



Per Scholas Capstone Project

FALL COHORT 2022

Grace Lee

grace lee

FALL COHORT 2022

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Description

The program Z93179.CBL(CAPSTONE) prints an output based on the data from Z93179.DATA. The output is placed in a GDG file called Z93179.CAPSTONE.GDG that prints the following fields in each record:

- account no.
- account limit
- account balance
- last name
- first name

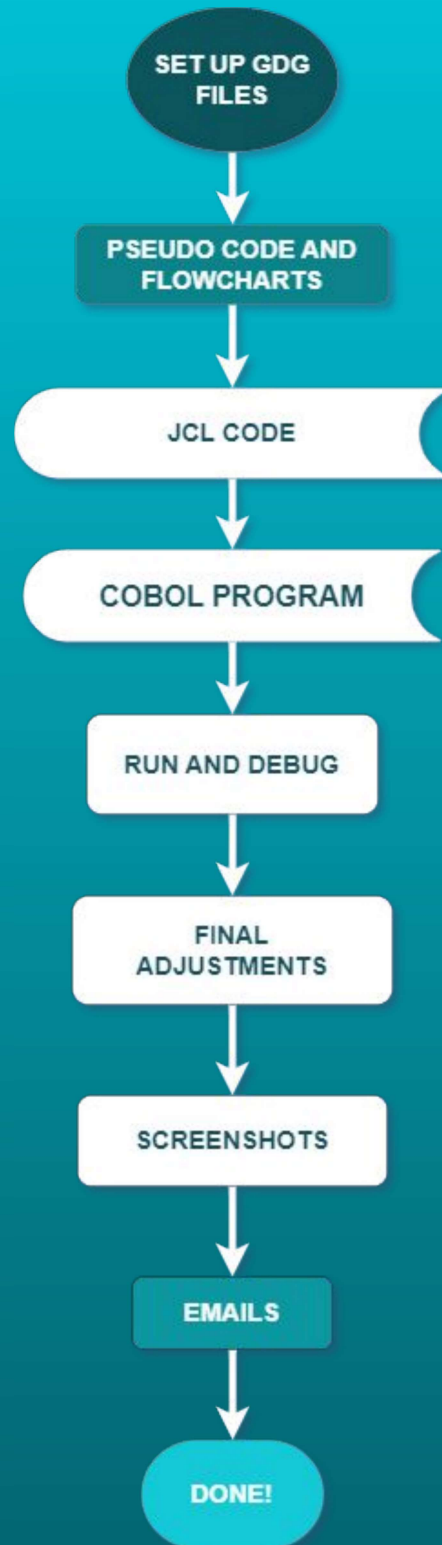
There's a vertical bar at the beginning and end of each record that separates each field.

At the end of the output, there is a trailer/footer that calculates:

- total number of records
- total number of presidents named 'James'
- average account limit
- average account balance.

To achieve the results desired, I first created flowcharts to understand the process of the program and the necessary steps I need to complete. Then, I wrote a pseudo code and used the same variable names I will use in the program. Once I completed the planning, I prepared the GDG files and JCL compiler before moving on to write the code in COBOL. After running the code and debugging, I achieved the results desired and took screenshots. I finished the project by writing emails to the Job Schedulers and to the Reporting System.

Workflow



Pseudo Code

START

Open Input and Output Files

Read PRESIDENT into PF-INPUT-RECORD

If at end of file

Display Trailer

Number of Records

Number of Presidents named James

Average Account Limit

Average Account Balance

Move Trailer to Output

REC-COUNT to PRT-REC-COUNT

JAMES-COUNT to PRT-JAMES-COUNT

AVG-ACCT-LIMIT to PRT-AVG-ACCT-LIMIT

AVG-ACCT-BALANCE to PRT-AVG-ACCT-BALANCE

Write Trailer Output

Else

Add 1 to REC-COUNT

If ACCT-FIRST-NAME = 'JAMES', then add 1 to JAMES-COUNT

Arithmetic

Add ACCT-LIMIT to TOTAL-ACCT-LIMIT

Add ACCT-BALANCE to TOTAL-ACCT-BALANCE

Move fields to output

ACCT-NO to ACCT-PRT-NO

ACCT-LIMIT to ACCT-PRT-LIMIT

ACCT-BALANCE to ACCT-PRT-BALANCE

ACCT-LAST-NAME to ACCT-PRT-LAST-NAME

ACCT-FIRST-NAME to ACCT-PRT-FIRST-NAME

Write Record to Output

Loop back to "Read"

Close Files

PRESIDENT

PRESIDENT-PRT

STOP

Email to Job Schedulers

Name: Grace Lee
Email: grace.k.lee@company.com
Phone: (XXX)-XXX-XXXX
Change number: RSEC1234

To all schedulers:

I developed a new program under the name Z93179.CBL(CAPSTONE)

DESCRIPTION:

This program prints an output according to the data from Z93179.DATA. The output is placed in a GDG file called Z93179.CAPSTONE.GDG that prints, in this exact order, each president's account number, account limit, account balance, last name, and first name with a vertical bar "|" separating each field. At the end of the output, there is a trailer/footer that counts the total number of records, the total number of presidents named 'James,' and the average of all the president's account limit, and account balance.

