Program 1

%LET fname = %sysfunc(today(),yymmddn8.);

**PROC** **SQL** NOPRINT;

CREATE TABLE Sx.ccben\_&fname.srcdata

AS

SELECT \*

FROM connection to oracle

( select distinct

CUST\_SESSION\_ID CURRENT\_SESSION\_ID

, CUST\_AGENT\_SESSION\_ID CURRENT\_AGENT\_SESSION\_ID

, WORKGROUP\_DESC

, AGENT\_ID

, Agent\_FIRST\_NAME

, Agent\_LAST\_NAME

, CRC\_NAME

, to\_char(START\_TIME,'MM-DD-YYYY') start\_date

, to\_char(START\_TIME,'HH24:MI:SS') start\_time

, case when length(ATTR\_VALUE)=**6** then upper(ATTR\_VALUE) end policy\_ATTR\_VALUE

, case when length(ATTR\_VALUE)=**7** then ATTR\_VALUE end driver\_licence\_ATTR\_VALUE

, DESIGNATED\_CUSTOMER\_PERSON\_ORG

, case when DESIGNATED\_CUSTOMER\_PERSON\_ORG=PER\_PERSON\_ORG\_ID then SURNAME end dc\_PERSON\_SURNAME

, case when DESIGNATED\_CUSTOMER\_PERSON\_ORG=PER\_PERSON\_ORG\_ID then FIRST\_NAME end dc\_PERSON\_FIRST\_NAME

, case when DESIGNATED\_CUSTOMER\_PERSON\_ORG=PER\_PERSON\_ORG\_ID then SECOND\_NAME end dc\_PERSON\_SECOND\_NAME

, case when DESIGNATED\_CUSTOMER\_PERSON\_ORG=PNC\_PERSON\_ORG\_ID then AREA\_CDE end dc\_AREA\_CDE

, case when DESIGNATED\_CUSTOMER\_PERSON\_ORG=PNC\_PERSON\_ORG\_ID then TELEPHONE\_NUMBER end dc\_TELEPHONE\_NUMBER

, PRINCIPAL\_OPERATOR\_DLIC PRINCIPAL\_OPERATOR\_DL

, case when PRINCIPAL\_OPERATOR\_DLIC=DRIVER\_LICENCE\_NUMBER then BCDL\_PERSON\_ORG\_ID end po\_PERSON\_ORG\_ID

, case when PRINCIPAL\_OPERATOR\_DLIC=DRIVER\_LICENCE\_NUMBER and BCDL\_PERSON\_ORG\_ID=PER\_PERSON\_ORG\_ID then SURNAME end po\_PERSON\_SURNAME

, case when PRINCIPAL\_OPERATOR\_DLIC=DRIVER\_LICENCE\_NUMBER and BCDL\_PERSON\_ORG\_ID=PER\_PERSON\_ORG\_ID then FIRST\_NAME end po\_PERSON\_FIRST\_NAME

, case when PRINCIPAL\_OPERATOR\_DLIC=DRIVER\_LICENCE\_NUMBER and BCDL\_PERSON\_ORG\_ID=PER\_PERSON\_ORG\_ID then SECOND\_NAME end po\_PERSON\_SECOND\_NAME

, case when PRINCIPAL\_OPERATOR\_DLIC=DRIVER\_LICENCE\_NUMBER and BCDL\_PERSON\_ORG\_ID=PNC\_PERSON\_ORG\_ID then AREA\_CDE end po\_AREA\_CDE

, case when PRINCIPAL\_OPERATOR\_DLIC=DRIVER\_LICENCE\_NUMBER and BCDL\_PERSON\_ORG\_ID=PNC\_PERSON\_ORG\_ID then TELEPHONE\_NUMBER end po\_TELEPHONE\_NUMBER

, BCDL\_PERSON\_ORG\_ID

, case when BCDL\_PERSON\_ORG\_ID=PER\_PERSON\_ORG\_ID then SURNAME end bcdl\_PERSON\_SURNAME

, case when BCDL\_PERSON\_ORG\_ID=PER\_PERSON\_ORG\_ID then FIRST\_NAME end bcdl\_PERSON\_FIRST\_NAME

