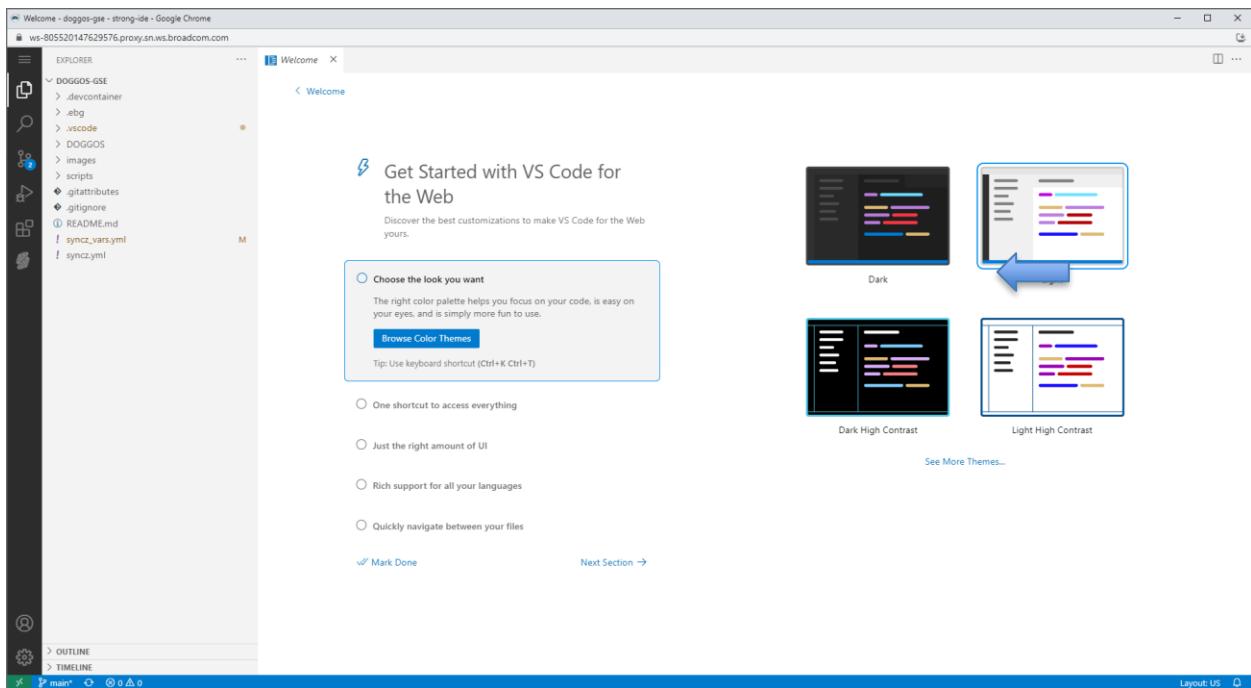


Dev/Ops Workshop – Basic

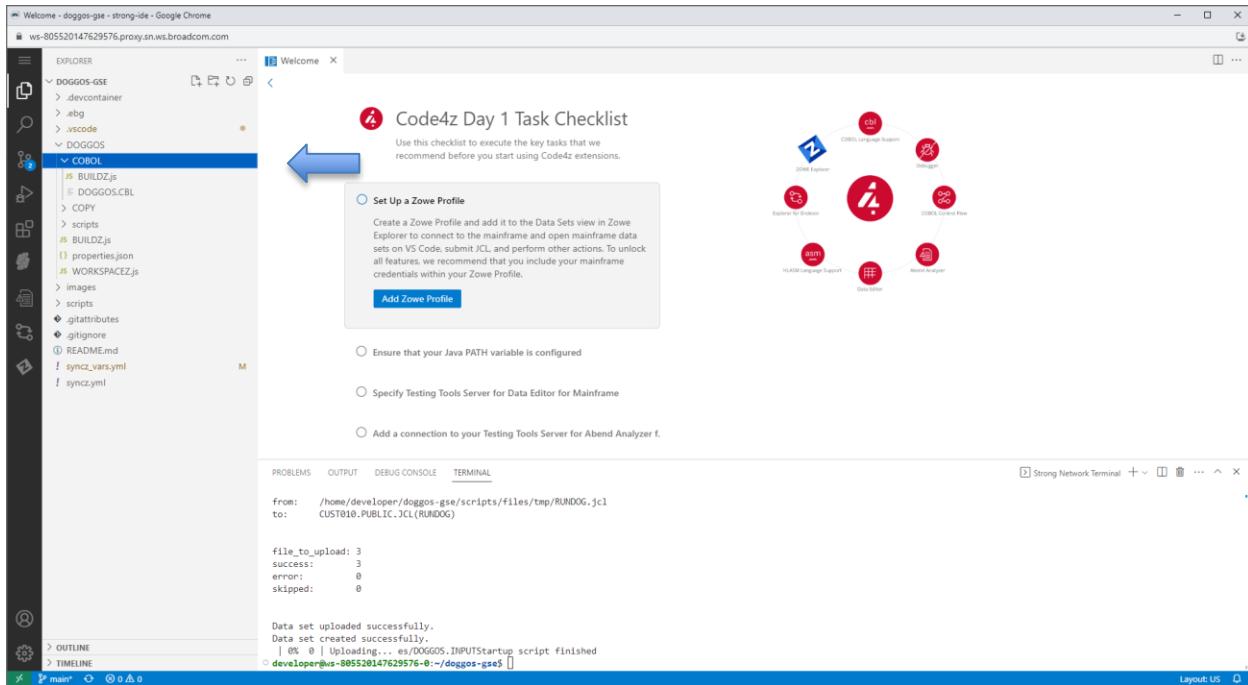
Start up:

1. At this point you are now in your workspace in a VS Code session.



Editing the DOGGOS Application:

In the Explorer Window open the folder DOGGOS then COBOL.



```

IDENTIFICATION DIVISION.
PROGRAM-ID. DOGGOS.
ENVIRONMENT DIVISION.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
  SELECT ADOPTS-INPUT ASSIGN ADOPTS
  ORGANIZATION IS SEQUENTIAL
  ACCESS MODE IS SEQUENTIAL
  FILE STATUS IS ADOPTS-FS.
  SELECT ADOPTS-REPORT ASSIGN OUTREP
  ORGANIZATION IS SEQUENTIAL
  ACCESS MODE IS SEQUENTIAL
  FILE STATUS IS ADOPTS-FS.
DATA DIVISION.
FILE SECTION.
FD ADOPTS-INPUT
  LABEL RECORDS ARE STANDARD
  RECORD CONTAINS 80 CHARACTERS
  DATA RECORD IS ADOPTS-DOGS-REC.
  * INPUT RECORD FORMAT
  COPY DOGADOPT.
FD ADOPTS-REPORT
  LABEL RECORDS ARE STANDARD
  RECORD CONTAINS 80 CHARACTERS
  DATA RECORD IS ADOPTS-REPORT-REC.
  * OUTPUT RECORD FORMAT
  COPY ADOPTRPT.

