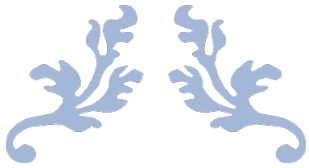


CST8283 Business Programming
PROJECT 2 Spring 2020

Yuyun Chu

COVER PAGE

CST 8283 Business Programming (COBOL)

NAME: _____ **Yuyun Chu** _____ (please print clearly)

PROJECT, Assignment or Lab assignment number 2

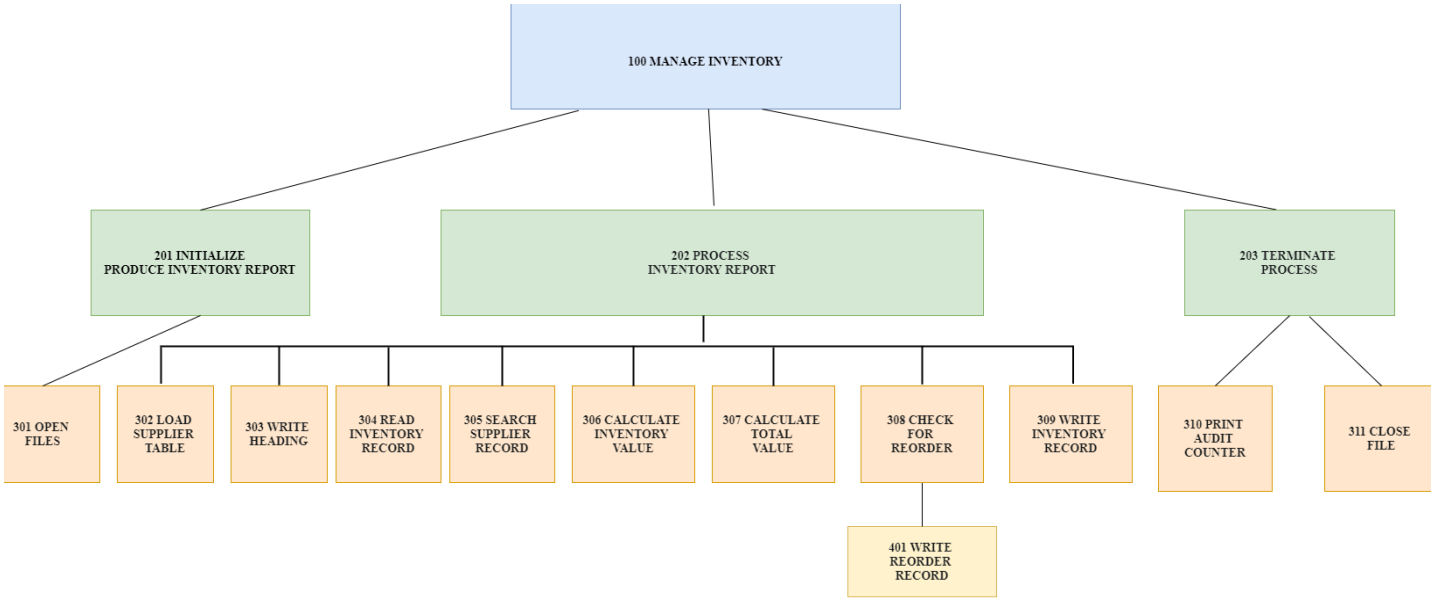
SUMBISSION REQUIREMENTS

The submission for this project (Project 2A) must include the:

1) Cover page (included with this document);
2) Hierarchy chart / Function chart ;
3) Program listing (compiled version);
4) Output file listings (reports);
5) Output layout diagram / Print Layout sheet.

NOTE – Flowcharts are not required for this project. However, I suggest you draft flowcharts to ensure you have the logic correct.