, case when BCDL\_PERSON\_ORG\_ID=PER\_PERSON\_ORG\_ID then SECOND\_NAME end bcdl\_PERSON\_SECOND\_NAME

, case when BCDL\_PERSON\_ORG\_ID=PNC\_PERSON\_ORG\_ID then AREA\_CDE end bcdl\_AREA\_CDE

, case when BCDL\_PERSON\_ORG\_ID=PNC\_PERSON\_ORG\_ID then TELEPHONE\_NUMBER end bcdl\_TELEPHONE\_NUMBER

from (

select

ISQ.CONNECTION\_ID CUST\_SESSION\_ID

, ISQ.INTERACTION\_ID CUST\_AGENT\_SESSION\_ID

, ASQ.WORKGROUP\_DESC

, ASQ.AGENT\_DBID AGENT\_ID

, ASQ.FIRST\_NAME Agent\_FIRST\_NAME

, ASQ.LAST\_NAME Agent\_LAST\_NAME

, REPLACE(ISQ.CRC\_NAME,'"',NULL) CRC\_NAME

, ISQ.START\_DATE\_TIME START\_TIME

, ISQ.LICENSE\_POLICY\_VALUE ATTR\_VALUE

,APP.DESIGNATED\_CUSTOMER\_PERSON\_ORG

,APP.PRINCIPAL\_OPERATOR\_DLIC

,BCDL.DRIVER\_LICENCE\_NUMBER

,BCDL.PERSON\_ORG\_ID bcdl\_PERSON\_ORG\_ID

,PER.PERSON\_ORG\_ID per\_PERSON\_ORG\_ID

,PER.PERSON\_NAME\_TYPE\_CDE

,PER.FIRST\_NAME, PER.SECOND\_NAME, PER.SURNAME

,PNC.PERSON\_ORG\_ID pnc\_PERSON\_ORG\_ID

,PNC.AREA\_CDE

,PNC.EQUIPMENT\_TYPE\_CDE

,PNC.PHONE\_NUM\_USE\_CDE

,PNC.TELEPHONE\_NUMBER

from SQM.INTERACTION\_SQM ISQ

left join SQM.AGENT\_SQM ASQ on ISQ.AGENT\_ID = ASQ.USER\_NAME

left join RIALTO.V\_ACCEPTED\_POLICY\_PERIOD APP on (upper(ISQ.LICENSE\_POLICY\_VALUE)=APP.POLICY\_NUMBER and ISQ.START\_DATE\_TIME>=APP.PERIOD\_EFFECTIVE\_DATE and ISQ.START\_DATE\_TIME<=APP.PERIOD\_EXPIRY\_DATE)

left join RIALTO.BC\_DRIVERS\_LICENCE BCDL on (ISQ.LICENSE\_POLICY\_VALUE=BCDL.DRIVER\_LICENCE\_NUMBER or APP.PRINCIPAL\_OPERATOR\_DLIC=BCDL.DRIVER\_LICENCE\_NUMBER)

left join RIALTO.PERSON\_NAME\_CURR PER on (APP.DESIGNATED\_CUSTOMER\_PERSON\_ORG=PER.PERSON\_ORG\_ID or BCDL.PERSON\_ORG\_ID=PER.PERSON\_ORG\_ID)

left join RIALTO.PERSON\_ORG\_PHN\_NUM\_CURR PNC on (APP.DESIGNATED\_CUSTOMER\_PERSON\_ORG=PNC.PERSON\_ORG\_ID or BCDL.PERSON\_ORG\_ID=PNC.PERSON\_ORG\_ID)

where ISQ.LICENSE\_POLICY\_TYPE in ('DRLIC', 'BC Driver''s Licence', 'Policy Number', 'POLICY')

and ASQ.DEPARTMENT\_DESC = 'CC' and ASQ.WORKGROUP\_DESC in ('FC-GCC','SC-NVR','FC-NVR','DTV')

and (length(ISQ.LICENSE\_POLICY\_VALUE)=**6** or (length(ISQ.LICENSE\_POLICY\_VALUE)=**7** and substr(ISQ.LICENSE\_POLICY\_VALUE,**1**,**1**) in ('0','1','2','3','4','5','6','7','8','9')))

and ISQ.CRC\_NAME not in ('Misdirected','No Code','Wrong Number' , 'Redirected to Another Dept', 'POS Support', 'Police Support')