```

Add a new dog breed.

1. Copy block of code (lines 59-61).

```

DOGGOS > COBOL > DOGGOS.CBL > PROGRAM: DOGGOS > DATA DIVISION > WORKING-STORAGE SECTION > BREED-INDEXES > JINGO-INDEX > JINGO-BREED-NAME
 40      10 CHI-BREED-NAME PIC X(3) VALUE 'CHI'.
 49      10 Poodle-Index,
 50      10 Poodle-Index-Value PIC 9(1) VALUE 5,
 51      10 Poodle-Breed-Name PIC X(6) VALUE 'POODLE',
 52      10 Pomeranian-Index,
 53      10 Pomeranian-Index-Value PIC 9(1) VALUE 6,
 54      10 Pomeranian-Breed-Name PIC X(10) VALUE 'POMERANIAN',
 55      10 Bulldog-Index,
 56      10 Bulldog-Index-Value PIC 9(1) VALUE 7,
 57      10 Bulldog-Breed-Name PIC X(6) VALUE 'BULLDOG',
 58      10 Jingo-Index,
 59      10 Jingo-Index-Value PIC 9(1) VALUE 8,
 60      10 Jingo-Breed-Name PIC X(5) VALUE 'JINGO',
 61      10 Other-Index,
 62      10 Other-Index-Value PIC 9(1) VALUE 9,
 63      10 Other-Breed-Name PIC X(5) VALUE 'OTHER',
 64      * INTERNAL DATA STRUCTURE TO KEEP
 65      * THE AMOUNT OF ADOPTIONS PER BREED
 66      * 01 ACCUMULATOR,
 67      *     05 BREED-ADOPTIONS PIC 9(3) OCCURS 9 TIMES VALUE 000.
 68      * FINAL DATA STRUCTURE TO FLUSH THE ADOPTIONS IN THE PARTICULAR
 69      * BREED INTO THE REPORT
 70      * 01 ADOPTED-RESULT,
 71      *     05 FILLER          PIC X(6) VALUE "BREED ".
 72      *     05 DOG-BREED       PIC X(3),
 73      *     05 FILLER          PIC X(13) VALUE " WAS ADOPTED ".
 74      * END-FILE.

from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
developer@ws-805520147629576-0:/doggos-gse$ 
```

- Paste it after line 61. When you paste the lines you will need to re-align the code so it is readable.

```

DOGGOS > COBOL > DOGGOS.CBL > PROGRAM: DOGGOS > DATA DIVISION > WORKING-STORAGE SECTION > BREED-INDEXES > JINGO-INDEX > JINGO-BREED-NAME
 40      10 CHI-BREED-NAME PIC X(3) VALUE 'CHI'.
 49      10 Poodle-Index,
 50      10 Poodle-Index-Value PIC 9(1) VALUE 5,
 51      10 Poodle-Breed-Name PIC X(6) VALUE 'POODLE',
 52      10 Pomeranian-Index,
 53      10 Pomeranian-Index-Value PIC 9(1) VALUE 6,
 54      10 Pomeranian-Breed-Name PIC X(10) VALUE 'POMERANIAN',
 55      10 Bulldog-Index,
 56      10 Bulldog-Index-Value PIC 9(1) VALUE 7,
 57      10 Bulldog-Breed-Name PIC X(6) VALUE 'BULLDOG',
 58      10 Jingo-Index,
 59      10 Jingo-Index-Value PIC 9(1) VALUE 8,
 60      10 Jingo-Breed-Name PIC X(5) VALUE 'JINGO',
 61      10 Other-Index,
 62      10 Other-Index-Value PIC 9(1) VALUE 9, ←
 63      10 Other-Breed-Name PIC X(5) VALUE 'OTHER',
 64      * INTERNAL DATA STRUCTURE TO KEEP
 65      * THE AMOUNT OF ADOPTIONS PER BREED
 66      * 01 ACCUMULATOR,
 67      *     05 BREED-ADOPTIONS PIC 9(3) OCCURS 9 TIMES VALUE 000.
 68      * FINAL DATA STRUCTURE TO FLUSH THE ADOPTIONS IN THE PARTICULAR
 69      * BREED INTO THE REPORT
 70      * 01 ADOPTED-RESULT,
 71      *     05 FILLER          PIC X(6) VALUE "BREED ".
 72      *     05 DOG-BREED       PIC X(3),
 73      *     05 FILLER          PIC X(13) VALUE " WAS ADOPTED ".
 74      * END-FILE.

from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
developer@ws-805520147629576-0:/doggos-gse$ 
```

- At line 62 start changing the three instances of JINGO to another dog breed name (e.g. HUSKY).

```

DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

EXPLORER DOGGOS.CBL M ...
DOGGOS > COBOL > DOGGOS.CBL > PROGRAM: DOGGOS > DATA DIVISION > WORKING-STORAGE SECTION > BREED-INDEXES > HUSKY-INDEX > HUSKY-BREED-NAME
> devcontainer
> ebg
> vscode
< DOGGOS
  < COBOL
    < BUILDZ.js
      DOGGOS.CBL M ...
        > COPY
        > scripts
        > properties.json
        > WORKSPACEZ.js
        > images
        > scripts
        > gitattributes
        > .gitignore
        > README.md
        ! syncz_vars.yml
        ! syncz.yml
        M ...
        PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
        from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
        to: CUST010.PUBLIC..JCL(RUNDOG)

        file_to_upload: 3
        success: 3
        error: 0
        skipped: 0

        Data set uploaded successfully.
        Data set created successfully.
        | 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
        developer@hr-805520147629576-0:~/doggos-gse$ [ ]
        Ln 64, Col 59 Spaces: 4 UTF-8 LF COBOL Layout: US
      
```

4. Change the value for HUSKY-INDEX-VALUE from 8 to 9.

```

DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

EXPLORER DOGGOS.CBL M ...
DOGGOS > COBOL > DOGGOS.CBL > PROGRAM: DOGGOS > DATA DIVISION > WORKING-STORAGE SECTION > BREED-INDEXES > HUSKY-INDEX > HUSKY-BREED-NAME
> devcontainer
> ebg
> vscode
< DOGGOS
  < COBOL
    < BUILDZ.js
      DOGGOS.CBL M ...
        > COPY
        > scripts
        > properties.json
        > WORKSPACEZ.js
        > images
        > scripts
        > gitattributes
        > .gitignore
        > README.md
        ! syncz_vars.yml
        ! syncz.yml
        M ...
        PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
        from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
        to: CUST010.PUBLIC..JCL(RUNDOG)

        file_to_upload: 3
        success: 3
        error: 0
        skipped: 0

        Data set uploaded successfully.
        Data set created successfully.
        | 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
        developer@hr-805520147629576-0:~/doggos-gse$ [ ]
        Ln 64, Col 53 Spaces: 4 UTF-8 LF COBOL Layout: US
      
```