REQUEST: CAPSTONE

INITIAL DATE TO RUN: NOV 28 2022

RUN JOB JCL: File in Z93179.JCL(CAPSTONE)

FREQUENCY: Please run the job 10 times

DEPENDENCY:

This job has to be run after the Z93179.DATA file undergoes an update. Expected date is November 28th, 2022.

ACCEPTABLE RETURN CODE:

The only acceptable return code is 0000. If the return for this job is other than 0000, please call Support. Do not continue with the dependent jobs.

RESTART INSTRUCTIONS:

Please delete the output if the GDG output doesn't show the contents listed in the description. To restart, use Z93179.JCL(DELGDG) to delete the GDG base. Then, place a "D" in the blank field beside each GDG versions to delete. Make necessary changes while in VIEW mode and submit the job again.

REPORTING SYSTEM INFORMATION:

If you need to send the SYSOUT to a report location, then use Z93179K as the Job Name and PRESUPDT as a report name.

PRESIDENT LIST Report to be kept for 7 days under PRESUPDT report name.

Thank you. If you have any questions, please contact me.

Email to Reporting System

Name: Grace Lee
Email: grace.k.lee@company.com
Phone: (XXX)-XXX-XXXX
Change number: RSEC1234

To Reporting Management System Admin:

I developed a new program under the name Z93179.CBL(CAPSTONE) and I would like a new report to be created.

DESCRIPTION OF CAPSTONE

This program prints an output according to the data from Z93179.DATA. The resulting output is placed in a GDG file called Z93179.CAPSTONE.GDG that prints, in this exact order, each president's account number, account limit, account balance, last name, and first name with a vertical bar "|" separating each field. At the end of the output, there is a trailer/footer that counts the total number of records, the total number of presidents named 'James,' and the average of all the president's account limit, and account balance.

REPORT DETAILS:

When referring to this file for reporting, use Z93179RE as Job Name and PRESREPT as report name.

INITIAL DATE TO RUN: NOV 28 2022

RUN JOB JCL: Z93179RE in Z93179.JCL(CAPSTONE)

FREQUENCY: Please run the job 10 times

DEPENDENCY:

This job has to be run after the Z93179.DATA file undergoes an update. Expected date is November 28th, 2022.

ACCEPTABLE RETURN CODE:

The only acceptable return code is 0000. If the return for this job is other than 0000, please call Support. Do not continue with the dependent jobs.

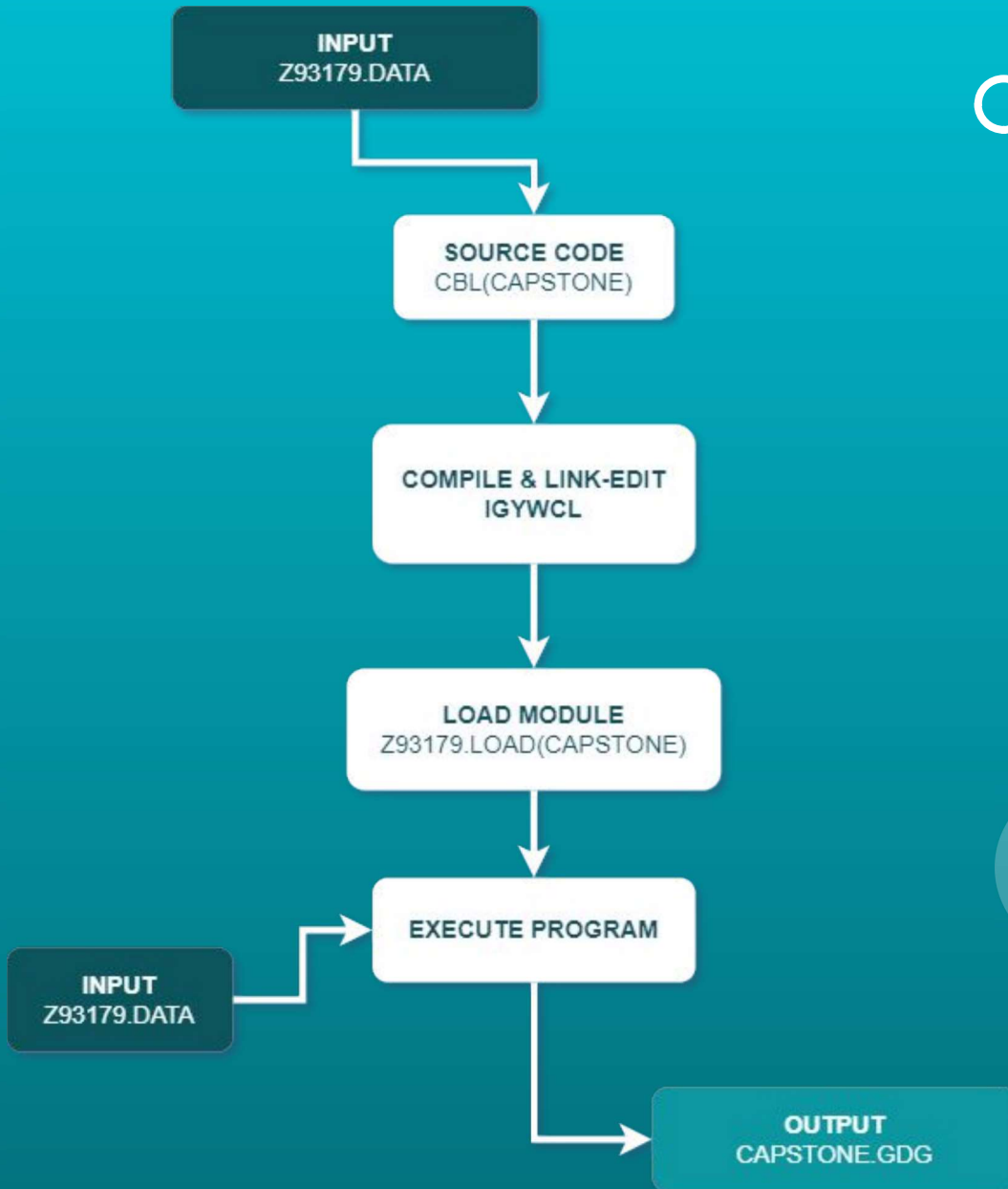
REPORTING SYSTEM INFORMATION:

When they send out an email, they will use Z93179K as the Job Name and PRESUPDT as a report name.

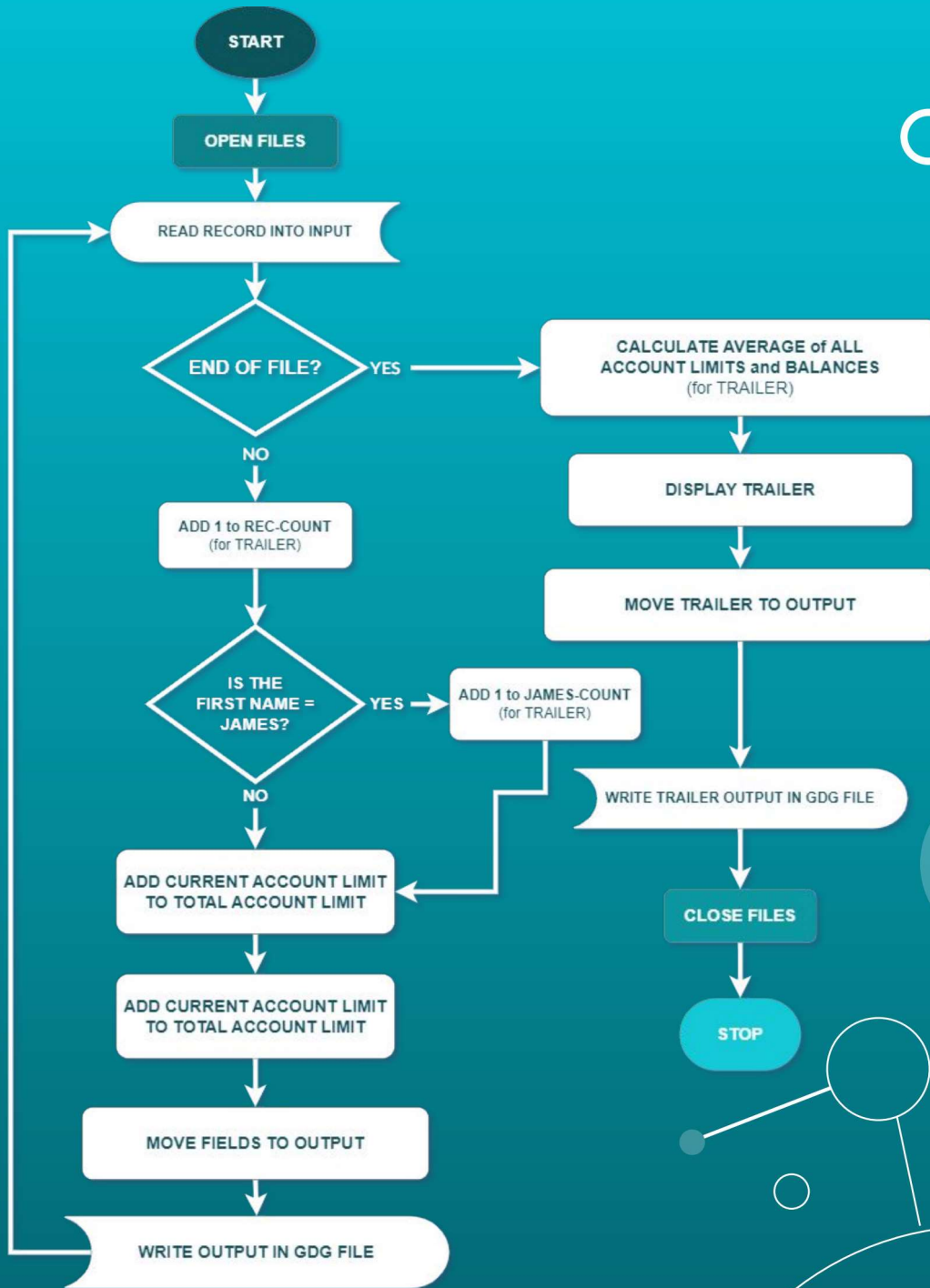
PRESIDENT LIST Report to be kept for 7 days under PRESREPT report name.