)

a

where

CUST\_SESSION\_ID <> ' '

and PERSON\_NAME\_TYPE\_CDE='P'

and EQUIPMENT\_TYPE\_CDE='TEL'

and PHONE\_NUM\_USE\_CDE='H'

and AREA\_CDE in (**250**,**604**,**778**,**236**)

order by CUST\_SESSION\_ID, CUST\_AGENT\_SESSION\_ID );

disconnect from oracle;

**QUIT**;

**DATA** Sx.CCBEN\_&fname.srcdata;

id=\_N\_;

SET Sx.CCBEN\_&fname.srcdata;

**RUN**;

**QUIT**;

**DATA** Sx.CCBEN\_&fname.srcdata\_B;

SET Sx.CCBEN\_&fname.srcdata;

start\_date1 = SUBSTR(start\_date,**1**,**10**);

START\_DATE2 = INPUT(start\_date1, ANYDTDTE11.);

FORMAT START\_DATE2 DATE9.;

start\_time1 = SUBSTR(start\_time,**1**,**10**);

START\_TIME2 = INPUT(start\_time1, ANYDTTME11.);

**RUN**;

**QUIT**;

**PROC** **SQL**;

CREATE TABLE Sx.CCBEN\_&fname.srcdata AS

SELECT id FORMAT=**8.**

, CURRENT\_SESSION\_ID FORMAT=$16.

, CURRENT\_AGENT\_SESSION\_ID FORMAT=$50.

, WORKGROUP\_DESC FORMAT=$06.

, AGENT\_ID FORMAT=**8.**

, Agent\_FIRST\_NAME FORMAT=$64.

, Agent\_LAST\_NAME FORMAT=$64.

, COMPRESS(CRC\_NAME,'"') AS CRC\_NAME FORMAT=$50.

, START\_DATE2 as START\_DATE FORMAT=DATE9.

, START\_TIME2 as START\_TIME FORMAT=TIME8.

, Policy\_ATTR\_VALUE FORMAT=$6.

, Driver\_licence\_ATTR\_VALUE FORMAT=$07.

, DESIGNATED\_CUSTOMER\_PERSON\_ORG FORMAT=**16.**

, dc\_PERSON\_SURNAME FORMAT=$25.

, dc\_PERSON\_FIRST\_NAME FORMAT=$25.

, dc\_PERSON\_SECOND\_NAME FORMAT=$25.

, dc\_AREA\_CDE FORMAT=$3.

, dc\_TELEPHONE\_NUMBER FORMAT=$7.

, PRINCIPAL\_OPERATOR\_DL FORMAT=$7.

, po\_PERSON\_ORG\_ID FORMAT=**16.**

, po\_PERSON\_SURNAME FORMAT=$25.

, po\_PERSON\_FIRST\_NAME FORMAT=$25.

, po\_PERSON\_SECOND\_NAME FORMAT=$25.

, po\_AREA\_CDE FORMAT=$03.

, po\_TELEPHONE\_NUMBER FORMAT=$07.

, bcdl\_PERSON\_ORG\_ID FORMAT=**16.**

, bcdl\_PERSON\_SURNAME FORMAT=$25.

, bcdl\_PERSON\_FIRST\_NAME FORMAT=$25.

, bcdl\_PERSON\_SECOND\_NAME FORMAT=$25.

, bcdl\_AREA\_CDE FORMAT=$3.

, bcdl\_TELEPHONE\_NUMBER FORMAT=$7.

FROM Sx.CCBEN\_&fname.srcdata\_B;

**QUIT**;

**PROC** **EXPORT** DATA=Sx.CCBEN\_&fname.srcdata(drop=id) DBMS=DLM OUTFILE="ccben\_&fname.srcdata.txt" REPLACE;

DELIMITER=" ";

**RUN**;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

Program 2:

%LET fname = %sysfunc(today(),yymmddn8.);

**PROC** **SUMMARY** DATA=CCBEN\_&fname. MISSING NWAY;

OUTPUT OUT=RECORD\_COUNT (DROP=\_TYPE\_ RENAME=(\_FREQ\_=src\_data));

**RUN**;

%***M\_SAMPLE***;