5. Change the value of OTHER-INDEX-VALUE from 9 to 10.

```

DOGGOS > COBOL > DOGGOS.CBL > PROGRAM: DOGGOS > DATA DIVISION > WORKING-STORAGE SECTION > BREED-INDEXES > OTHER-INDEX > OTHER-INDEX-VALUE
40      10 CHT-BREED-NAME PIC X(3) VALUE 'CHI'.
41      10 POODLE-INDEX.
42      10 POODLE-INDEX-VALUE PIC 9(1) VALUE 5.
43      10 POODLE-BREED-NAME PIC X(6) VALUE 'POODLE'.
44      05 POMERANIAN-INDEX.
45      10 POMERANIAN-INDEX-VALUE PIC 9(1) VALUE 6.
46      10 POMERANIAN-BREED-NAME PIC X(10) VALUE 'POMERANIAN'.
47      05 BULDOG-INDEX.
48      10 BULDOG-INDEX-VALUE PIC 9(1) VALUE 7.
49      10 BULDOG-BREED-NAME PIC X(6) VALUE 'BULDOG'.
50      05 JINGO-INDEX.
51      10 JINGO-INDEX-VALUE PIC 9(1) VALUE 8.
52      10 JINGO-BREED-NAME PIC X(5) VALUE 'JINGO'.
53      05 HUSKY-INDEX.
54      10 HUSKY-INDEX-VALUE PIC 9(1) VALUE 9.
55      10 HUSKY-BREED-NAME PIC X(5) VALUE 'HUSKY'.
56      05 OTHER-INDEX.
57      10 OTHER-INDEX-VALUE PIC 9(1) VALUE 10.
58      * INTERNAL DATA STRUCTURE TO KEEP
59      * THE AMOUNT OF ADOPTIONS PER BREED
60      01 ACCUMULATOR.
61      70      05 BREED-ADOPTIONS PIC 9(3) OCCURS 9 TIMES VALUE 000.
62      71      * FINAL DATA STRUCTURE TO FLUSH THE ADOPTIONS IN THE PARTICULAR
63      * BREED INTO THE REPORT
64      73      01 ADOPTED-RESULT.
65
66
67
68
69
70
71
72
73
74

```

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
developer@ws-805520147629576-0:/doggos-gse\$

6. Change the value of OTHER-INDEX-VALUE from PIC 9(1) to PIC 9(2).

```

DOGGOS > COBOL > DOGGOS.CBL > PROGRAM: DOGGOS > DATA DIVISION > WORKING-STORAGE SECTION > BREED-INDEXES > OTHER-INDEX > OTHER-INDEX-VALUE
40      10 CHT-BREED-NAME PIC X(3) VALUE 'CHI'.
41      10 POODLE-INDEX.
42      10 POODLE-INDEX-VALUE PIC 9(1) VALUE 5.
43      10 POODLE-BREED-NAME PIC X(6) VALUE 'POODLE'.
44      05 POMERANIAN-INDEX.
45      10 POMERANIAN-INDEX-VALUE PIC 9(1) VALUE 6.
46      10 POMERANIAN-BREED-NAME PIC X(10) VALUE 'POMERANIAN'.
47      05 BULDOG-INDEX.
48      10 BULDOG-INDEX-VALUE PIC 9(1) VALUE 7.
49      10 BULDOG-BREED-NAME PIC X(6) VALUE 'BULDOG'.
50      05 JINGO-INDEX.
51      10 JINGO-INDEX-VALUE PIC 9(1) VALUE 8.
52      10 JINGO-BREED-NAME PIC X(5) VALUE 'JINGO'.
53      05 HUSKY-INDEX.
54      10 HUSKY-INDEX-VALUE PIC 9(1) VALUE 9.
55      10 HUSKY-BREED-NAME PIC X(5) VALUE 'HUSKY'.
56      05 OTHER-INDEX.
57      10 OTHER-INDEX-VALUE PIC 9(2) VALUE 10.
58      * INTERNAL DATA STRUCTURE TO KEEP
59      * THE AMOUNT OF ADOPTIONS PER BREED
60      01 ACCUMULATOR.
61      70      05 BREED-ADOPTIONS PIC 9(3) OCCURS 9 TIMES VALUE 000.
62      71      * FINAL DATA STRUCTURE TO FLUSH THE ADOPTIONS IN THE PARTICULAR
63      * BREED INTO THE REPORT
64      73      01 ADOPTED-RESULT.
65
66
67
68
69
70
71
72
73
74

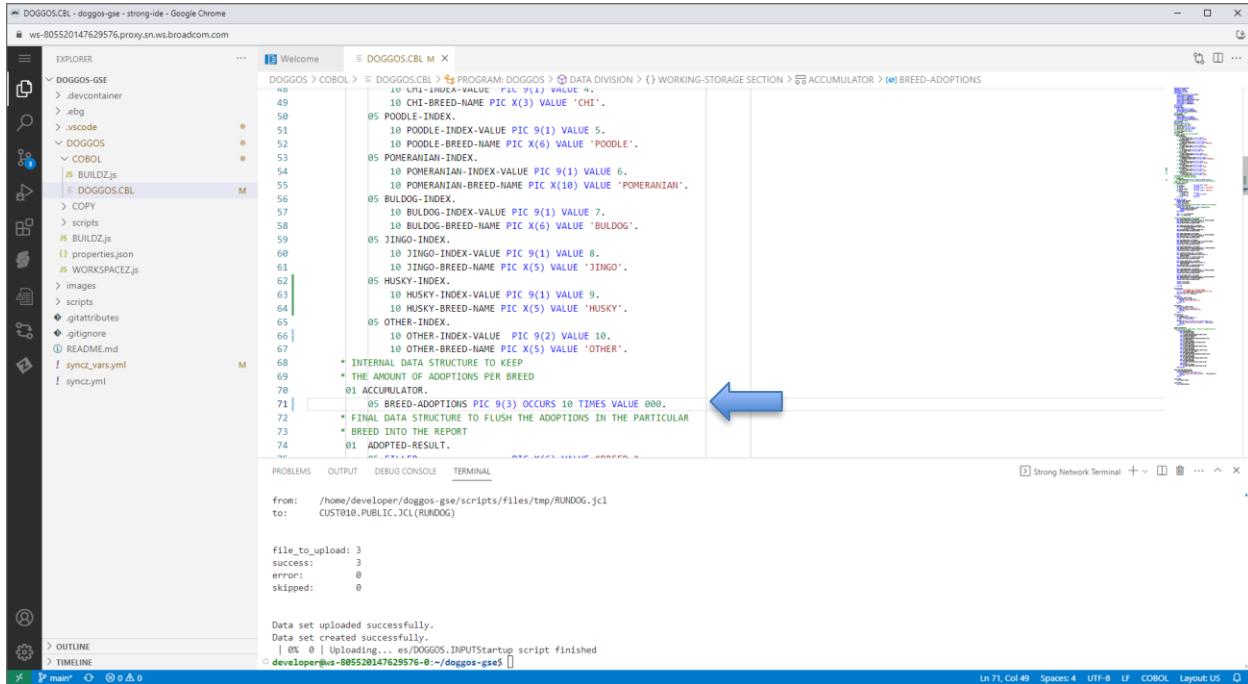
```