Thank you. If you have any questions, please contact me.

Job Flowchart



Program Flowchart



JCL Code

```
000001 //Z93179K JOB CLASS=A,MSGCLASS=H,MSGLEVEL=(1,1),
000002 // REGION=100M,MEMLIMIT=2G,NOTIFY=&SYSUID
000003 //*-----
000004 // EXPORT SYMLIST=* MAKE SYMBOLS AVAILABLE TO DD SYSIN
000005 //*TO BE AVAILABLE IN SYSIN, ANY SET MUST FOLLOW THE EXPORT
000006 //*-----16 --- > ---+----1----+----2----+----3----+----4----< -71
000007 // SET MEMBER=CAPSTONE
000008 // SET COBDSN=Z93179.CBL SOURCE LIB
000009 // SET LINKDSN=Z93179.LOAD LIBRARY
000010 //*-----
000011 //COBCL EXEC IGYWCL,LNGPRFX=IGY420,
000012 //*****COBCL EXEC IGYWCL,
000013 // PARM.COBOLE='LIST,MAP,LIB',
000014 // PARM.LKED='LIST,XREF,REUS'
000015 //COBOL.SYSIN DD DISP=SHR,DSN=&COBDSN(&MEMBER)
000016 //COBOL.SYSLIB DD DSN=&SYSUID..CBL,DISP=SHR
000017 /*
000018 //LKED.SYSIN DD *,SYMBOLS=(JCLONLY) NAME &MEMBER(R)
000019 /*
000020 //LKED.SYSLMOD DD DISP=SHR,DSN=&LINKDSN(&MEMBER)
000021 //*****GO STEP *****
000022 //GOIF IF RC LT 5 THEN
000023 //GO EXEC PGM=&MEMBER
000024 //STEPLIB DD DSN=&LINKDSN,DISP=SHR
000025 //SYSOUT DD SYSOUT=*
000026 /*
000027 //PRESFILE DD DSN=Z93179.DATA,DISP=SHR
000028 //PRTPRES DD DSN=&SYSUID..CAPSTONE.GDG(+1),
000029 // DISP=(NEW,CATLG,DELETE),UNIT=SYSDA,
000030 // SPACE=(TRK,(5,1),RLSE),
000031 // DCB=(RECFM=FB,LRECL=110,BLKSIZE=0)
000032 //GOIF ENDIF
```

Source Code

```
000001 IDENTIFICATION DIVISION.
000002 PROGRAM-ID. CAPSTONE.
000003 *
000004 *-----*
000005 * MODIFICATION LOG *
000006 * *
000007 * DATE INIT CHANGE *
000008 * ===== *
000009 * 10/27/22 GKL CHGNUM 1 - NEW PGM FOR MAINFRAME CLASS *
000010 * 10/31/22 GKL CHGNUM 2 - ADDED TOTALS DISPLAY (SYSOUT) *
000011 * 11/01/22 GKL CHGNUM 3 - OUTPUT FILE IN CAPSTONE.GDG *
000012 * *
000013 * PROGRAM - CAPSTONE *
000014 * DISPLAYS: *
000015 * 1) AVG OF "AMOUNT" COLUMNS *
000016 * 2) TOTALS OF ALL THE RECORDS *
000017 * 3) ALL PRESIDENTS W/ JAMES AS 1ST NAME *
000018 * INPUT PRESIDENT *
000019 * OUTPUT ACCT NO/LIMIT/BALANCE/LNAME/FNAME W/ SEPARATORS *
000020 *-----*
000021 EJECT
000022 ENVIRONMENT DIVISION.
000023 INPUT-OUTPUT SECTION.
000024 FILE-CONTROL.
000025 *
000026 * SELECT PRES-FILE ASSIGN TO PRESFILE.
000027 *
000028 * SELECT PRES-PRT-FILE ASSIGN TO PRTPRES.
000029 *
000030 *-----*
000031 * PROGRAM FILE NAME JCL DDNAME *
000032 *-----*
000033 *
000034 EJECT
000035 DATA DIVISION.
000036 FILE SECTION.
000037 *
000038 * FD PRES-FILE
000039 * RECORD CONTAINS 170 CHARACTERS
000040 * BLOCK CONTAINS 0 RECORDS
000041 * RECORDING MODE IS F.
000042 * 01 PRES-RECORD PIC X(170).
000043 *
000044 * FD PRES-PRT-FILE
```