**PROC** **SQL**;

CREATE TABLE SAMPLEDATA AS

SELECT DISTINCT current\_session\_id

FROM SAMPLEDATA (KEEP=current\_session\_id)

ORDER BY current\_session\_id;

**QUIT**;

**PROC** **SQL**;

CREATE TABLE CCBEN\_&fname. AS

SELECT A.\*

FROM CCBEN\_&fname. AS A

WHERE A.current\_session\_id NOT IN (SELECT current\_session\_id FROM SAMPLEDATA);

**QUIT**;

**PROC** **DATASETS** NOLIST;

DELETE SAMPLEDATA;

**RUN**;

**DATA** CCBEN\_&fname.;

SET CCBEN\_&fname.;

ATTRIB poi FORMAT=F16.0

an0 FORMAT=$64.

an1 FORMAT=$64.

wgd FORMAT=$06.

sdt FORMAT=DATE9.

stm FORMAT=TIME.

cn0 FORMAT=$25.

cn1 FORMAT=$25.

cn2 FORMAT=$25.

ac FORMAT=$03.

tn FORMAT=$07.;

SELECT;

WHEN (dc\_PERSON\_SURNAME~=' ' & dc\_AREA\_CDE IN ('250','604','778', '236') & dc\_TELEPHONE\_NUMBER~=' ') DO;

poi=DESIGNATED\_CUSTOMER\_PERSON\_ORG;

an0=Agent\_LAST\_NAME;

an1=Agent\_FIRST\_NAME;

wgd=WORKGROUP\_DESC;

sdt=start\_date;

stm=start\_time;

cn0=dc\_PERSON\_SURNAME;

cn1=dc\_PERSON\_FIRST\_NAME;

cn2=dc\_PERSON\_SECOND\_NAME;

ac =dc\_AREA\_CDE;

tn =LEFT(dc\_TELEPHONE\_NUMBER);

IF tn~=' ' & SUBSTR(tn,**1**,**1**)~='0' THEN OUTPUT;

END;

OTHERWISE;

END;

SELECT;

WHEN (po\_PERSON\_SURNAME~=' ' & po\_AREA\_CDE IN ('250','604','778', '236' ) & po\_TELEPHONE\_NUMBER~=' ') DO;

poi=po\_PERSON\_ORG\_ID;

an0=Agent\_LAST\_NAME;

an1=Agent\_FIRST\_NAME;

wgd=WORKGROUP\_DESC;

sdt=start\_date;

stm=start\_time;

cn0=po\_PERSON\_SURNAME;

cn1=po\_PERSON\_FIRST\_NAME;

cn2=po\_PERSON\_SECOND\_NAME;

ac =po\_AREA\_CDE;

tn =LEFT(po\_TELEPHONE\_NUMBER);

IF tn~=' ' & SUBSTR(tn,**1**,**1**)~='0' THEN OUTPUT;

END;

OTHERWISE;

END;

SELECT;

WHEN (bcdl\_PERSON\_SURNAME~=' ' & bcdl\_AREA\_CDE IN ('250','604','778', '236') & bcdl\_TELEPHONE\_NUMBER~=' ') DO;

poi=bcdl\_PERSON\_ORG\_ID;

an0=Agent\_LAST\_NAME;

an1=Agent\_FIRST\_NAME;

wgd=WORKGROUP\_DESC;

sdt=start\_date;

stm=start\_time;

cn0=bcdl\_PERSON\_SURNAME;

cn1=bcdl\_PERSON\_FIRST\_NAME;

cn2=bcdl\_PERSON\_SECOND\_NAME;

ac =bcdl\_AREA\_CDE;

tn =LEFT(bcdl\_TELEPHONE\_NUMBER);

IF tn~=' ' & SUBSTR(tn,**1**,**1**)~='0' THEN OUTPUT;

END;

OTHERWISE;

END;

**RUN**;

**PROC** **SORT** DATA=CCBEN\_&fname. OUT=CCBEN (RENAME=(ac=area\_cde tn=telephone\_number));

BY ac tn;

WHERE LENGTH(tn)=**7** AND SUBSTR(tn,**7**,**1**) IN ("0","1","2","3","4","5","6","7","8","9");

**RUN**;

**PROC** **SORT** OUT=CCBEN NODUPLICATES;

BY area\_cde telephone\_number;

