**Instructions**

1. Copy COBOL.LOADLIB to you userid for use with Assignments,   
   if needed  
     
   KC02597.DCMAFD01.COBOL.LOADLIB  
   as  
   KC03YYY.DCMAFD01.COBOL.LOADLIB
2. Copy starter datasets and members   
   for cobol source files, and JCL source files  
   1. KC02597.DCMAFD01.A2.COBOL (A2START)  
      as  
      KC03YYY.DCMAFD01.A2.COBOL (A2ILIST)
   2. KC02597.DCMAFD01.A2.JCL (A2CL)  
      as  
      KC03YYY.DCMAFD01.A2.JCL (A2CL)
   3. KC02597.DCMAFD01.A2.JCL (A2R)  
      as  
      KC03YYY.DCMAFD01.A2.JCL (A2R)
3. Create A2CLIST program based on specifications below.
4. Use A2CL JCL to compile/LKED the program
5. Use A2R JCL to execute the program
6. Submit the appropriate files based on the submission requirements

**Note: YYY is last three letters in your mainframe userid KC03YYY**

**Specifications**

1. **Input File**

Download the required data file (**A2.ILIST.DATA**) from DC Connect and create dataset called KC03YYY.DCMAFD01.A2.ILIST.DATA that the program will read.

Each data record is **27** characters long with the following format.   
(pay close attention to the price per unit,   
since the decimal is not stored in the data file).

The following is intended to provide the column layout of the file:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Columns | 1-4 | 5 | 6-18 | 19-21 | 22-27 |
| Field Name | Item Number | Product Class | Description | Qty | Price Per Unit |
| Example data | 2047  1742 | B  A | Typewriter  Handle | 105  10 | 800.00  10.00 |

1. **Output File**This program will create a formatted output file called   
   KC03YYY.DCMAFD01.A2.ILIST.OUT
2. **Report Output Formatting**:
3. Print out the detail line for each item **double spaced**(see sample below)
4. The headings and data must be output according to the sample format provided with everything aligned correctly in columns.
5. The column titles (data field names) are Item Number, Item Description, Quantity, Per Unit Price, Extended Price (Quantity \* Per Unit Price), Discount Amount, Net Price, Product Class, Transportation % (print in percent form, e.g. 11.5%),and Transportation Charge.
6. OUTPUT NUMERIC EDITING for the detail line.

Use Z, 9 and ‘,’ (comma).   
Leave 1 digit to the left of the decimal point (i.e. 0.09) for small values.

1. **Calculations**
   1. Use the appropriate arithmetic verbs (ADD, MULTIPLY, etc.)   
      **DO NOT use the COMPUTE verb**
2. **Discount** 
   1. A discount of 5% is allowed for:
   2. Product Class A - only if the Extended Price is greater than $100
   3. Product Class F - only if the Extended Price is greater than $50
   4. Product Class B - only if the Quantity is greater than 5
      1. For Product Classes without a discount   
         the DISCOUNT AMOUNT field is to be printed as 0.00.
   5. **Transportation Charge**
3. For Product Class A - it is 12.5% of the Extended Price.
4. For Product Class D - it is 8.5% of the Extended Price.
5. For Product Class F - it is 4.5% of the Extended Price.
6. For all other classes, if the quantity is 100 or less,   
   the Transportation Charge is 6.5% of the Extended Price,   
   otherwise it's a flat $45.00.
7. For the flat Transportation Charge,   
   print the transportation % as 0.0%.   
   In all cases, **DO NOT** add the transportation charge   
   to the net price.
8. **Report Headings:**
9. Print your name & A2 at the top as shown on the sample output. Use 01 in Working-Storage for these headings.
10. Print the column headings shown on the attached.  
    Use 01 in working-storage for this heading.
11. **Leave 2 blank lines before and after the column heading lines.**
12. **Summary Line:**

Accumulate and print (WITHOUT TITLES) aligned correctly under their respective columns,

1. the totals of
   1. the extended prices,
   2. net prices and
   3. transportation charges.
2. Use floating $ and ‘,’ (comma) editing.
3. **Leave 2 blank lines between the last data line and this line.**
4. Use 01 in working-storage for this total line.
5. **Overall Discount Analysis:**
6. Calculate the percentage of items that did not received a discount, correct to 1 decimal place.
7. Print the result on a separate line (after #5)  
   with the label “**ITEMS WITHOUT DISCOUNT** **=** ”
8. Use 01 level in working-storage for this total line.