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
developer@ws-805520147629576-0:/doggos-gse\$

7. Scroll down to line 71 and look for the 05 BREED-ADOPTIONS PIC 9(3) OCCURS 9 TIMES VALUE 000.

8. Change the OCCURS from 9 to 10.



```

DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

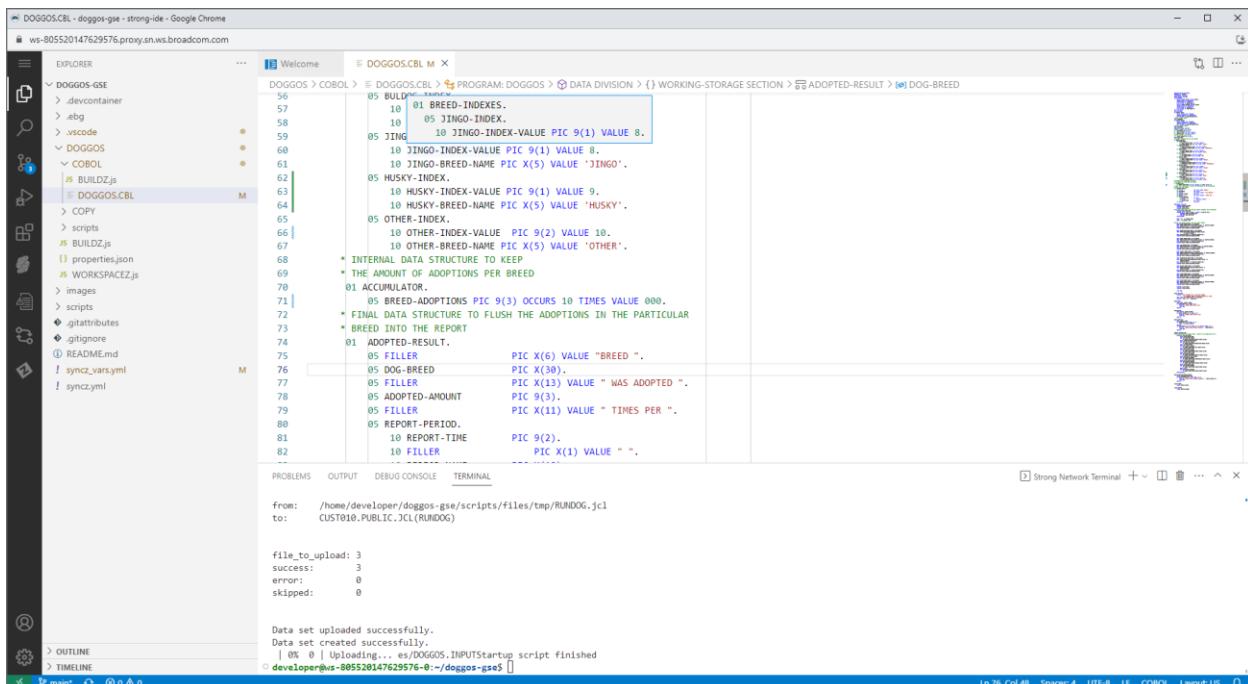
EXPLORER          WELCOME          DOGGOS.CBL M X
DOGGOS > COBOL > DOGGOS.CBL > PROGRAM: DOGGOS > DATA DIVISION > {} WORKING-STORAGE SECTION > ACCUMULATOR > BREED-ADOPTIONS
  40
  41      10 CHT-BREED-NAME PIC X(3) VALUE 'CHI'.
  42      10 POODLE-INDEX-VALUE PIC 9(1) VALUE 5.
  43      10 POODLE-BREED-NAME PIC X(6) VALUE 'POODLE'.
  44      05 POMERANIAN-INDEX.
  45      10 POMERANIAN-INDEX-VALUE PIC 9(1) VALUE 6.
  46      10 POMERANIAN-BREED-NAME PIC X(10) VALUE 'POMERANIAN'.
  47      05 BULDOG-INDEX.
  48      10 BULDOG-INDEX-VALUE PIC 9(1) VALUE 7.
  49      10 BULDOG-BREED-NAME PIC X(6) VALUE 'BULDOG'.
  50      05 JINGO-INDEX.
  51      10 JINGO-INDEX-VALUE PIC 9(1) VALUE 8. // Line highlighted by arrow
  52      10 JINGO-BREED-NAME PIC X(5) VALUE 'JINGO'.
  53      05 HUSKY-INDEX.
  54      10 HUSKY-INDEX-VALUE PIC 9(1) VALUE 9.
  55      10 HUSKY-BREED-NAME PIC X(5) VALUE 'HUSKY'.
  56      05 OTHER-INDEX.
  57      10 OTHER-INDEX-VALUE PIC 9(2) VALUE 10.
  58      10 OTHER-BREED-NAME PIC X(5) VALUE 'OTHER'.
  59      * INTERNAL DATA STRUCTURE TO KEEP
  60      * THE AMOUNT OF ADOPTIONS PER BREED
  61      01 ACCUMULATOR.
  62          05 BREED-ADOPTIONS PIC 9(3) OCCURS 10 TIMES VALUE 000.
  63      * FINAL DATA STRUCTURE TO FLUSH THE ADOPTIONS IN THE PARTICULAR
  64      * BREED INTO THE REPORT
  65      01 ADOPTED-RESULT.
  66
  67
  68
  69
  70
  71
  72
  73
  74

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL
from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
developer@ws-805520147629576-0:~/doggos-gse$ 
```

9. Next will be to search for the field JINGO-INDEX-VALUE. To do this place your cursor over the field JINGO-INDEX-VALUE notice how it brings up the field definition.



```

DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

EXPLORER          WELCOME          DOGGOS.CBL M X
DOGGOS > COBOL > DOGGOS.CBL > PROGRAM: DOGGOS > DATA DIVISION > {} WORKING-STORAGE SECTION > ACCUMULATOR > DOG-BREED
  56
  57      10 01 BREED-INDEXES.
  58      10 05 JINGO-INDEX.
  59      05 JINGO-INDEX-VALUE PIC 9(1) VALUE 8. // Line highlighted by cursor
  60      10 JINGO-INDEX-VALUE PIC 9(1) VALUE 8.
  61      10 JINGO-BREED-NAME PIC X(5) VALUE 'JINGO'.
  62      05 HUSKY-INDEX.
  63      10 HUSKY-INDEX-VALUE PIC 9(1) VALUE 9.
  64      10 HUSKY-BREED-NAME PIC X(5) VALUE 'HUSKY'.
  65      05 OTHER-INDEX.
  66      10 OTHER-INDEX-VALUE PIC 9(2) VALUE 10.
  67      10 OTHER-BREED-NAME PIC X(5) VALUE 'OTHER'.
  68      * INTERNAL DATA STRUCTURE TO KEEP
  69      * THE AMOUNT OF ADOPTIONS PER BREED
  70      01 ACCUMULATOR.
  71          05 BREED-ADOPTIONS PIC 9(3) OCCURS 10 TIMES VALUE 000.
  72      * FINAL DATA STRUCTURE TO FLUSH THE ADOPTIONS IN THE PARTICULAR
  73      * BREED INTO THE REPORT
  74      01 ADOPTED-RESULT.
  75          05 FILLER      PIC X(6) VALUE "BREED".
  76          05 FILLER      PIC X(30).
  77          05 FILLER      PIC X(13) VALUE " WAS ADOPTED ".
  78          05 FILLER      PIC X(3).
  79          05 FILLER      PIC X(11) VALUE " TIMES PER ".
  80          05 REPORT-PERIOD.
  81          10 REPORT-TIME    PIC 9(2).
  82          10 FILLER      PIC X(1) VALUE " ".

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL
from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
developer@ws-805520147629576-0:~/doggos-gse$ 
```

