL RECORDS ARE OMITTED
    DATA RECORD IS CUSTOMER-RECORD.
```

```
01  CUSTOMER-RECORD                PIC X(72).
```

```
FD  REPORT-FILE
    LABEL RECORDS ARE OMITTED
    DATA RECORD IS REPORT-LINE.
```

```
01  REPORT-LINE                    PIC X(132).
```

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*
*                                WORKING STORAGE SECTION
*
*****
WORKING-STORAGE SECTION.
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```
01  WS1-ACCUMULATORS-COUNTERS.
    05  WS1-TOTAL-BILL                PIC 9(6)V99  VALUE ZERO.
    05  WS1-TOTAL-AMT-DUE             PIC 9(6)V99  VALUE ZERO USAGE COMP.
    05  WS1-PAGE-NUM                  PIC 9(8)     VALUE ZERO USAGE COMP.
```

```

01  WS2-INDICATORS-GROUP.
    05  WS2-ARE-THERE-MORE-RECORDS  PIC X(3)      VALUE 'YES'.
        88  WS2-MORE-RECORDS        VALUE 'YES'.
        88  WS2-NO-MORE-RECORDS     VALUE 'NO '.

01  WS3-CUSTOMER-RECORD-IN.
    05  WS3-MEMBER-NUMBER-IN        PIC 9(3).
    05                                     PIC X(1).
    05  WS3-NAME-IN                 PIC X(25).
    05                                     PIC X(1).
    05  WS3-MEMBER-ADDRESS-IN       PIC X(18).
    05  WS3-REST-BILL               PIC 9(3)V99.
    05                                     PIC X(1).
    05  WS3-BAR-BILL                PIC 9(3)V99.
    05                                     PIC X(1).
    05  WS3-OTHER-CHARGES           PIC 9(3)V99.
    05                                     PIC X(1).
    05  WS3-AMT-OUTSTANDING         PIC 9(4)V99.
    05                                     PIC X(8).

/

01  WS4-DETAIL-LINE.
    05                                     PIC X(22)  VALUE SPACES.
    05  WS4-MEMBER-NUMBER-OUT       PIC 9(3).
    05                                     PIC X(19)  VALUE SPACES.
    05  WS4-NAME-OUT               PIC X(26).
    05                                     PIC X(10)  VALUE SPACES.
    05  WS4-MEMBER-ADDRESS-OUT     PIC X(19).
    05                                     PIC X(13)  VALUE SPACES.
    05  WS4-AMT-DUE                PIC $$$,ZZ9.99.
    05                                     PIC X(11)  VALUE SPACES.

01  WS5-TITLE.
    05                                     PIC X(61)  VALUE SPACES.
    05                                     PIC X(11)  VALUE
        'CIRCLE CLUB'.
    05                                     PIC X(61)  VALUE SPACES.

01  WS6-COLUMN-HEADINGS.
    05                                     PIC X(15)  VALUE SPACES.
    05                                     PIC X(17)  VALUE
        'MEMBERSHIP NUMBER'.
    05                                     PIC X(18)  VALUE SPACES.
    05                                     PIC X(4)   VALUE 'NAME'.
    05                                     PIC X(30)  VALUE SPACES.
    05                                     PIC X(7)   VALUE 'ADDRESS'.
    05                                     PIC X(22)  VALUE SPACES.
    05                                     PIC X(10)  VALUE
        'AMOUNT DUE'.
    05                                     PIC X(10)  VALUE SPACES.

01  WS7-TOTAL-LINE.
    05                                     PIC X(36)  VALUE SPACES.
    05                                     PIC X(43)  VALUE
        'THE TOTAL AMOUNT DUE FROM ALL CUSTOMERS IS'.

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05 WS7-TOTAL-AMOUNT          PIC $ZZZ,ZZ9.99.
