**Project Name: Part and Supplier**

**Technical Design Document**

This is small batch COBOL Application. As part of this project following components need to create/develop.

Customer provided the input flat file format, of record length 480. This input format has Parts, Supplier, Supplier address and Purchase order. Onward we will say this file is our master file.

Please find the attachment for Requirement document.

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**JCL’s**

1. **JCL Name: GONOD.jcl**

**Description:** This job will create Sorted Part and Supplier file, Parts, Supplier, Supplier address, Purchase order and Control Break Report for Part Supplier

Step1: Delete all House Keep Files

Step2: Sort the Sort Supplier file based on Part-No and remove the Duplicates.

Step3: Validate all fields in the Part Supplier file, Create Parts, Supplier, Supplier Address, Purchase order, Good Records Part Supplier file and Error file.

Step4: Generate a Control Break Report for Part Supplier

1. **JCL Name: GODBG.jcl**

**Description:** This job will Debug the Part Supplier validation program and Report program

Step1: Debug the validate all fields in the Part Supplier file, Create Parts, Supplier, Supplier Address, Purchase order, Good Records Part Supplier file and Error file.

Step2: Debug Generate a Control Break Report for Part Supplier.

1. **JCL Name: COMPILE.jcl**

**Description:** This job compiles the Part, Supplier, Supplier address and Purchase Order sub programs and also compile and link edit the Validation Part Suppler program.

