COBOL Basics Lab 4

GOALS:

- Sign on to the mainframe, navigate the ISPF Primary Option Menu to find the dataset containing JCL (yourID.JCL.CNTL).
- Go into EDIT with the JCL member LAB4, Submit the JCL to the system.
- Note whether or not the return code is zero or not.
  - If the return code is zeroes, go to SDSF and view the results.
- Then navigate out and sign off.

Step-by-step:

1. Sign on with your **ID** and **PASSWORD**, the press **ENTER** when you see this:

```
ICH70001I TSOZC01  LAST ACCESS AT 14:29:41 ON THURSDAY, MARCH 18, 2021
IKJ56455I TSOZC01 LOGON IN PROGRESS AT 14:39:26 ON MARCH 18, 2021
IKJ56951I NO BROADCAST MESSAGES
Allocating ISPF/PDF environment...
Test for Netmail
INMR003I You have no messages or data sets to receive.
%C12 EZCLQ1

Your assigned DB2 Subsystem is DSNC

Allocating DB2 libraries now.  Please wait for ***
You can  hit enter once you see the three asterisk.

*** _
```

2. Press **ENTER** again to get to the **ISPF Primary Option Menu**:

```
   Menu   Utilities  Compilers  Options  Status  Help
 -------------------------------------------------------------
                            ISPF Primary Option Menu
 Option ===> _

 0   Settings       Terminal and user parameters
 1   View           Display source data or listings
 2   Edit           Create or change source data
 3   Utilities      Perform utility functions
 4   Foreground     Interactive language processing
 5   Batch          Submit job for language processing
 6   Command        Enter TSO or Workstation commands
 D   Db2            Db2 Menus
 E   ITS MENU       ITS extended menu
 S   SDSF           System Display and Search Facility
```

3. The cursor is near the top, to the right of the work **Option**. To retrieve the JCL, type **3.4** and press **ENTER**.

This will take you to the **Data Set List Utility**. Your **ID** is shown in the middle, to the right of the words **Dsname Level**.

4. Now press the **ENTER** key, and you will see a list of all your data sets.

The list of datasets reveals one by the name of **TSOZC01.JCL.CNTL**. The first part of the name (TSOZC01) is likely to be different, as each student will have a unique ID. Don't worry about this!

5. Place your cursor to the left of the **TSOZC01.JCL.CNTL** dataset and type **E**.
6. Press the **ENTER** key.

This will take you to a list of JCL members!

```
EDIT
Command ===> _____
                    Name
_____          JOBCARD
_____          LAB1
_____          LAB2
_____          LAB3
____E____           LAB4
```

7. Place your cursor to the left of the **LAB4 JCL** and type **E**.
8. Press the **ENTER** key. This will take you to the JCL statements!

```
EDIT          TSOZC01.JCL.CNTL(LAB4)  -  01.04                    Colur
Command ===> SUBMIT                                                    Sc
******  ************************** Top of Data ****************
000001 //TSOZC012 JOB 30000000,'TSOZC01',MSGLEVEL=(1,1),
000002 //     CLASS=A,MSGCLASS=Q,NOTIFY=&SYSUID,REGION=0M
000003 //********************************************************
000004 //*
000005 //********************************************************
000006 //COMPILE EXEC IGYWCL,PARM=(OFFSET,NOLIST,ADV),
000007 //        PGMLIB='&&GOSET',GOPGM=LAB4
000008 //COBOL.SYSIN   DD  DSN=TSOZC01.COBOL.LABS(LAB4),DISP=SHR
000009 //COBOL.SYSLIB DD   DSN=TSOZC01.ONLINE.LOADLIB,DISP=SHR
000010 //*
000011 //STEP2    EXEC PGM=LAB4
000012 //STEPLIB DD DSN=*.COMPILE.LKED.SYSLMOD,DISP=(OLD,PASS)
000013 //INBONUS DD DSN=TSOZC01.DATA(INBONUS),DISP=SHR
000014 //OUTBONUS DD SYSOUT=*
000015 //SYSOUT    DD SYSOUT=*
```

This JCL has 2 steps. The first one, on line 6, is named **COMPILE**. This step will compile and link the **LAB4** program.

The second step is at line **11** and is named **STEP2**. This will run the **LAB4** program, sending the results at a location called **OUTBONUS** on line **14**.

9. Type **SUBMIT** (or **SUB**) on the command line at the top.
10. Press **ENTER**. This will show that the job has been submitted, and provides us with the JOB name and the JOB number!

```
IKJ56250I JOB TSOZC012(JOB01689) SUBMITTED
*** _
```

11. When you press the **ENTER**, you will see this:

```
18.57.53 JOB01689 $HASP165 TSOZC012 ENDED AT MVSCZ11 MAXCC=0000 CN(INTERNAL)
*** _
```

This message tells us if the job has run successfully or not. In this case, it is successful. How do we know? MAXCC=0000 (on the right) means there were no errors. If you do not get all zeroes, you will need to look carefully at the program and the JCL to see if you can find the error. You may need a friend to help you.