05                           PIC X(43)  VALUE SPACES.

01 WS8-BLANK-LINE            PIC X(132) VALUE SPACES.

/

01 WS9-STAR-LINE.
05                           PIC X(9)   VALUE SPACES.
05                           PIC X(114) VALUE ALL '*'.
05                           PIC X(10)  VALUE SPACES.

01 WS10-CURRENT-DATE.
05 WS10-YEAR-IN              PIC X(2).
05 WS10-MONTH-IN             PIC X(2).
05 WS10-DAY-IN               PIC X(2).

01 WS11-DATE-LINE.
05                           PIC X(3)   VALUE SPACES.
05                           PIC X(6)   VALUE 'DATE: '.
05 WS11-DATE-OUT.
05   10 WS11-MONTH-OUT        PIC X(2).
05   10 WS11-DAY-OUT          PIC /X(2)/.
05   10 WS11-YEAR-PUT          PIC X(2).
05                           PIC X(106) VALUE SPACES.
05                           PIC X(6)   VALUE 'PAGE: '.
05 WS11-PAGE-NO-OUT           PIC ZZ.
05                           PIC X(2)   VALUE SPACES.

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*****
*                                                                 *
*                               PROCEDURE DIVISION                *
*                                                                 *
*****

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PROCEDURE DIVISION.

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*****
*                                                                 *
* THE PROCEDURE DIVISION OF A COBOL PROGRAM CONTAINS THE ACTUAL *
* INSTRUCTIONS FOR SOLVING A PROBLEM WHICH MAY INCLUDE          *
* SENTENCES, STATEMENTS, CONDITIONAL STATEMENTS, PARAGRAPHS,    *
* PROCEDURES AND SECTIONS.                                       *
*                                                                 *
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0000-MAIN-DRIVER.
    PERFORM A000-INITIALIZATION.
    PERFORM B000-CLUB-CUSTOMER-PROCESS
        UNTIL WS2-NO-MORE-RECORDS.
    PERFORM C000-SUMMARY-REPORT.
    PERFORM D000-TERMINATION.
    STOP RUN.

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```
*****
*
*   A000 INITIALIZATION
*
*   - OPENS THE INPUT AND OUTPUT FILES
*   - WRITES THE FIRST PAGE COLUMN-HEADINGS
*   - READS FIRST RECORD
*
*****
```

```
A000-INITIALIZATION.
    PERFORM A100-OPEN-FILES.
    PERFORM A200-GET-DATE.
    PERFORM A300-PAGE-HEADING.
    PERFORM X100-READ-RECORD.
```

```
A100-OPEN-FILES.
    OPEN  INPUT CUSTOMER-FILE
        OUTPUT REPORT-FILE.
```

```
A200-GET-DATE.
    ACCEPT WS10-CURRENT-DATE FROM DATE.
    MOVE WS10-YEAR-IN      TO WS11-YEAR-OUT.
    MOVE WS10-MONTH-IN     TO WS11-MONTH-OUT.
    MOVE WS10-DAY-IN       TO WS11-MONTH-OUT.
```

```
A300-PAGE-HEADING.
    WRITE REPORT-LINE FROM WS7-BLANK-LINE
        AFTER PAGE.
    ADD 1 TO WS1-PAGE-NUM.
    MOVE WS1-PAGE-NUM TO WS11-PAGE-NO-OUT.
    WRITE REPORT-LINE FROM WS11-DATE-LINE
        AFTER ADVANCING 2 LINES.
    WRITE REPORT-LINE FROM WS5-TITLE
        AFTER ADVANCING 1 LINES.
    WRITE REPORT-LINE FROM WS6-COLUMN-HEADINGS
        AFTER ADVANCING 3 LINES.
```

```
*****
*
*   B000 CLUB CUSTOMER PROCESS
*
*   THIS PARAGRAPH IS PERFORMED UNTIL THERE ARE NO MORE MASTER
*   RECORDS.  IT:
*
*   - PERFORMS THE CALCULATION PARAGRAPH
*   - PERFORMS THE DETAIL WRITING PARAGRAPH
*   - PERFORMS THE READ PARAGRAPH
*
*****
```

```
B000-CLUB-CUSTOMER-PROCESS.
    PERFORM B100-CALCULATION-PARA.
    PERFORM B200-ROUTINE-WRITING-ANSWER.
    PERFORM X100-READ-RECORD.
```