Step1: Compile Supplier Sub program

Step2: Compile Supplier Address Sub program

Step3: Compile Parts Sub program

Step4: Compile Purchase Order Program

Step5: Compile Validation Part Supplier Program

Step6: Link edit Validation Part Supplier Program

1. **JCL Name: COMPRPT.jcl**

**Description:** This job compiles the Control Break report for Part Supplier.

Step1: Compile Control Break Report for Part Supplier

Step2: Link edit Control Break Report for Part Supplier

**Copy Books:**

1. **Copy Book Name: PRTSUBAD.cpy**

**Description:** This copy book has Parts, Supplier, Supplier Address and Purchase order information.

01 PART-SUPP-ADDR-PO.

05 IN-PARTS.

10 IN-PART-NUMBER PIC X(23) VALUE SPACES.

10 IN-PART-NAME PIC X(14) VALUE SPACES.

10 IN-SPEC-NUMBER PIC X(07) VALUE SPACES.

10 IN-GOVT-COMML-CODE PIC X(01) VALUE SPACES.

10 IN-BLUEPRINT-NUMBER PIC X(10) VALUE SPACES.

10 IN-UNIT-OF-MEASURE PIC X(03) VALUE SPACES.

10 IN-WEEKS-LEAD-TIME PIC 9(03) VALUE ZERO.

10 IN-VEHICLEI-MAKE PIC X(03) VALUE SPACES.

88 IN-CHRYSLER VALUE 'CHR'.

88 IN-FORD VALUE 'FOR'.

88 IN-GM VALUE 'GM '.

88 IN-VOLKSWAGON VALUE 'VW '.

88 IN-TOYOTA VALUE 'TOY'.

88 IN-JAGUAR VALUE 'JAG'.

88 IN-PEUGEOT VALUE 'PEU'.

88 IN-BMW VALUE 'BMW'.

10 IN-VEHICLE-MODEL PIC X(10) VALUE SPACES.

10 IN-VEHICLE-YEAR PIC X(04) VALUE '0000'.

10 FILLER PIC X(14) VALUE SPACES.

05 IN-SUPPLIERS.

10 IN-SUPPLIER-CODE PIC X(10) VALUE SPACES.

10 IN-SUPPLIER-TYPE PIC X(01) VALUE SPACES.

88 IN-SUBCONTRACTOR VALUE 'S'.

88 IN-DISTRIBUTOR VALUE 'D'.

88 IN-MANUFACTURER VALUE 'M'.

88 IN-IMPORTER VALUE 'I'.

10 IN-SUPPLIER-NAME PIC X(15) VALUE SPACES.

10 IN-SUPPLIER-PERF PIC 9(03) VALUE ZERO.

10 IN-SUPPLIER-RATING PIC X(01) VALUE SPACES.

88 IN-HIGHEST-QUALITY VALUE '3'.

88 IN-AVERAGE-QUALITY VALUE '2'.

88 IN-LOWEST-QUALITY VALUE '1'.

10 IN-SUPPLIER-STATUS PIC X(01) VALUE SPACES.

88 IN-GOVT-COMM VALUE '1'.

88 IN-GOVT-ONLY VALUE '2'.

88 IN-COMMERCIAL-ONLY VALUE '3'.

10 IN-SUPPLIER-ACT-DATE PIC 9(08) VALUE ZERO.

05 IN-SUPP-ADDRESS OCCURS 3 TIMES INDEXED BY ADDR-IDX.

10 IN-ADDRESS-TYPE PIC X(01) VALUE SPACES.

88 IN-ORDER-ADDRESS VALUE '1'.

88 IN-SCHED-ADDRESS VALUE '2'.

88 IN-REMIT-ADDRESS VALUE '3'.

10 IN-ADDRESS-1 PIC X(15) VALUE SPACES.

10 IN-ADDRESS-2 PIC X(15) VALUE SPACES.

10 IN-ADDRESS-3 PIC X(15) VALUE SPACES.

10 IN-CITY PIC X(15) VALUE SPACES.

10 IN-ADDR-STATE PIC X(02) VALUE SPACES.

10 IN-ZIP-CODE PIC 9(10) VALUE ZERO.

05 IN-PURCHASE-ORDER OCCURS 3 TIMES INDEXED BY PO-IDX.

10 IN-PO-NUMBER PIC X(06) VALUE SPACES.

10 IN-BUYER-CODE PIC X(03) VALUE SPACES.

10 IN-QUANTITY PIC S9(7) VALUE ZERO.

10 IN-UNIT-PRICE PIC S9(7)V99 VALUE ZERO.

10 IN-ORDER-DATE PIC 9(08) VALUE ZERO.

10 IN-DELIVERY-DATE PIC 9(08) VALUE ZERO.

1. **Copy Book Name: PRTS.cpy**

**Description:** This copy book has Parts information.

01 PARTS.

05 PART-NUMBER PIC X(23) VALUE SPACES.

05 PART-NAME PIC X(14) VALUE SPACES.

05 SPEC-NUMBER PIC X(07) VALUE SPACES.

05 GOVT-COMML-CODE PIC X(01) VALUE SPACES.

05 BLUEPRINT-NUMBER PIC X(05) VALUE SPACES.

05 UNIT-OF-MEASURE PIC X(03) VALUE SPACES.

05 WEEKS-LEAD-TIME PIC S9(04) COMP VALUE ZEROS.

05 VEHICLE-MAKE PIC X(03) VALUE SPACES.

88 CHRYSLER VALUE 'CHR'.

88 FORD VALUE 'FOR'.

88 GM VALUE 'GM '.

88 VOLKSWAGON VALUE 'VW '.

88 TOYOTA VALUE 'TOY'.

88 JAGUAR VALUE 'JAG'.

88 PEUGEOT VALUE 'PEU'.

88 BMW VALUE 'BMW'.

05 VEHICLE-MODEL PIC X(05) VALUE SPACES.

05 VEHICLE-YEAR PIC X(04) VALUE '0000'.

1. **Copy Book Name: SUPPLIER.cpy**

**Description:** This copy book has Supplier information.

01 SUPPLIERS.

05 SUPPLIER-CODE PIC X(05) VALUE SPACES.

05 SUPPLIER-TYPE PIC X(01) VALUE SPACES.

88 SUBCONTRACTOR VALUE 'S'.

88 DISTRIBUTOR VALUE 'D'.

88 MANUFACTURER VALUE 'M'.

88 IMPORTER VALUE 'I'.

05 SUPPLIER-NAME PIC X(15) VALUE SPACES.

05 SUPPLIER-PERF PIC 9(03) COMP VALUE ZERO.

05 SUPPLIER-RATING PIC X(01) VALUE SPACES.

88 HIGHEST-QUALITY VALUE '3'.

88 AVERAGE-QUALITY VALUE '2'.

88 LOWEST-QUALITY VALUE '1'.

05 SUPPLIER-STATUS PIC X(01) VALUE SPACES.

88 GOVT-COMM VALUE '1'.

88 GOVT-ONLY VALUE '2'.

88 COMMERCIAL-ONLY VALUE '3'.

05 SUPPLIER-ACT-DATE PIC X(08) VALUE SPACES.

1. **Copy Book Name: SUPPADDR.cpy**

**Description:** This copy book has Supplier Address information.

01 SUPP-ADDRESS.