Hint: Often it is a spelling error of some kind.

12. When we press **ENTER** again, we are taken back to the JCL named **LAB4**:

```
EDIT           TSOZC01.JCL.CNTL(LAB4)  -  01.04
Command ===> =S
****** ******************************** Top of Data **********
000001 //TSOZC012 JOB 30000000,'TSOZC01',MSGLEVEL=(1,1),
000002 //     CLASS=A,MSGCLASS=Q,NOTIFY=&SYSUID,REGION=0M
000003 //***************************************************
```

You have signed on, navigated the *Primary Option Menu* to find the *LAB4 JCL*, then submitted it as a *Job* to the system. How does someone learning COBOL view the results? It requires a journey to an application called SDSF.

13. To get there, type **=S** to enter the **System Display and Search Facility (SDSF)**.

Note: There's a lot to SDSF, allow yourself time to explore.

14. Type **ST** and press **ENTER**.

This will show us the status of our job that we just submitted.

```
SDSF MENU V2R4M0      PLEX1        CZ11
COMMAND INPUT ===> ST
PREFIX=TSOZC01*  DEST=(ALL)  OWNER=*  SYSNAME=
NP    NAME       Description              Group
      DA         Active users             Jobs
      I          Input Queue              Jobs
      O          Output Queue             Output
      H          Held output Queue        Output
      ST         Status of jobs           Jobs
      JG         Job groups               JES
      SYM        System symbols           System
      SE         Scheduling environments  WLM
```

When we type **ST** and press **ENTER**, we will see something like this:

```
----------------------
SDSF STATUS DISPLAY ALL
COMMAND INPUT ===>
PREFIX=TSOZC01*  DEST=
NP    JOBNAME   JobID
      TSOZC01   TSU01679
      TSOZC01C  JOB01428
      TSOZC012  JOB01682
      TSOZC012  JOB01688
      TSOZC012  JOB01689
 ?_   TSOZC012  JOB01692
```

The first entry in the list tells us about our **TSO ID**:

```
JOBNAME   JobID      Owner      Prty Queue
TSOZC01   TSU01679 TSOZC01        15 EXECUTION
```

The entries after this are all the jobs that were submitted to the system by this TSO ID's session.

The last one, **JOB ID** number **01692** is the latest job, the one we just submitted. Notice, I have placed a question mark (?) next to it (there are other letters I could use, such as S, but we will use this method for now).

15. When we press **ENTER**, we will see something like this:

```
SDSF JOB DATA SET DISPLAY - JOB TSOZC
COMMAND INPUT ===>
PREFIX=TSOZC01*  DEST=(ALL)   OWNER=*
NP    DDNAME    StepName ProcStep DsID
      JESMSGLG JES2                   2
      JESJCL   JES2                   3
      JESYSMSG JES2                   4
      SYSPRINT COMPILE   COBOL      101
      SYSPRINT COMPILE   LKED       102
   S  OUTBONUS STEP2               103
      SYSOUT   STEP2               104
```

The **OUTBONUS** line is what we will focus on now. Notice, the letter **S** has been placed to the left of it. When we press **ENTER**, we will see:

```
-----------------------------------------------------------
 SDSF OUTPUT DISPLAY TSOZC012 JOB01692   DSID
 COMMAND INPUT ===> _
************************************** TOP OF DATA
ALBETHABETH              LADY              C        NN
ALDANCE                  CANCAN            A        NN
ALBOURGEOIS              CHLOE             N   n    NY
COSQUAREGARDEN           MADISON           Q        XN
COBOB                    JOHNNY            R    &   NN
CTHUSKY                  JONATHAN          U        YY
```

This is showing the output data.

16. To leave SDSF, we will use the **=X** method again. It will take us to TSO mode again. Remember, type in **X** (or type the word **EXIT**).

17. Press **ENTER** and you will be logged off.

But, before you leave, did you notice that numbers on the right side are either invisible, or have been replaced by letters and special characters. Why is this?

It is because the numbers were converted from decimal to packed-decimal. One of our lessons on numeric types. The numbers are there. You just need to use a TSO/ISPF command called HEX to see them.

Congratulations! You signed on to mainframe, navigated the Primary Option Menu to find the dataset containing JCL (yourID.JCL.CNTL). You went into EDIT with the JCL member LAB4, and submitted the JCL to the system. Hopefully, your return code was zero. Then you went to SDSF to view the output results, then navigate out and sign off.

We are finished now!