HIERARCHY CHART/FUNCTION CHART



PROGRAM LISTING (COMPILED VERSION)

```
       IDENTIFICATION DIVISION.
       PROGRAM-ID. CST8283-PROJECT2 AS "CST8283-PROJECT2".
       AUTHOR.     AC-STUDENTS.
       DATE-WRITTEN. JULY 24TH 2020.
       DATE-COMPILED. JULY 24TH 2020.
       SECURITY.  PROF JASON MOMBOURQUETTE.
*****************************************************************
       ENVIRONMENT DIVISION.
       CONFIGURATION SECTION.
       SPECIAL-NAMES.
       CURRENCY SIGN IS "$" WITH PICTURE SYMBOL "$".

       INPUT-OUTPUT SECTION.
       FILE-CONTROL.
      * INPUT FILE 1
           SELECT INVENT-FILE-IN
              ASSIGN TO "./INVENT.TXT"
              ACCESS MODE IS SEQUENTIAL
              ORGANIZATION IS LINE SEQUENTIAL
              FILE STATUS IFI-STATUS.

      * INPUT FILE 2
           SELECT SUPPLIER-FILE-IN
              ASSIGN TO "./SUPPLIERS.TXT"
              ACCESS MODE IS SEQUENTIAL
              ORGANIZATION IS LINE SEQUENTIAL
              FILE STATUS SFI-STATUS.

      * OUTPUT FILE 1
           SELECT INVENT-REPORT-OUT
              ASSIGN TO "./INVREPRT.TXT"
              ORGANIZATION IS LINE SEQUENTIAL.

      * OUTPUT FILE 2
           SELECT REORDER-REPORT-OUT
              ASSIGN TO "./INVREORD.TXT"
              ORGANIZATION IS LINE SEQUENTIAL.

       DATA DIVISION.
       FILE SECTION.
       FD INVENT-FILE-IN.
       01 INVENT-IN-RECORD.
                   02 PART-NUMBER-IN       PIC 9(5).
                   02 PART-NAME-IN         PIC X(20).
                   02 QUANTITY-IN          PIC 9(3).
                   02 UNIT-PRICE-IN          PIC 9(2)V99.
                   02 SUPPLIER-CODE-IN     PIC X(5).
            02 RE-ORDER-POINT-IN    PIC 9(3).

       FD SUPPLIER-FILE-IN.
       01 SUPPLIER-RECORD-IN.
```

```
    02 SUPPLIER-CODE     PIC X(5).
    02 SUPPLIER-NAME     PIC X(15).


FD INVENT-REPORT-OUT.
01 INVENT-OUT-RECORD.
    02 PART-NUMBER-OUT       PIC X(7).
    02 PART-NAME-OUT         PIC X(27).
    02 QUANTITY-OUT          PIC X(6).
    02 TOTAL-VALUE-OUT       PIC $$$,$$$,$$9.99.

FD REORDER-REPORT-OUT.
01 REORDER-OUT-RECORD.
    02 PART-NUMBER-OUT2          PIC 9(5).
    02 PART-NAME-OUT2            PIC X(20).
    02 RE-ORDER-POINT-OUT        PIC 9(3).
    02 SUPPLIER-NAME-OUT        PIC X(15).

WORKING-STORAGE SECTION.

01 MONEY-FORMAT PIC $$$,$$$,$$9.99.

01 SUPPLIER-TABLE.
    05 SUPPLIER-TABLE-RECORD OCCURS 1000 TIMES.
        10 TBL-SUPPLIER-CODE    PIC X(5).
        10 SUPPLIER-NAME-TBL    PIC X(15).


01 FLAGS-AND-COUNTERS.
   05 INV-EOF-FLAG                  PIC X(3) VALUE "NO".
   05 SUP-EOF-FLAG                  PIC X(3) VALUE "NO".
   05 FOUND-FLAG                    PIC X(3) VALUE "NO".
   05 SUB                           PIC 9(4) VALUE 1.
   05 INVENTORY-VALUE               PIC 9(15) VALUE ZERO.
   05 AUDIT-READ-COUNTER            PIC 9(4) VALUE ZERO.
   05 AUDIT-WRIT-COUNTER            PIC 9(4) VALUE ZERO.

01 HEADING-LINE.
    05 FILLER             PIC X(7)  VALUE 'NUMBER'.
    05 FILLER             PIC X(1)  VALUE SPACES.
    05 FILLER             PIC X(20) VALUE 'PART NAME'.
    05 FILLER             PIC X(5)  VALUE SPACES.
    05 FILLER             PIC X(3) VALUE 'QTY'.
    05 FILLER             PIC X(3)  VALUE SPACES.
    05 FILLER             PIC X(15) VALUE 'VALUE'.

  01 INVENTORY-DETAIL-LINE.
      05 WS-PART-NUMBER-OUT       PIC 9(7).
      05 FILLER                   PIC X(1) VALUE SPACES.
      05 WS-PART-NAME-OUT         PIC X(20).
    05 FILLER                    PIC X(5) VALUE SPACES.
      05 WS-QUANTITY-OUT          PIC 9(3).
    05 FILLER                    PIC X(3) VALUE SPACES.
      05 WS-TOTAL-VALUE-OUT       PIC $$$,$$$,$$9.99.
```

```