10. Right click over the field JINGO-INDEX-VALUE and select Peek then Peek Reference.

The screenshot shows the DOGGOS.CBL file in the strong-ide IDE. The code editor displays the following COBOL program:

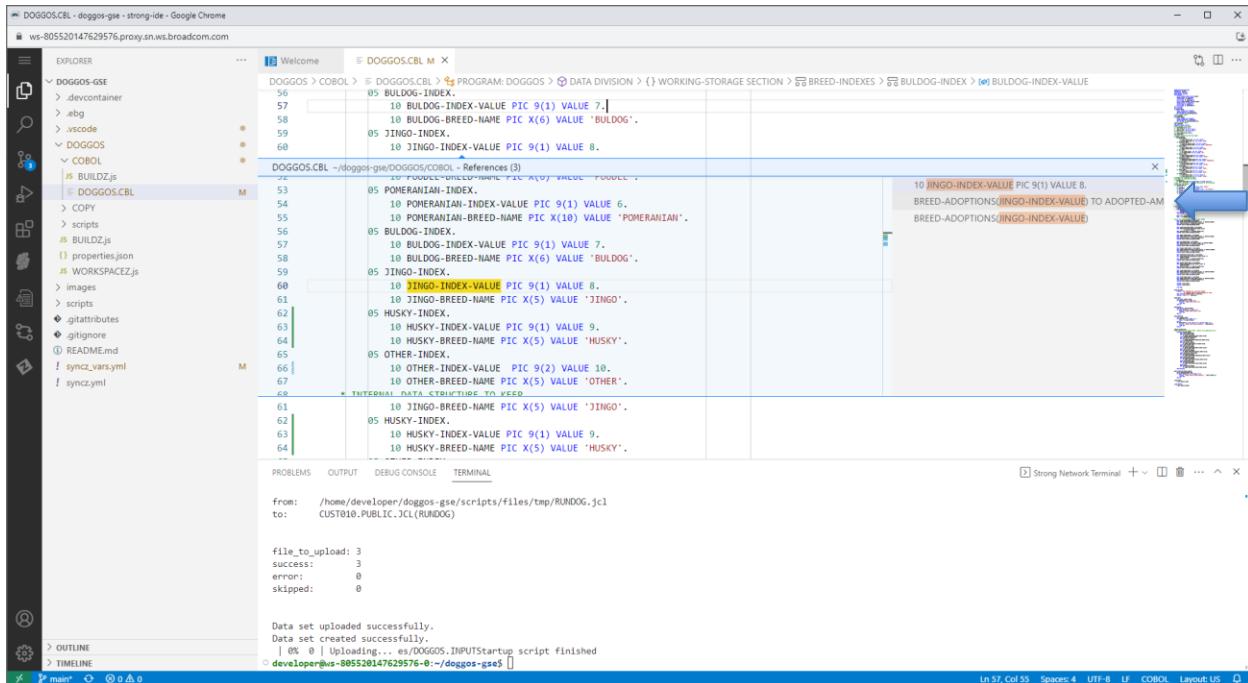
```

      05 BULDOG-INDEX.
      10 BULDOG-INDEX-VALUE PIC 9(1) VALUE 7.
      10 BULDOG-BREED-NAME PIC X(6) VALUE 'BULDOG'.
      05 JINGO-INDEX.
      10 JINGO-INDEX-VALUE PIC 9(1) VALUE 8.
      10 JINGO-BREED.
      05 HUSKY-INDEX.
      10 HUSKY-INDEX.
      10 HUSKY-BREED.
      05 OTHER-INDEX.
      10 OTHER-INDEX.
      10 OTHER-BREED.
      * INTERNAL DATA STRUCTURE
      * THE AMOUNT OF ADOPTION
      01 ACCUMULATOR.
      05 BREED-ADOPTIONS
      * FINAL DATA STRUCTURE
      * BREED INTO THE REPORT
      01 ADOPTED-RESULT.
      05 FILLER
      05 DOG-BREED
      05 FILLER
      05 ADOPTED-AMOUNT
      05 FILLER
      05 REPORT-PERIOD.
      10 REPORT-TIME
      10 FILLER

```

The cursor is positioned at line 60, column 10, over the field `JINGO-INDEX-VALUE`. A context menu is open, with the "Peek References" option highlighted. Other options in the menu include "Go to Definition", "Find All References", "Change All Occurrences", "Format Document", "Refactor...", "Generate COBOL Control Flow", "Share", "Cut", "Copy", "Paste", and "Add to Watch".

11. This will bring up a screen that shows everywhere in the program the field JINGO-INDEX-VALUE is located.
12. Double click BREED-ADOPTIONS(JINGO-INDEX-VALUE) TO ADOPTED-AM. This will bring you to the line of code you want to be on.



DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

DOGGOS > COBOL > PROGRAM: DOGGOS > DATA DIVISION > WORKING-STORAGE SECTION > BREED-INDEXES > BULDOG-INDEX > BULDOG-INDEX-VALUE

```

      05 BULDOG-INDEX.
      56      10 BULDOG-INDEX-VALUE PIC 9(1) VALUE 7.
      57      10 BULDOG-BREED-NAME PIC X(6) VALUE 'BULDOG'.
      58      05 JINGO-INDEX.
      59          10 JINGO-INDEX-VALUE PIC 9(1) VALUE 8.
      60          05 POMERANIAN-INDEX.
      61              10 POMERANIAN-INDEX-VALUE PIC 9(1) VALUE 6.
      62              10 POMERANIAN-BREED-NAME PIC X(10) VALUE 'POMERANIAN'.
      63          05 BULDOG-INDEX.
      64              10 BULDOG-INDEX-VALUE PIC 9(1) VALUE 7.
      65              10 BULDOG-BREED-NAME PIC X(6) VALUE 'BULDOG'.
      66              05 JINGO-INDEX.
      67                  10 JINGO-INDEX-VALUE PIC 9(1) VALUE 8.
      68                  10 JINGO-BREED-NAME PIC X(5) VALUE 'JINGO'.
      69          05 HUSKY-INDEX.
      70              10 HUSKY-INDEX-VALUE PIC 9(1) VALUE 9.
      71              10 HUSKY-BREED-NAME PIC X(5) VALUE 'HUSKY'.
      72          05 OTHER-INDEX.
      73              10 OTHER-INDEX-VALUE PIC 9(2) VALUE 10.
      74              10 OTHER-BREED-NAME PIC X(5) VALUE 'OTHER'.
      75          05 JINGO-BREED-NAME PIC X(5) VALUE 'JINGO'.
      76          05 HUSKY-INDEX.
      77              10 HUSKY-INDEX-VALUE PIC 9(1) VALUE 9.
      78              10 HUSKY-BREED-NAME PIC X(5) VALUE 'HUSKY'.
  
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```

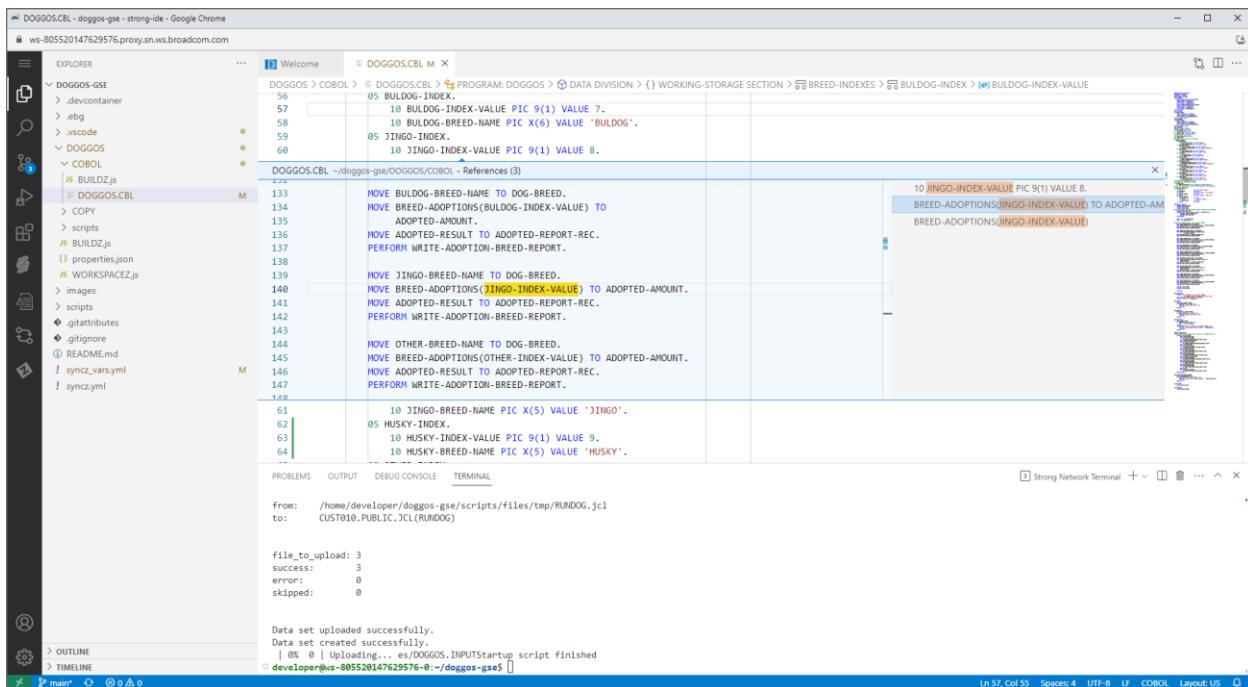
from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
developer@ws-805520147629576-0:/doggos-gse$ []
  
```

Ln 57, Col 55 Spaces: 4 UFT-8 LF COBOL Layout: US

13. This will bring you down to line 140 which is the next sections to change.



DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

DOGGOS > COBOL > PROGRAM: DOGGOS > DATA DIVISION > WORKING-STORAGE SECTION > BREED-INDEXES > BULDOG-INDEX > BULDOG-INDEX-VALUE

```

      05 BULDOG-INDEX.
      56      10 BULDOG-INDEX-VALUE PIC 9(1) VALUE 7.
      57      10 BULDOG-BREED-NAME PIC X(6) VALUE 'BULDOG'.
      58      05 JINGO-INDEX.
      59          10 JINGO-INDEX-VALUE PIC 9(1) VALUE 8.
      60          05 POMERANIAN-INDEX.
      61              10 POMERANIAN-INDEX-VALUE PIC 9(1) VALUE 6.
      62              10 POMERANIAN-BREED-NAME PIC X(10) VALUE 'POMERANIAN'.
      63          05 BULDOG-INDEX.
      64              10 BULDOG-INDEX-VALUE PIC 9(1) VALUE 7.
      65              10 BULDOG-BREED-NAME PIC X(6) VALUE 'BULDOG'.
      66              05 JINGO-INDEX.
      67                  10 JINGO-INDEX-VALUE PIC 9(1) VALUE 8.
      68                  10 JINGO-BREED-NAME PIC X(5) VALUE 'JINGO'.
      69          05 HUSKY-INDEX.
      70              10 HUSKY-INDEX-VALUE PIC 9(1) VALUE 9.
      71              10 HUSKY-BREED-NAME PIC X(5) VALUE 'HUSKY'.
      72          05 OTHER-INDEX.
      73              10 OTHER-INDEX-VALUE PIC 9(2) VALUE 10.
      74              10 OTHER-BREED-NAME PIC X(5) VALUE 'OTHER'.
      75          05 JINGO-BREED-NAME PIC X(5) VALUE 'JINGO'.
      76          05 HUSKY-INDEX.
      77              10 HUSKY-INDEX-VALUE PIC 9(1) VALUE 9.
      78              10 HUSKY-BREED-NAME PIC X(5) VALUE 'HUSKY'.
      79          05 JINGO-BREED-NAME PIC X(5) VALUE 'JINGO'.
      80          05 HUSKY-INDEX.
      81              10 HUSKY-INDEX-VALUE PIC 9(1) VALUE 9.
      82              10 HUSKY-BREED-NAME PIC X(5) VALUE 'HUSKY'.
  
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```

from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
developer@ws-805520147629576-0:/doggos-gse$ []
  
```

Ln 57, Col 55 Spaces: 4 UFT-8 LF COBOL Layout: US

14. Click on the “x” in the References window to remove it.

DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

EXPLORER

- DOGGOS-GSE
 - > .devcontainer
 - > ebg
 - > vscode
 - DOGGOS
 - > COBOL
 - ! BUILDZ.js
 - DOGGOS.CBL
- > COPY
- > scripts
- ! BUILDZ.js
- properties.json
- WORKSPACEZ.js
- > images
- > scripts
- ! gitattributes
- ! gitignore
- ! README.md
- ! syncz_varsym
- ! syncz.yml