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/
*****
*
*   B100 CALCULATION-PARA.
*
*   - CALCULATES THE BAR BILL DISCOUNTS
*   - CALCULATES THE CUSTOMER'S TOTAL BILL AMOUNT
*   - ACCUMULATES THE GRAND TOTAL BILL AMOUNT
*
*****

```

```

B100-CALCULATION-PARA.
    IF WS3-REST-BILL IS GREATER THAN 200
        MULTIPLY 0.98 BY WS3-REST-BILL.
    IF WS3-BAR-BILL > 400
        MULTIPLY .95 BY WS3-BAR-BILL.
    ADD WS3-REST-BILL, WS3-BAR-BILL, WS3-OTHER-CHARGES
        GIVING WS1-TOTAL-BILL.
    IF WS1-TOTAL-BILL GREATER THAN 1000
        MULTIPLY WS1-TOTAL-BILL BY 0.97 GIVING WS1-TOTAL-BILL.
    ADD WS3-AMT-OUTSTANDING TO WS1-TOTAL-BILL.
    ADD WS1-TOTAL-BILL TO WS1-TOTAL-AMT-DUE.

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*****
*
*   B200 ROUTINE WRITING ANSWER
*
*   - MOVES INPUT FIELDS TO OUTPUT LINE
*   - MOVES CUSTOMER'S TOTAL BILL AMOUNT TO OUTPUT LINE
*   - WRITES DETAIL LINE
*
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```

B200-ROUTINE-WRITING-ANSWER.
    MOVE WS1-TOTAL-BILL TO WS4-AMT-DUE.

```

```

*****
*
*   NOTE:    WHEN TOTAL-BILL IS MOVED TO AMT-DUE, A PROBLEM COULD
*   OCCUR BECAUSE THE PICTURE FOR TOTAL-BILL IS ONE CHARACTER
*   LARGER THAN THE PICTURE FOR AMT-DUE AND YOU COULD LOSE THE
*   HIGH ORDER DIGIT OF THE LARGER PICTURE.
*
*****

```

```

    MOVE WS3-MEMBER-NUMBER-IN TO WS4-MEMBER-NUMBER-OUT.
    MOVE WS3-NAME-IN TO WS4-NAME-OUT.
    MOVE WS3-MEMBER-ADDRESS-IN TO WS4-MEMBER-ADDRESS-OUT.
    WRITE REPORT-LINE FROM WS4-DETAIL-LINE
        AFTER ADVANCING 2 LINES.

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*****
*

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```

* C000 SUMMARY REPORT
*
* - MOVES GRAND TOTAL BILLING AMOUNT TO SUMMARY LINE
* - WRITES GRAND TOTAL LINES
*
*****

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```

C000-SUMMARY-REPORT.
  WRITE REPORT-LINE FROM WS9-STAR-LINE
    AFTER ADVANCING 3 LINES.
  MOVE WS1-TOTAL-AMT-DUE TO WS7-TOTAL-AMOUNT.

```

```

*****
*
* NOTE: THE ABOVE MOVE STATEMENT IS A SIMPLE MOVE, WE ARE MOVING
* DATA FROM ONE LOCATION TO ANOTHER WITH BOTH DATA NAMES
* (TOTAL-AMT-DUE AMOUNT) BEING UNIQUE; THAT IS, THEY APPEAR ONLY
* ONCE IN THE DATA DIVISION.
*
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```

  WRITE REPORT-LINE FROM WS7-TOTAL-LINE
    AFTER ADVANCING 3 LINES.

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```

D000-TERMINATION.
  CLOSE CUSTOMER-FILE
    REPORT-FILE.

```

/

```

X100-READ-RECORD.
  READ CUSTOMER-FILE INTO WS3-CUSTOMER-RECORD-IN
    AT END
    MOVE 'NO ' TO WS2-ARE-THERE-MORE-RECORDS.

```

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