Lab 2

20 pts

Given the following COBOL program:

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IDENTIFICATION DIVISION.
PROGRAM-ID. CREDIT-CARD-BILL.
ENVIRONMENT DIVISION.
INPUT-OUTPUT SECTION. *> Describe how input and output will connect
FILE-CONTROL.
        SELECT CHARGES-FILE     ASSIGN TO "/uploads/input.txt"
        ORGANIZATION IS LINE SEQUENTIAL.
        SELECT BILL-LISTING         ASSIGN TO PRINTER
        SEQUENTIAL.
      *> Describe how the input actually is and how to output
        *> Also anything used for calculation and flags
DATA DIVISION.
FILE SECTION. *> How is the data going to be read and printed
FD      CHARGES-FILE. *> How to read the data
01  CHRG-RECORD.
        02  CHRG-AMOUNT            PICTURE IS 999V99.
        02  CHRG-DESC              PICTURE IS X(20).
        *> How to print the data
        *>      FILLER is a place holder for separating parts of input/output
FD      BILL-LISTING
        LABEL RECORDS ARE STANDARD
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        RECORD CONTAINS 80 CHARACTERS.
01      BILL-LINE.
            02      BILL-AMOUNT             PICTURE IS ZZ9.99.
            02      FILLER                  PICTURE IS X(5).
            02      BILL-DESC               PICTURE IS X(20).
            02      FILLER                  PICTURE IS X(49).

WORKING-STORAGE SECTION. *> Calculations and flags and a stray output line
01      SWITCHES. *> A flag of just one character. SWITCHES is abritrary name
            02      CARD-EOF-SWITCH         PICTURE IS X.
            *> Fields for calculation (hence "V" to indicate decimal point for calc - not printed)
01      WORK-FIELDS.
            02      BALANCE      PICTURE IS 9999V99.
                02  TEMP PICTURE IS 9999V99.
01  TOTAL-LINE. *> Fields to display and the "." for decimal point is printed
            02  TL-DESC PICTURE IS X(9) VALUE "Total = $".
            02  TL-BAL  PICTURE IS ZZZ9.99.

PROCEDURE DIVISION. *> Now for the code
000-PRODUCE-BILL-LISTING.
            OPEN INPUT CHARGES-FILE. *> Open the input and select the output
            OPEN OUTPUT BILL-LISTING.
            MOVE "N" TO CARD-EOF-SWITCH. *> Set the flag
            MOVE ZERO TO BALANCE.  *> Initialize
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```
        PERFORM 100-PRODUCE-BILL-LINE  *> Read and process
                UNTIL CARD-EOF-SWITCH IS EQUAL TO "Y".
        MOVE BALANCE TO TL-BAL. *> Final balance to TL-BAL
        DISPLAY TOTAL-LINE. *> Print final line
        CLOSE CHARGES-FILE. *> Close up
        CLOSE BILL-LISTING.
        STOP RUN.
        *> Try and read the next line, if got, then do billing paragraph
100-PRODUCE-BILL-LINE.
        PERFORM 110-READ-CHARGE-RECORD.
        IF CARD-EOF-SWITCH IS NOT EQUAL TO "Y"
          PERFORM 120-PRINT-BILL-LINE.

110-READ-CHARGE-RECORD. *> Read next line, if eof, set flag to "Y"
        READ CHARGES-FILE RECORD
                AT END
                        MOVE "Y" TO CARD-EOF-SWITCH.
        *> Blank BILL-LINE, move info to BILL-LINE & temp, add to balance, display
120-PRINT-BILL-LINE.
        MOVE SPACE                      TO BILL-LINE.
        MOVE CHRG-AMOUNT                TO BILL-AMOUNT, TEMP.
        MOVE CHRG-DESC          TO BILL-DESC.
        ADD TEMP TO BALANCE.
        DISPLAY BILL-LINE.
```

Data file to test with:

12345Widgets

98107Extra gadgets

  456Labels

Under Examples in Canvas, there is a file changeL2.cobc that is the alternate to the above code not using files (rather hard to do with file-centric COBOL). Can use jdoodle.com to load and run it. Note: Examples has other COBOL code examples.

Change the program to add a column to the front of each input line that has "C" for charge or "P" for payment. Add a line for a payment of $555.67 to the data file (description of "Pay") and make the other lines be charges. Print the values with "Charge" or "Payment" first, the values with a "$", and the description. Have a total for just the charges. Then print out the balance. Calculate a "Cash Back" of 1% on the charges (You can do a "MULTIPLY X by 0.01 GIVING Y.") and print that (put in "Cash back = $"). Don't forget that if you add to the input record, you need to adjust the size of the filler (must be 80 columns).