1. **Suggested Approach**  
   To help in your development efforts, you should consider writing the program in the following stages.
2. Write the program to output the Item Number, Product Class, Description, Quantity, Price per Unit for each input record   
   to prove that you are reading the input data file properly.   
     
   This ensures you are able to read the input data correctly and   
   output the data accurately with the headings properly aligned   
   over the data with blank lines providing required spacing.
3. Add the simple calculations for Extended Price and Net Price   
   to complete the detail line for each record.   
     
   Output this data to confirm you have done these calculations correctly.

**Note**: Use zero for the Discount Amount at this stage.

1. Determine the discount percentage or discount amount to use and   
   add the calculation for Discount Amount.   
     
   Adjust the Net Price calculation to use the Discount Amount and   
   add the Discount Amount to the output to confirm   
   you have done these calculations correctly.
2. Determine the transportation charge percentage   
   or transportation charge amount to use and   
   add the calculation for Transportation Charge.   
     
   Output this data to confirm you have done these calculations correctly.
3. Add variables for the totals for Extended Price, Net Price, and Transportation Charge.   
     
   Be sure to initialize these to zero.  
     
   After each input record is output add the detail amounts   
   for Extended Price, Net Price, and Transportation Charge to their respective totals.  
     
   Output the totals for Extended Price, Net Price,   
   and Transportation Charge properly aligned with the detail columns   
   as shown to confirm you have done these calculations correctly.
4. Add variables for the count of the number of items,   
   the number of items with a discount and   
   the percentage of items without a discount.   
     
   Be sure to initialize these variables to zero.  
     
   After all the input records are output then calculate the percentage of items without a discount.  
     
   Output the percentage of items without a discount to confirm you have done these calculations correctly.

**Submission Requirements**

Submit a zip file containing the solution files to the drop box in DC Connect.

**Marking**

**25** marks for following the programming standards document

**2** marks for report heading stored in working-storage and output on first page only

**2** marks for each page heading stored in working-storage and output on each page

**10** marks for column headings aligned over detail line columns

**10** marks for columns in detail line having correct output format and valid data

**10** marks for correct rounded calculations of calculated fields in detail line (Extended Price, Discount Amount, Net Price, Trans %, Trans Charge)

**6** marks for blank line before and after report heading, two blank lines after page headings, blank line after each detail line, two blank lines after total line

**4** marks for three correct totals, and one correct summary percentage

**2** marks for correct program name

**2** marks for correct output file name

**2** marks for zip file containing   
the A2ILIST cobol source and   
the A2.ILIST.OUT file and   
the entire compile/LKED JCL job summary and   
the entire execute JCL job summary

**Total 75/75 marks**

**Sample Output Layout** (Note: sample data may not match data file provided)

YOUR NAME HERE, A2

----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8----+----9----+----0----+---

ITEM ITEM QTY UNIT EXTENDED DISCOUNT NET PRICE CLASS TRANS TRANSPORTATION

# DESCRIPTION PRICE PRICE AMOUNT % CHARGE

1111 1ST PLACE MDL 111 0.01 1.11 0.00 1.11 A 29.0 0.10

2047 TYPEWRITER 105 801.00 84,000.00 4,200.00 79,800.00 B 14.0 6,300.00

1742 HANDLE 20 10.00 100.00 0.00 100.00 A 29.0 9.00

2149 USB DRIVE 150 2,000.00 180,000.00 0.00 180,000.00 C 0.0 45.00

3761 TAPE 5 5,000.00 25,000.00 0.00 25,000.00 D 11.5 2,625.00

2791 BOLTS 200 0.75 7.50 0.00 7.50 A 29.0 0.68

\*\*\*\*\*\*\* more detail lines removed from here \*\*\*

0001 LOW BALL 1 0.01 0.01 0.00 0.01 G 11.5 0.00

9999 LAST RECORD 999 0.01 9.99 0.00 9.99 A 29.0 0.90

$99,999,999.99 $99,999,999.99 $99,999,999.99

ITEMS WITHOUT DISCOUNT = 9.9%