continued on next page...

Source Code

```
000045          RECORD CONTAINS 109 CHARACTERS
000046          BLOCK CONTAINS 0 RECORDS
000047          RECORDING MODE IS F.
000048      01  PRES-PRT-RECORD          PIC X(109).
000049      *
000050          WORKING-STORAGE SECTION.
000051      *
000052      77  PROGRAM-NAME             PIC X(08)
000053          VALUE 'CAPSTONE'.
000054      *
000055      01  WS-CONSTANTS.
000056          05  WS-NO                PIC X          VALUE 'N'.
000057          05  WS-YES               PIC X          VALUE 'Y'.
000058      *
000059      01  PF-INPUT-REC.
000060          05  PF-INPUT-EOF         PIC X          VALUE 'N'.
000061          05  ACCT-FIELDS.
000062              10  ACCT-NO          PIC X(8).
000063              10  ACCT-LIMIT       PIC S9(7)V99 COMP-3.
000064              10  ACCT-BALANCE     PIC S9(7)V99 COMP-3.
000065              10  ACCT-LAST-NAME   PIC X(20).
000066              10  ACCT-FIRST-NAME  PIC X(15).
000067              10  CLIENT-ADDR.
000068                  15  STREET-ADDR  PIC X(25).
000069                  15  CITY-COUNTY  PIC X(20).
000070                  15  USA-STATE    PIC X(15).
000071              10  RESERVED         PIC X(07).
000072              10  COMMENTS         PIC X(50).
000073      *
000074      01  PRES-FOOTER.
000075          05  REC-COUNT             PIC 9(2).
000076          05  JAMES-COUNT          PIC 9(2).
000077          05  ACCT-LIMIT-STOR      PIC 9(9)V99.
000078          05  ACCT-BALANCE-STOR    PIC 9(7)V99.
000079          05  TOTAL-ACCT-LIMIT     PIC 9(9)V99.
000080          05  TOTAL-ACCT-BALANCE   PIC 9(9)V99.
000081          05  AVG-ACCT-LIMIT       PIC 9(9)V99.
000082          05  AVG-ACCT-BALANCE     PIC 9(9)V99.
000083      *
000084      01  ACCT-PRT-FIELDS.
000085          10  FILLER                PIC X
000086              VALUE '|'.
000087          10  ACCT-PRT-NO           PIC X(8).
000088          10  FILLER                PIC X
```

continued on next page...

Source Code

```
000089          VALUE '|'.
000090      10 ACCT-PRT-LIMIT      PIC $$,$$$,$$9.99.
000091      10 FILLER            PIC X
000092          VALUE '|'.
000093      10 ACCT-PRT-BALANCE   PIC $$,$$$,$$9.99.
000094      10 FILLER            PIC X
000095          VALUE '|'.
000096      10 ACCT-PRT-LAST-NAME PIC X(20).
000097      10 FILLER            PIC X
000098          VALUE '|'.
000099      10 ACCT-PRT-FIRST-NAME PIC X(15).
000100      10 FILLER            PIC X
000101          VALUE '|'.
000102      *
000103      01 PRES-PRT-FOOTER.
000104          05 FILLER          PIC X(9)
000105              VALUE 'RECORDS: '.
000106          05 PRT-REC-COUNT   PIC 9(2).
000107          05 FILLER          PIC X(2).
000108          05 FILLER          PIC X(24)
000109              VALUE 'PRESIDENTS NAMED JAMES: '.
000110          05 PRT-JAMES-COUNT PIC 9(1).
000111          05 FILLER          PIC X(2).
000112          05 FILLER          PIC X(16)
000113              VALUE 'AVG ACCT LIMIT: '.
000114          05 PRT-AVG-ACCT-LIMIT PIC $$,$$$,$$9.99.
000115          05 FILLER          PIC X(2).
000116          05 FILLER          PIC X(15)
000117              VALUE 'AVG ACCT BALANCE: '.
000118          05 PRT-AVG-ACCT-BALANCE PIC $$,$$$,$$9.99.
000119      *
000120      EJECT
000121      *
000122      PROCEDURE DIVISION.
000123      A0000-MAIN.
000124      *
000125          PERFORM A0000-OPEN-FILES THRU A0000-EXIT.
000126      *
000127          PERFORM B0000-PRESENT   THRU B0000-EXIT.
000128      *
000129          PERFORM Z0000-CLOSE-FILES THRU Z0000-EXIT.
000130      *
000131
```

continued on next page...