DOGGOS.CBL ~/doggos-gse/DOGGOS/COBOL - References (3)

```

05 BULDOG-INDEX.
  10 BULDOG-INDEX-VALUE PIC 9(1) VALUE 7.
  10 BULDOG-BREED-NAME PIC X(6) VALUE 'BULDOG'.
  05 JINGO-INDEX.
  10 JINGO-INDEX-VALUE PIC 9(1) VALUE 8.

133 MOVE BULDOG-BREED-NAME TO DOG-BREED.
134 MOVE BREED-ADOPTIONS(BULDOG-INDEX-VALUE) TO
135     ADOPTED-AMOUNT.
136 MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
137 PERFORM WRITE-ADOPTION-BREED-REPORT.

139 MOVE JINGO-BREED-NAME TO DOG-BREED.
140 MOVE BREED-ADOPTIONS(JINGO-INDEX-VALUE) TO ADOPTED-AMOUNT.
141 MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
142 PERFORM WRITE-ADOPTION-BREED-REPORT.

144 MOVE OTHER-BREED-NAME TO DOG-BREED.
145 MOVE BREED-ADOPTIONS(OTHER-INDEX-VALUE) TO ADOPTED-AMOUNT.
146 MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
147 PERFORM WRITE-ADOPTION-BREED-REPORT.

       10 JINGO-BREED-NAME PIC X(5) VALUE 'JINGO'.
05 HUSKY-INDEX.
  10 HUSKY-INDEX-VALUE PIC 9(1) VALUE 9.
  10 HUSKY-BREED-NAME PIC X(5) VALUE 'HUSKY'.
```

PROBLEMS **OUTPUT** **DEBUG CONSOLE** **TERMINAL**

```

from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
developer@ws-805520147629576-0:~/doggos-gse$
```

Ln 57, Col 55 Spaces: 4 UTF-8 LF COBOL Layout: US

DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

EXPLORER

- DOGGOS-GSE
 - > .devcontainer
 - > ebg
 - > vscode
 - DOGGOS
 - > COBOL
 - ! BUILDZ.js
 - DOGGOS.CBL
- > COPY
- > scripts
- ! BUILDZ.js
- properties.json
- WORKSPACEZ.js
- > images
- > scripts
- ! gitattributes
- ! gitignore
- ! README.md
- ! syncz_varsym
- ! syncz.yml

DOGGOS.CBL ~/doggos-gse/DOGGOS/COBOL - References (3)

```

134 MOVE BREED-ADOPTIONS(BULDOG-INDEX-VALUE) TO
135     ADOPTED-AMOUNT.
136 MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
137 PERFORM WRITE-ADOPTION-BREED-REPORT.

139 MOVE JINGO-BREED-NAME TO DOG-BREED.
140 MOVE BREED-ADOPTIONS(JINGO-INDEX-VALUE) TO ADOPTED-AMOUNT.
141 MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
142 PERFORM WRITE-ADOPTION-BREED-REPORT.

144 MOVE OTHER-BREED-NAME TO DOG-BREED.
145 MOVE BREED-ADOPTIONS(OTHER-INDEX-VALUE) TO ADOPTED-AMOUNT.
146 MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
147 PERFORM WRITE-ADOPTION-BREED-REPORT.

148 PERFORM CLOSE-INPUT.
149 PERFORM CLOSE-OUTPUT.
150 STOP RUN.
151
152
153
154 PRINT-WELCOME.
  DISPLAY "THIS PROGRAM WILL CALCULATE AMOUNT"
  " OF ADOPTED DOGGOS PER SOME PERIODS OF TIME".
155 MOVE FUNCTION CURRENT-DATE TO CURR-DATE.
156 DISPLAY "TODAY IS : " CURR-DATE.
157 OPEN-INPUT.
```

PROBLEMS **OUTPUT** **DEBUG CONSOLE** **TERMINAL**

```

from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
developer@ws-805520147629576-0:~/doggos-gse$
```

Ln 140, Col 33 Spaces: 4 UTF-8 LF COBOL Layout: US

15. Copy lines 139 to 142 and insert them at line 143.

DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

EXPLORER DOGGOS > COBOL > PROGRAM: DOGGOS > PROCEDURE DIVISION

```

126 MOVE POMERANIAN-BREED-NAME TO DOG-BREED.
127 MOVE BREED-ADOPTIONS(POMERANIAN-INDEX-VALUE) TO
128     ADOPTED-AMOUNT.
129 MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
130 PERFORM WRITE-ADOPTION-BREED-REPORT.
131
132 MOVE BULDOG-BREED-NAME TO DOG-BREED.
133 MOVE BREED-ADOPTIONS(BULDOG-INDEX-VALUE) TO
134     ADOPTED-AMOUNT.
135 MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
136 PERFORM WRITE-ADOPTION-BREED-REPORT.
137
138 MOVE JINGO-BREED-NAME TO DOG-BREED.
139 MOVE BREED-ADOPTIONS(JINGO-INDEX-VALUE) TO ADOPTED-AMOUNT.
140 MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
141 PERFORM WRITE-ADOPTION-BREED-REPORT.
142
143 MOVE OTHER-BREED-NAME TO DOG-BREED.
144 MOVE BREED-ADOPTIONS(OTHER-INDEX-VALUE) TO ADOPTED-AMOUNT.
145 MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
146 PERFORM WRITE-ADOPTION-BREED-REPORT.
147
148 PERFORM CLOSE-INPUT.
149 PERFORM CLOSE-OUTPUT.
150
151 STOP RUN.
152

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```

from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
developer@ws-805520147629576-0:~/doggos-gse$ []

```

Ln 142, Col 48 (217 selected) Spaces: 4 UTF-8 LF COBOL Layout: US

DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

EXPLORER DOGGOS > COBOL > PROGRAM: DOGGOS > PROCEDURE DIVISION

```

126 MOVE POMERANIAN-BREED-NAME TO DOG-BREED.
127 MOVE BREED-ADOPTIONS(POMERANIAN-INDEX-VALUE) TO
128     ADOPTED-AMOUNT.
129 MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
130 PERFORM WRITE-ADOPTION-BREED-REPORT.
131
132 MOVE BULDOG-BREED-NAME TO DOG-BREED.
133 MOVE BREED-ADOPTIONS(BULDOG-INDEX-VALUE) TO
134     ADOPTED-AMOUNT.
135 MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
136 PERFORM WRITE-ADOPTION-BREED-REPORT.
137
138 MOVE JINGO-BREED-NAME TO DOG-BREED.
139 MOVE BREED-ADOPTIONS(JINGO-INDEX-VALUE) TO ADOPTED-AMOUNT.
140 MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
141 PERFORM WRITE-ADOPTION-BREED-REPORT.
142
143 MOVE JINGO-BREED-NAME TO DOG-BREED.
144 MOVE BREED-ADOPTIONS(JINGO-INDEX-VALUE) TO ADOPTED-AMOUNT.
145 MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
146 PERFORM WRITE-ADOPTION-BREED-REPORT.
147
148 MOVE OTHER-BREED-NAME TO DOG-BREED.
149 MOVE BREED-ADOPTIONS(OTHER-INDEX-VALUE) TO ADOPTED-AMOUNT.
150 MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
151 PERFORM WRITE-ADOPTION-BREED-REPORT.
152

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```

from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
developer@ws-805520147629576-0:~/doggos-gse$ []