**RUN**;

%INCLUDE “/NotDeceased.sas";

%***NOTDECEASED*** (d=CCBEN);

**PROC** **DATASETS**;

MODIFY CCBEN;

RENAME area\_cde=ac telephone\_number=tn;

**QUIT**;

**DATA** X (KEEP=ac tn prj sdt) A (KEEP=person\_org\_id prj sdt);

SET X.CALLDISP X.CALLDISP2003;

SELECT (dis);

WHEN ("0") /\*- Deceased \*/

IF INTCK("MONTH",ddt,TODAY())<=**24** THEN OUTPUT;

WHEN ("2") /\*- Completed But Do Not Call Again \*/

OUTPUT;

WHEN ("3") /\*- Do Not Call Again \*/

OUTPUT;

WHEN ("5") /\*- Current Sample \*/

IF UPCASE(TRIM(prj))="SQM\_CC\_DTVI" THEN OUTPUT;

OTHERWISE;

END;

**RUN**;

**PROC** **SORT** DATA=X NODUPLICATES;

BY ac tn;

**RUN**;

**DATA** CCBEN;

MERGE CCBEN (IN=S) X (IN=X);

BY ac tn;

IF S & NOT(X);

**RUN**;

**PROC** **SORT** DATA=A NODUPLICATES;

BY person\_org\_id;

**RUN**;

**DATA** A (KEEP=area\_cde telephone\_number RENAME=(area\_cde=ac telephone\_number=tn));

MERGE A (IN=A) X.CALLDISP2003A (IN=X);

BY person\_org\_id;

IF A & X;

**RUN**;

**PROC** **SORT** DATA=A;

BY ac tn;

**RUN**;

**DATA** S.CCBEN\_&fname.;

MERGE CCBEN (IN=S) A (IN=A);

BY ac tn;

IF S & NOT(A);

sample\_date= TODAY();

ATTRIB sample\_date LABEL="SAMPLE DATE" FORMAT=DATE9.;

**RUN**;

**PROC** **SORT** DATA=S.CCBEN\_&fname.;

BY id;

**RUN**;

**PROC** **SUMMARY** DATA=S.CCBEN\_&fname. MISSING NWAY;

CLASS sample\_date;

OUTPUT OUT=TMPFIL01 (DROP=\_TYPE\_ RENAME=(\_FREQ\_=sample\_data));

**RUN**;

**DATA** RECORD\_COUNT;

ATTRIB sample\_date LABEL="SAMPLE DATE"

src\_data LABEL="# RECORDS (SRC FILE)"

sample\_data LABEL="# RECORDS (SAMPLE)";

MERGE RECORD\_COUNT (KEEP=src\_data) TMPFIL01 (KEEP=sample\_date sample\_data);

**RUN**;

**PROC** **PRINT** DATA=RECORD\_COUNT LABEL NOOBS UNIFORM;

FORMAT sample\_date DATE9. src\_data sample\_data COMMA9.0;

**RUN**;

**PROC** **DATASETS** NOLIST;

DELETE RECORD\_COUNT TMPFIL01;

**RUN**;

**PROC** **SQL**;

CREATE TABLE CCBEN AS

SELECT "ccben\_&fname." AS sfn

, id FORMAT Z5.0

, an0

, an1

, wgd

, sdt FORMAT DATE9.

, stm FORMAT TIME.

, cn0

, cn1

, cn2

, ac

, tn

, crc\_name

FROM S.CCBEN\_&fname.

ORDER BY id;

**QUIT**;

**PROC** **EXPORT** DATA=CCBEN DBMS=DLM OUTFILE="ccben\_&fname..sas.txt" REPLACE;

DELIMITER="~";

**RUN**;

**QUIT**;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/Q

Questions:

1. Explain in lay term what program 1 trying to do
2. Explain in lay term what program 2 trying to do
3. Explain the relationship between the two programs and list out dependencies
4. Once running program 2, we noticed that number of records as reduced significantly and some agents were missing from the output. Explain your thought process and list out step by step your approach to investigate/resolve the issue
5. Based on the two programs above, draw a diagram to explain the relationship between various tables and outputs.

Note: ignore all directories and focus on the tables/output.