Source Code

```
000131         GOBACK.
000132     *
000133     *-----*
000134     *   OPEN THE DEPARTMENT FILE TO ALLOW FOR PROCESSING   *
000135     *-----*
000136     *
000137     A0000-OPEN-FILES.
000138     *
000139         OPEN INPUT  PRES-FILE.
000140     *
000141         OPEN OUTPUT PRES-PRT-FILE.
000142     *
000143     A0000-EXIT.
000144     *
000145         EXIT.
000146     *
000147     EJECT
000148     *
000149     A1000-READ-PRES.
000150     *   DISPLAY 'A1000-READ-PRES'.
000151     *
000152         READ PRES-FILE INTO ACCT-FIELDS
000153         AT END      MOVE WS-YES TO PF-INPUT-EOF
000154         PERFORM A1000-READ-FOOTER
000155         WRITE PRES-PRT-RECORD FROM PRES-PRT-FOOTER AFTER 1
000156         NOT AT END
000157         ADD 1 TO REC-COUNT
000158         IF FUNCTION UPPER-CASE(ACCT-FIRST-NAME) = 'JAMES'
000159             ADD 1 TO JAMES-COUNT
000160         END-IF
000161         MOVE ACCT-LIMIT      TO ACCT-LIMIT-STOR
000162         ADD ACCT-LIMIT-STOR TO TOTAL-ACCT-LIMIT
000163         MOVE ACCT-BALANCE   TO ACCT-BALANCE-STOR
000164         ADD ACCT-BALANCE-STOR TO TOTAL-ACCT-BALANCE
000165         PERFORM A1000-WRITE
000166     END-READ.
000167     *
000168     A1000-EXIT.
000169     *
000170         EXIT.
000171     *
000172     A1000-READ-FOOTER.
000173         DISPLAY 'TOTALS'
000174         DISPLAY SPACES
```

continued on next page...

Source Code

```
000175      MOVE REC-COUNT TO PRT-REC-COUNT
000176      MOVE JAMES-COUNT TO PRT-JAMES-COUNT
000177      DISPLAY
000178          'NUMBER OF PRESIDENT RECORDS      : ' PRT-REC-COUNT
000179      DISPLAY
000180          'NUMBER OF PRESIDENTS NAMED JAMES : ' PRT-JAMES-COUNT
000181      DIVIDE TOTAL-ACCT-LIMIT BY REC-COUNT
000182          GIVING AVG-ACCT-LIMIT
000183          MOVE AVG-ACCT-LIMIT TO PRT-AVG-ACCT-LIMIT
000184      DISPLAY
000185          'AVERAGE ACCOUNT LIMIT           : ' PRT-AVG-ACCT-LIMIT
000186      DIVIDE TOTAL-ACCT-BALANCE BY REC-COUNT
000187          GIVING AVG-ACCT-BALANCE
000188          MOVE AVG-ACCT-BALANCE TO PRT-AVG-ACCT-BALANCE
000189      DISPLAY
000190          'AVERAGE ACCOUNT BALANCE        : ' PRT-AVG-ACCT-BALANCE.
000191      *
000192      A1000-WRITE.
000193          MOVE ACCT-NO TO ACCT-PRT-NO
000194          MOVE ACCT-LIMIT TO ACCT-PRT-LIMIT
000195          MOVE ACCT-BALANCE TO ACCT-PRT-BALANCE
000196          MOVE ACCT-LAST-NAME TO ACCT-PRT-LAST-NAME
000197          MOVE ACCT-FIRST-NAME TO ACCT-PRT-FIRST-NAME
000198          WRITE PRES-PRT-RECORD FROM ACCT-PRT-FIELDS AFTER 1.
000199      *
000200      EJECT
000201      *
000202      B0000-PRESIDENT.
000203      *
000204      *   DISPLAY 'B0000-PRESIDENT'.
000205      *
000206          MOVE WS-NO TO PF-INPUT-EOF.
000207      *
000208          PERFORM A1000-READ-PRES UNTIL PF-INPUT-EOF = 'Y'.
000209      *
000210      B0000-EXIT.
000211      *
000212          EXIT.
000213      *
000214      EJECT
000215      *
000216      *-----*
000217      *   CLOSE THE DEPARTMENT FILE WHEN THE PROCESSING IS OVER   *
000218      *
```

continued on next page...