01 WS-REORDER-REPORT.
    02 WS-PART-NUMBER-OUT2          PIC 9(5).
    02 WS-PART-NAME-OUT2            PIC X(20).
    02 WS-RE-ORDER-POINT-OUT        PIC 9(3).
    02 WS-SUPPLIER-NAME-OUT        PIC X(15).

01  TOTAL-LINE1.
         05 FILLER            PIC X(41) VALUE SPACES.
         05 FILLER            PIC X(15) VALUE
                "==============".
         05 FILLER            PIC X(75).

01 TOTAL-VALUE            PIC 9(15).

77 IFI-STATUS PIC X(2).
77 SFI-STATUS PIC X(2).

PROCEDURE DIVISION.
100-MANAGE-INVENTORY.
    PERFORM 201-INITIALIZE-PRODUCE-INVENTORY-REPORT.
    PERFORM 202-PROCESS-INVENTORY-REPORT
      UNTIL INV-EOF-FLAG = "YES".
    PERFORM 203-TERMINATE-PROCESS.
    STOP RUN.

201-INITIALIZE-PRODUCE-INVENTORY-REPORT.
    PERFORM 301-OPEN-FILES.
    PERFORM 302-LOAD-SUPPLIER-TABLE
            VARYING SUB FROM 1 BY 1 UNTIL SUB > 1000
                OR SUP-EOF-FLAG = "YES".
    PERFORM 303-WRITE-HEADING.

202-PROCESS-INVENTORY-REPORT.
    PERFORM 304-READ-INVENTORY-RECORD.
    IF INV-EOF-FLAG = "NO"
        PERFORM 305-SEARCH-SUPPLIER-RECORD
                VARYING SUB FROM 1 BY 1 UNTIL SUB > 1000
                OR FOUND-FLAG = "YES"
        PERFORM 306-CALCULATE-INVENTORY-VALUE
        PERFORM 307-CALCULATE-TOTAL-VALUE
        PERFORM 308-CHECK-FOR-REORDER
        PERFORM 309-WRITE-INVENTORY-RECORD
    END-IF.

203-TERMINATE-PROCESS.
    PERFORM 310-PRINT-AUDIT-COUNTER.
    PERFORM 311-CLOSE-FILE.

301-OPEN-FILES.
         OPEN INPUT INVENT-FILE-IN.
    OPEN INPUT SUPPLIER-FILE-IN.
    OPEN OUTPUT INVENT-REPORT-OUT.
    OPEN OUTPUT REORDER-REPORT-OUT.

302-LOAD-SUPPLIER-TABLE.
```

```
        READ SUPPLIER-FILE-IN
            AT END MOVE "YES" TO SUP-EOF-FLAG
               NOT AT END
                  MOVE SUPPLIER-RECORD-IN
                            TO SUPPLIER-TABLE-RECORD(SUB).
    303-WRITE-HEADING.
        WRITE INVENT-OUT-RECORD FROM HEADING-LINE.

    304-READ-INVENTORY-RECORD.
        MOVE "NO" TO FOUND-FLAG.
        READ INVENT-FILE-IN AT END MOVE "YES" TO INV-EOF-FLAG
                            NOT AT END ADD 1 TO AUDIT-READ-COUNTER.

    305-SEARCH-SUPPLIER-RECORD.
        IF TBL-SUPPLIER-CODE(SUB) = SUPPLIER-CODE-IN
            MOVE "YES" TO FOUND-FLAG
            MOVE SUPPLIER-NAME-TBL(SUB) TO WS-SUPPLIER-NAME-OUT
        END-IF.

    306-CALCULATE-INVENTORY-VALUE.
        COMPUTE INVENTORY-VALUE = QUANTITY-IN * UNIT-PRICE-IN.

    307-CALCULATE-TOTAL-VALUE.
        ADD INVENTORY-VALUE TO TOTAL-VALUE.

    308-CHECK-FOR-REORDER.
        IF QUANTITY-IN LESS THAN OR EQUAL TO RE-ORDER-POINT-IN
            PERFORM 401-WRITE-REORDER-RECORD
        END-IF.

    309-WRITE-INVENTORY-RECORD.
        MOVE PART-NUMBER-IN TO WS-PART-NUMBER-OUT.
        MOVE PART-NAME-IN TO WS-PART-NAME-OUT.
        MOVE QUANTITY-IN TO WS-QUANTITY-OUT.
        MOVE INVENTORY-VALUE TO WS-TOTAL-VALUE-OUT.
        WRITE INVENT-OUT-RECORD FROM INVENTORY-DETAIL-LINE.
        ADD 1 TO AUDIT-WRIT-COUNTER.

    310-PRINT-AUDIT-COUNTER.
        DISPLAY "Inventory records read: " AUDIT-READ-COUNTER.
        DISPLAY "Inventory records written: " AUDIT-WRIT-COUNTER.
        MOVE TOTAL-VALUE TO MONEY-FORMAT.
        DISPLAY "Total value" MONEY-FORMAT.

    401-WRITE-REORDER-RECORD.
        MOVE PART-NUMBER-IN TO WS-PART-NUMBER-OUT2.
        MOVE WS-PART-NAME-OUT TO WS-PART-NAME-OUT2.
        MOVE RE-ORDER-POINT-IN TO WS-RE-ORDER-POINT-OUT.
        WRITE REORDER-OUT-RECORD FROM WS-REORDER-REPORT.

       311-CLOSE-FILE.
        CLOSE INVENT-FILE-IN.
        CLOSE SUPPLIER-FILE-IN.
        CLOSE INVENT-REPORT-OUT.
        CLOSE REORDER-REPORT-OUT.
```

```
           STOP RUN.

       *EXIT THIS COBOL PROGRAM
        END PROGRAM CST8283-PROJECT2.
```