05 ADDRESS-TYPE PIC X(01) VALUE SPACES.

88 ORDER-ADDRESS VALUE '1'.

88 SCHED-ADDRESS VALUE '2'.

88 REMIT-ADDRESS VALUE '3'.

05 ADDRESS-1 PIC X(15) VALUE SPACES.

05 ADDRESS-2 PIC X(15) VALUE SPACES.

05 ADDRESS-3 PIC X(15) VALUE SPACES.

05 CITY PIC X(15) VALUE SPACES.

05 ADDR-STATE PIC X(02) VALUE SPACES.

05 ZIP-CODE PIC X(05) VALUE SPACES.

1. **Copy Book Name: PURCHRDS.cpy**

**Description:** This copy book has Purchase Order Address information.

01 PURCHASE-ORDERS.

05 PO-NUMBER PIC X(06) VALUE SPACES.

05 BUYER-CODE PIC X(03) VALUE SPACES.

05 QUANTITY PIC S9(8) COMP VALUE ZERO.

05 UNIT-PRICE PIC S9(7)V99 COMP-3 VALUE ZERO.

05 ORDER-DATE PIC X(08) VALUE SPACES.

05 DELIVERY-DATE PIC X(08) VALUE SPACES.

1. **Copy Book Name: ZIPCODE.cpy**

**Description:** This copy book has State and ZIP Code information.

01 ZIP-CODE-TBL.

02 ZIP-ROW OCCURS 72 TIMES.

10 STATE PIC X(16).

10 STATE-AC PIC X(4).

10 ZIP-LOW PIC X(8).

10 ZIP-HIGH PIC X(5).

1. **Copy Book Name: ERROR.cpy**

**Description:** This copy book has Error table information for Part Supplier program.

01 (PRFX)-ERROR-TBL.

05 (PRFX)-ERROR-MSG OCCURS 4 TIMES INDEXED BY PO-IDX.

10 (PRFX)-MSG-NO PIC X(05) VALUE SPACES.

10 (PRFX)-MSG-TEXT PIC X(50) VALUE SPACES.

01 (PRFX)-ERROR-NUM PIC 9(01) VALUE 0.

1. **Copy Book Name: ERRORSUB.cpy**

**Description:** This copy book has Error table information for sub Programs.

01 (PRFX)-ERROR-TBL.

05 (PRFX)-ERROR-MSG OCCURS 4 TIMES INDEXED BY PO-IDX.

10 MSG-NO PIC X(05) VALUE SPACES.

10 MSG-TEXT PIC X(50) VALUE SPACES.

01 (PRFX)-ERROR-NUM PIC 9(01) VALUE 0.

**COBOL:**

1. **Cobol Module: PRTS.cbl**

**Description:** This program validates the all Parts mandatory fields. After validation Good and Error records information send to Main Program - Part supplier program

Step1: Validate mandatory fields like Part number, Part name, Vehicle Model, Vehicle year has low-values and spaces. If these fields contain low values and spaces, then set the return code 8 and move the record into error record layout along with Error message.

Step2: Validate Week lead time must be numeric and between 1 and 4. If out of boundaries, then set the return code 8 and move the record into error record layout along with Error message

Step3: Validate vehicle-make values must be 88 level fields (Refer copy book). If out of boundaries, then set the return code 8 and move the record into error record layout along with Error message.

Step4: Validate Vehicle Year must be between 1990 and 2019. If out of boundaries, then set the return code 8 and move the record into error record layout along with Error message.

1. **Cobol Module: SUPPLIER.cbl**

**Description:** This program validates the all Supplier mandatory fields. After validation Good and Error records information send to Main Program -Part supplier program

Step1: Validate mandatory fields like supplier code, Supplier name, Supplier preference has low-values and spaces. If these fields contain low values and spaces, then set the return code 8 and move the record into error record layout along with Error message.

Step2: Validate supplier type, supplier rating and supplier status must be one of the listed 88 levels(Refer copy book) . If out of boundaries, then set the return code 8 and move the record into error record layout along with Error message

Step3: Validate supplier act date. If out of boundaries, then set the return code 8 and move the record into error record layout along with Error message.

Step4: If supplier type is “S- subcontractor” then supplier rating must be High quality. If out of boundaries other than 88 level fields (D, M, I), then set the return code 8 and move the record into error record layout along with Error message

1. **Cobol Module: SUPPADDR.cbl**

**Description:** This program validates the all Supplier address mandatory fields along with State and ZIP code. After validation Good and Error records information send to Main Program - Part supplier program

Step1: Validate mandatory fields like Address type, Address1, City, Address State and Zip code has low-values and spaces. If these fields contain low values and spaces, then set the return code 8 and move the record into error record layout along with Error message.