Source Code

```
000219 *-----*
000220 *
000221 Z0000-CLOSE-FILES.
000222 *
000223     CLOSE PRES-FILE.
000224 *
000225     CLOSE PRES-PRT-FILE.
000226 *
000227 Z0000-EXIT.
000228 *
000229     EXIT.
```


JCL SUBMIT

```
File Edit Edit_Settings Menu Utilities Compilers Test Help
VIEW          Z93179.JCL(CAPSTONE) - 01.14          Columns 00001 00072
Command ==> SUB                                     Scroll ==> CSR
***** ***** Top of Data *****
000001 //Z93179K JOB CLASS=A,MSGCLASS=H,MSGLEVEL=(1,1),
000002 // REGION=1000M,MEMLIMIT=2G,NOTIFY=&SYSUID
000003 //*-----
000004 // EXPORT SYMLIST=* MAKE SYMBOLS AVAILABLE TO DD SYSIN
000005 //*TO BE AVAILABLE IN SYSIN, ANY SET MUST FOLLOW THE EXPORT
000006 //*-----16 --- > ---+----1----+----2----+----3----+----4----< -71
000007 // SET MEMBER=CAPSTONE
000008 // SET COBDSN=Z93179.CBL          SOURCE LIB
000009 // SET LINKDSN=Z93179.LOAD      LIBRARY
000010 //*-----
000011 //COBCL EXEC IGYWCL,LNGPRFX=IGY420,
000012 //*****COBCL EXEC IGYWCL,
000013 // PARM.COBOL='LIST,MAP,LIB',
000014 // PARM.LKED='LIST,XREF,REUS'
JOB Z93179K(JOB02381) SUBMITTED
***
```

SDSF

```
COMMAND INPUT ==> SCROLL ==> PAGE
PREFIX=Z93179* DEST=(ALL) OWNER=Z93179 SYSNAME=
NP  JOBNAME  JobID   Owner   Prty Queue    C  Pos SAff  ASys Status
   Z93179   TSU02349 Z93179    15 EXECUTION      SOW1 SOW1
   Z93179K  JOB02381 Z93179     1 PRINT          A   341
```

```
PREFIX=Z93179* DEST=(ALL) OWNER=Z93179 SYSNAME=
NP  DDNAME   StepName ProcStep DSID  Owner   C  Dest      Rec-Cnt Page
   JESMSG LG  JES2          2 Z93179  H LOCAL      20
   JESJCL   JES2          3 Z93179  H LOCAL      93
   JESYSMSG JES2          4 Z93179  H LOCAL     127
   SYSPRINT COBCL      COBOL    102 Z93179  H LOCAL    1,102
   SYSPRINT COBCL      LKED     103 Z93179  H LOCAL     186
   SYSOUT   GO          104 Z93179  H LOCAL      6
```

```
SDSF OUTPUT DISPLAY Z93179K  JOB02381  DSID      2 LINE 0      COLUMNS 02- 81
COMMAND INPUT ==> SCROLL ==> PAGE
***** TOP OF DATA *****
      J E S 2  J O B  L O G  --  S Y S T E M  S O W 1  --  N O D E

23.31.41 JOB02381 ---- SUNDAY,    06 NOV 2022 ----
23.31.41 JOB02381 IRR010I USERID Z93179  IS ASSIGNED TO THIS JOB.
23.31.43 JOB02381 ICH70001I Z93179  LAST ACCESS AT 23:27:23 ON SUNDAY, NOVEMBE
23.31.43 JOB02381 $HASP373 Z93179K  STARTED - INIT 1  - CLASS A      - SYS
23.31.47 JOB02381 -                      -----TIMINGS (MINS.)--
23.31.47 JOB02381 -STEPNAME PROCSTEP    RC  EXCP  CONN      TCB      SRB  C
23.31.47 JOB02381 -COBCL      COBOL          00   496   87       .00     .00
23.31.48 JOB02381 -COBCL      LKED           00   213   32       .00     .00
23.31.49 JOB02381 -GO                          00    72   18       .00     .00
23.31.49 JOB02381 -Z93179K  ENDED.  NAME-                      TOTAL TCB CPU TIM
23.31.49 JOB02381 $HASP395 Z93179K  ENDED - RC=0000
```

SYSOUT GO

Display Filter View Print Options Search Help

SDSF OUTPUT DISPLAY Z93179K JOB02381 DSID 104 LINE 0 COLUMNS 02- 81

COMMAND INPUT ==>

SCROLL ==> PAGE

***** TOP OF DATA *****

TOTALS

NUMBER OF PRESIDENT RECORDS : 45
NUMBER OF PRESIDENTS NAMED JAMES : 5
AVERAGE ACCOUNT LIMIT : \$1,055,555.55
AVERAGE ACCOUNT BALANCE : \$511,204.61