OUTPUT FILE LISTINGS (REPORTS)

INVREORD.TXT - Notepad

File Edit Format View Help

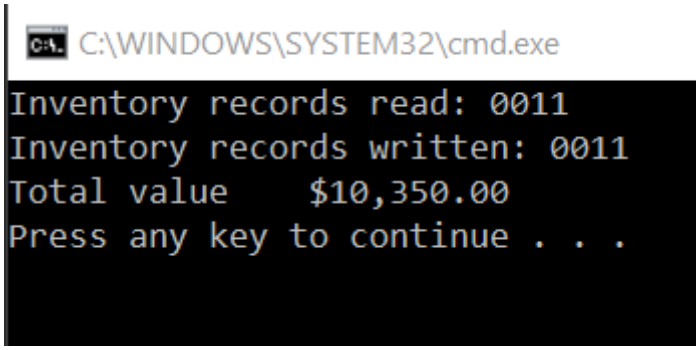
```
11129braces, brass          100METALPRODUCTS
12112widgets, small         250BUILDERSWARES
12115widgets,med            150BUILDERSWARES
12122widgets, large         350FIRSTBUILDERS
```

INVREPRT.TXT - Notepad

File Edit Format View Help

NUMBER	PART NAME	QTY	VALUE
0011111	widgets, small	100	$1,000.00
0011112	widgets,med	150	$1,800.00
0011115	widgets, large	100	$1,000.00
0011122	connectors	250	$500.00
0011124	braces	150	$300.00
0011125	braces, brass	150	$450.00
0011129	braces, bronze	100	$1,000.00
0012111	widgets, small	100	$1,000.00
0012112	widgets,med	150	$1,800.00
0012115	widgets, large	100	$1,000.00
0012122	connectors	250	$500.00

OUTPUT LAYOUT DIAGRAM/PRINT LAYOUT SHEET



GENERAL

The *WE MAKE WIDGETS* Company needs to establish a program to track their inventory. Inventory records have already been established and follow the structure noted below in INPUT RECORDS. The file containing these records must be referenced in the program as INVENT-FILE-IN. Specific field names and descriptions are also noted in INPUT RECORDS below.