Step2: Validate Address type must be 88 level fields (Refer copy book). If out of boundaries, then set the return code 8 and move the record into error record layout along with Error message

Step3: ZIP Code and Address State must match the Sate Zip file values. If out of boundaries, then set the return code 8 and move the record into error record layout along with Error message.

1. **Cobol Module: PURCHORN.cbl**

**Description:** This program validates the all Purchase order mandatory fields. After validation Good and Error records information send to Main Program - Part supplier program

Step1: Validate mandatory fields like Purchase order number, Buyer code, Order date, has low-values and spaces. If these fields contain low values and spaces, then set the return code 8 and move the record into error record layout along with Error message.

Step2: Validate Quantity must be numeric. If it is non-numeric, then set the return code 8 and move the record into error record layout along with Error message

Step3: Quantity value must be 0 to 999999. If out of boundaries, then set the return code 8 and move the record into error record layout along with Error message.

Step4: UNIT price must numeric and Quantity is greater than Zero and Unit price values should be between $1 and $1,000,000.00. If out of boundaries, then set the return code 8 and move the record into error record layout along with Error message.

Step5: Order date must be validating with date routine. If out of boundaries, then set the return code 8 and move the record into error record layout along with Error message.

Step6: Deliver date is optional but it has value. Validate the date with date routine and Delivery date is later than order data. If out of boundaries, then set the return code 8 and move the record into error record layout along with Error message.

**5.Cobol Module: PRTSUPP.cbl**

**Description:** This program validates the all part supplier mandatory fields and generate Parts, Supplier, Supplier address, Purchase order, Valid record part supplier file and Error log file.

Step1: Open Input Part Supplier and Zip files

Step2: Open Output Part, Supplier, Supplier Address, Purchase Order, Good part supplier and Error log files.

Step3: Create Header page record for Part, Supplier, Supplier Address, Purchase order and Error log file

Step4: Read ZIP file into Internal Table

Step5: Read Part Supplier file into Par supplier layout.

Step6: Process the Part supplier data until end of the file and initialise all required fields

Step7: Call the PARTS validation program and validate all parts layout mandatory fields.

Step8: Once validation is completed then all valid parts records will be written into part file.

Step9: If any errors are less than 4 then those records will be written into Error log file with Error reason. If the errors are more than 3 then those records will be written into Error file with a single message

Step10: Call the SUPPLIER validation program and validate all supplier layout mandatory fields.

Step11: Once validation is completed then all valid Supplier records will be written into a supplier file.

Step12: If any errors are less than 4 then those records will be written into Error log file with Error reason. If the errors are more than 3 then those records will be written into Error file with a single message

Step13: Call the SUPPADDR validation program and validate all supplier Address layout mandatory fields along with Sate and ZIP code.

Step14: Once validation is completed then all valid Supplier Address records will be written into a supplier file.

Step15: If any errors are less than 4 then those records will be written into Error log file with Error reason. If the errors are more than 3 then those records will be written into Error file with a single message

Step16: Call the PURCHORN validation program and validate all Purchase order layout mandatory fields.

Step17: Once validation is completed then all valid Purchase order records will be written into purchase order file.

Step18: If any errors are less than 4 then those records will be written into Error log file with Error reason. If the errors are more than 3 then those records will be written into Error file with a single message

Step19: Handle all type of Exceptions Handling like file open, close, read and write. If any error ends the program with proper Error messages.

Step20: Once above all four subprograms validation is completed successfully then all valid records will be written into good part supplier file (GPARTSUP) and perform this process until end of the records.

Step21: Close all Input Part supplier, ZIP code file and Output Part, supplier, Supplier address, purchase order, Good Part Supplier file and Error log

Step22: Go back

**6.Cobol Module: RPTPGM.cbl**

**Description:** This program generated the Control Break report for part supplier

Step1: Open Input valid part supplier file (GPARTSUP)

Step2: Open Output Report file

Step3: Handle all file open, close, read and write Exception Handling. If any issue program end with proper reason.

Step4: Create Report Labels and Format Layout.

Step5: Read part supplier file

Step6: Process the data until end of the file

Step7: Move part name, weeks lead time, vehicle Make, supplier name, Supplier rating, Order address, Shed Address and Remit address fields to Report layout as per requirement

Step7: Calculate the total number of Purchase order

Step8: Calculate the total number of Unit price for purchase order.

Step9: Calculate the total number of Quantity in the purchase order for part

Step10: Write the records into Report files. This process will continue unit end of the input part supplier file.

Step11: Close Input and Output files.

Step12: Go back