***** BOTTOM OF DATA *****

F1=HELP

F2=SPLIT

F3=END

F4=RETURN

F5=IFIND

F6=BOOK

F7=UP

F8=DOWN

F9=SWAP

F10=LEFT

F11=RIGHT

F12=RETRIEVE

GDG Output

DSLIST - Data Sets Matching Z93179.*

Data Set - Viewed

Command ==>

Scroll ==> PAGE

Command - Enter "/" to select action

Message

Volume

```
-----  
Z93179.CAPSTONE.GDG                ???????  
Z93179.CAPSTONE.GDG.G0007V00      VPWRKB  
Z93179.CAPSTONE.GDG.G0008V00      VPWRKF  
- Z93179.CAPSTONE.GDG.G0009V00      Viewed  VPWRKB
```

VIEW Z93179.CAPSTONE.GDG.G0009V00

Columns 00001 00072

Command ==>

Scroll ==> CSR

***** Top of Data *****

000001	17891797	\$10,000.00	\$188.74	WASHINGTON	George
000002	17971801	\$10,000.00	\$3,188.33	ADAMS	John
000003	18011809	\$10,000.00	\$7,008.13	JEFFERSON	Thomas
000004	18091817	\$10,000.00	\$503.13	MADISON	James
000005	18171825	\$10,000.00	\$31,313.13	MONROE	James
000006	18251829	\$10,000.00	\$31,250.33	ADAMS II	John Quincy
000007	18291837	\$10,000.00	\$3,318.30	JACKSON	Andrew
000008	18371841	\$10,000.00	\$325.00	VAN BUREN	Martin
000009	18411841	\$10,000.00	\$313.50	HARRISON	William Henr
000010	18411845	\$10,000.00	\$121.65	TYLER	John
000011	18451849	\$10,000.00	\$314.05	POLK	James
000012	18491850	\$10,000.00	\$828.20	TAYLOR	Zachary
000013	18501853	\$10,000.00	\$373.10	FILLMORE	Millard
000014	18531857	\$10,000.00	\$315.07	PIERCE	Franklin
000015	18571861	\$10,000.00	\$7.90	BUCHANAN	James
000016	18611865	\$100,000.00	\$313.13	LINCOLN	Abraham

continued on next page...

GDG Output

```
VIEW          Z93179.CAPSTONE.GDG.G0009V00          Columns 00001 00072
Command ===> _                                       Scroll ===> CSR
000034 |19531961|$5,000,000.00|   $32,502.50|EISENHOWER      |Dwight
000035 |19611963|$1,700,000.00|$5,084,035.13|KENNEDY           |John F.
000036 |19631969|$1,700,000.00|     $833.13|JOHNSON II        |Lyndon
000037 |19691974|$1,700,000.00|     $600.34|NIXON              |Richard
000038 |19741977|$1,700,000.00|$5,051,318.40|FORD               |Gerald
000039 |19771981|  $100,000.00|$3,118,826.10|CARTER             |Jimmy
000040 |19811989|  $100,000.00|  $50,278.80|REAGAN             |Ronald
000041 |19891993|  $100,000.00|  $40,793.10|BUSH                |George H.W.
000042 |19932001|  $100,000.00|$8,118,313.14|CLINTON            |William J.
000043 |20012009|  $100,000.00|  $31,313.20|BUSH II            |George W.
000044 |20092017|$9,950,000.00|   $92,311.00|OBAMA              |Barack H.
000045 |20172021|$8,100,000.00|     $10.00|TRUMP              |Donald J.
000046 RECORDS: 45  PRESIDENTS NAMED JAMES: 5  AVG ACCT LIMIT: $1,055,555.55
***** ***** Bottom of Data *****
```

```
VIEW          Z93179.CAPSTONE.GDG.G0009V00          Columns 00039 00110
Command ===>                                         Scroll ===> CSR
000034 |EISENHOWER      |Dwight      |
000035 |KENNEDY           |John F.     |
000036 |JOHNSON II        |Lyndon      |
000037 |NIXON              |Richard     |
000038 |FORD               |Gerald      |
000039 |CARTER             |Jimmy       |
000040 |REAGAN             |Ronald      |
000041 |BUSH                |George H.W. |
000042 |CLINTON            |William J.  |
000043 |BUSH II            |George W.   |
000044 |OBAMA              |Barack H.   |
000045 |TRUMP              |Donald J.   |
000046 5  AVG ACCT LIMIT: $1,055,555.55  AVG ACCT BALANCE:  $511,204.61
***** ***** Bottom of Data *****
```

The background is a vibrant teal color. It is decorated with various white geometric shapes: solid circles of different sizes, hollow circles, and lines connecting some of these circles to form a network-like structure. The shapes are scattered across the page, with some appearing larger and more prominent than others.

Special Thanks to

Shafik Ismail, Bryan Beach, Tam Morgan,
and Tamara Perry

and Tamara Perry
Shafik Ismail, Bryan Beach, Tam Morgan,