The program will read each inventory record, calculate the value of that inventory item, then print out that inventory record with the calculated value, as part of an INVENTORY REPORT. The file name for

the report in the program will be INVENT-REPORT-OUT. The name for the report file stored on the disk (external device) will be INVREPRT.TXT

As each record is processed, determine whether the Quantity on hand is less than the Reorder Point. If so, that record should be written to a **Reorder File**.

At the end of the INVENTORY REPORT, once all records have been printed, the TOTAL VALUE for all inventory items should be printed.

Also, the program should keep a count of the inventory records read and the inventory records printed as an audit trail.

There will be an input file -- SUPPLIER.TXT – that contains the Supplier Information . Refer to SUPPLIER RECORD below in INPUT RECORDS

The Supplier Records must be loaded into a table. The table will then be searched for the Supplier Name for the Re-order Report. Refer to Report Formats below.

Refer to PROCESSING REQUIREMENTS, INPUT RECORDS and REPORT FORMAT below for further detail.

INPUT RECORDS

The record structure is as follows. Use the field name given below as the field name in the solution set. Abbreviations are allowed but must be meaningful.

Field name	***field size***	***field type***
PART NUMBER	5 bytes	numeric
PART NAME	20 bytes	alphanumeric
QUANTITY ON HAND	3 bytes	numeric
UNIT PRICE	4 bytes	numeric (include 2 bytes assumed decimals)
SUPPLIER CODE	5 bytes	alphanumeric
RE-ORDER POINT	3 bytes	numeric

SUPPLIER RECORD

SUPPLIER CODE PIC X (5)
SUPPLIER NAME PIC X (15)

REQUIRED DATA FILE (input)

You must use the prescribed data files for input. The data file (test data) for this program will be in INVENT.TXT for the inventory file and SUPPLIERS.TXT for the supplier records.
Both of these will be in the PROJECTS Content area for this project (PROJECT 3) in Blackboard.

PROCESSING REQUIREMENTS

Inventory Value calculation.
The INVENTORY VALUE is equal to the QUANTITY ON HAND times the UNIT PRICE.

Total Value calculation.
The TOTAL VALUE for all inventory items is equal to the sum of all individual inventory items value.
At the end of processing all records, the program should:

1) print out the number of records read in and the number of records written out to the output file;
2) print out the total value of the inventory (TOTAL VALUE).

Notes for output data fields

1) all numeric fields must use suppressed zeros
2) the Total Value field must have a floating dollar sign
3) insert the decimal point where applicable and commas in all numeric edited fields

REPORT FORMATS

Inventory Report

The description below shows the starting byte position (in brackets) for the Column Header Line. The Detail Line data items in the output report should line up under these Header Line items. (Refer to the Print Spacing detail provided)

NUMBER	PART NAME	QTY	VALUE
(2)	(9)	(34)	(40)

Once all records have been processed and printed, report summary records should be printed. These summary records will contain the total value for all inventory items, the number of records read and the number of records written. (Refer to the Print Spacing detail provided)

Re-order Report

This report should contain the following fields in this order:
Part Number, Part Name, Re-order Point, Supplier Name
You must set up the actual layout for this report.

Notes regarding grading

The **program listing** will be examined primarily for:

1) relationship to function chart and flowchart;
2) use of prescribed commands;
3) application of standards and structures;
4) proper functional constructs (cohesion and coupling);
5) internal comments.

Note You may use the COMPUTE statement in your calculations.
You must not use the In Line Perform

The **output reports (hard copy or screen display)** will be examined for accuracy of the output information and the prescribed format.

The **documentation** will be examined to ensure:

1) proper use of symbols (flowcharts);
2) proper structure and content of structure/function/hierarchy charts;
3) clear and accurate report or screen layouts (if required);
4) clear description or comments of the program logic.

Note You may use the COMPUTE statement in your calculations.
You must not use the In Line Perform