```

Ln 147, Col 48 (217 selected) Spaces: 4 UTF-8 LF COBOL Layout: US

16. After pasting the lines of code change JINGO to HUSKY, or the dog breed picked earlier in the exercise.

The screenshot shows the DOGGOS.CBL project in the strong-ide IDE. The code editor displays a COBOL program named DOGADOS.CBL. The code handles various dog breeds and their adoptions. A context menu is open over the line of code at line 146, which reads:

```

MOVE JINGO-BREED-NAME TO DOG-BREED.
MOVE BREED-ADOPTIONS(JINGO-INDEX-VALUE) TO
    ADOPTEE-AMOUNT.
MOVE ADOPTEE-RESULT TO ADOPTEE-REPORT-REC.
PERFORM WRITE-ADOPTEE-BREED-REPORT.

```

The context menu is expanded, showing options like "Peek Definition", "Peek References", "Find All References", "Change All Occurrences", "Format Document", "Refactor...", "Generate COBOL Control Flow", "Share", "Cut", "Copy", "Paste", "Add to Watch", and "Command Palette...".

17. To proceed to the next code change repeat steps 11 to 14. This time select BREED-ADOPTIONS(JINGO-INDEX-VALUE) instead of BREED-ADOPTIONS(JINGO-INDEX-VALUE) TO ADOPTEE-AM. Remember to double click the field.

The screenshot shows the DOGGOS.CBL project in the strong-ide IDE. The code editor displays a COBOL program named DOGADOS.CBL. The code handles various dog breeds and their adoptions. A context menu is open over the line of code at line 146, which reads:

```

MOVE JINGO-BREED-NAME TO DOG-BREED.
MOVE BREED-ADOPTIONS(JINGO-INDEX-VALUE) TO
    ADOPTEE-AMOUNT.
MOVE ADOPTEE-RESULT TO ADOPTEE-REPORT-REC.
PERFORM WRITE-ADOPTEE-BREED-REPORT.

```

The context menu is expanded, showing options like "Peek Definition", "Peek References", "Find All References", "Change All Occurrences", "Format Document", "Refactor...", "Generate COBOL Control Flow", "Share", "Cut", "Copy", "Paste", "Add to Watch", and "Command Palette...".

```

DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

EXPLORER DOGGOS.CBL M ...
DOGGOS > COBOL > DOGGOS.CBL > PROGRAM: DOGADOS > PROCEDURE DIVISION
134 MOVE BREED-ADOPTIONS(BULDOG-INDEX-VALUE) TO ADOPTED-AMOUNT.
135 .
136 MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
137 PERFORM WRITE-ADOPTION-BREED-REPORT.
138 .
139 MOVE JINGO-BREED-NAME TO DOG-BREED.
140 MOVE BREED-ADOPTIONS(JINGO-INDEX-VALUE) TO ADOPTED-AMOUNT.

DOGGOS.CBL ~/doggos-gse/DOGGOS(COBOL - References (3))
WHEN POMERANIAN-BREED-NAME
  ADD INP-ADOPTED-AMOUNT
  TO BREED-ADOPTIONS(POMERANIAN-INDEX-VALUE)
  WHEN BULDOG-BREED-NAME
    ADD INP-ADOPTED-AMOUNT
    TO BREED-ADOPTIONS(BULDOG-INDEX-VALUE)
  WHEN JINGO-BREED-NAME
    ADD INP-ADOPTED-AMOUNT
    TO BREED-ADOPTIONS(JINGO-INDEX-VALUE)
  WHEN OTHER
    ADD INP-ADOPTED-AMOUNT
    TO BREED-ADOPTIONS(OTHER-INDEX-VALUE)
END-EVALUATE.

WRITE-ADOPTION-BREED-REPORT.
WRITE ADOPTED-REPORT-REC.
IF ADOPT-REPORT-FS IS NOT EQUAL TO 00
  DISPLAY "CANNOT WRITE RECORD PROPERLY: " ADOPT-REPORT-FS
  STOP RUN
END-IF.

CLOSE - INPUT.
CLOSE ADOPTS - INPUT.

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUT startup script finished
developer@ws-805520147629576-0:~/doggos-gse$ []

```

Ln 140, Col 37 Spaces: 4 UFT-8 LF COBOL Layout: US

18. This brings you down to line 215 where the next change is to occur.

```

DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

EXPLORER DOGGOS.CBL M ...
DOGGOS > COBOL > DOGGOS.CBL > PROGRAM: DOGADOS > PROCEDURE DIVISION > UPDATE-ACCUMULATOR
204 WHEN POODLE-BREED-NAME
205   ADD INP-ADOPTED-AMOUNT
206   TO BREED-ADOPTIONS(POODLE-INDEX-VALUE)
207 WHEN POMERANIAN-BREED-NAME
208   ADD INP-ADOPTED-AMOUNT
209   TO BREED-ADOPTIONS(POMERANIAN-INDEX-VALUE)
210 WHEN BULDOG-BREED-NAME
211   ADD INP-ADOPTED-AMOUNT
212   TO BREED-ADOPTIONS(BULDOG-INDEX-VALUE)
213 WHEN JINGO-BREED-NAME
214   ADD INP-ADOPTED-AMOUNT
215   TO BREED-ADOPTIONS(JINGO-INDEX-VALUE)
216 WHEN OTHER
217   ADD INP-ADOPTED-AMOUNT
218   TO BREED-ADOPTIONS(OTHER-INDEX-VALUE)
219 END-EVALUATE.

220 WRITE-ADOPTION-BREED-REPORT.
221 WRITE ADOPTED-REPORT-REC.
222 IF ADOPT-REPORT-FS IS NOT EQUAL TO 00
223   DISPLAY "CANNOT WRITE RECORD PROPERLY: " ADOPT-REPORT-FS
224   STOP RUN
225 END-IF.

226 CLOSE - INPUT.
227 CLOSE ADOPTS - INPUT.

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUT startup script finished
developer@ws-805520147629576-0:~/doggos-gse$ []

```

Ln 215, Col 58 Spaces: 4 UFT-8 LF COBOL Layout: US

19. Copy lines 213 to 215 and paste it after 215.

DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

EXPLORER

- DOGGOS-GSE
 - > _devcontainer
 - > _ebg
 - > vscode
 - DOGGOS
 - > COBOL
 - BUILDZ.js
 - DOGGOS.CBL
 - > COPY
 - > scripts
 - BUILDZ.js
 - properties.json
 - WORKSPACEZ.js
 - > images
 - > scripts
 - gitattributes
 - gitignore
 - README.md
 - syncz_varsym
 - syncz.yml

DOGGOS.CBL M

```

DOGGOS > COBOL > PROGRAM: DOGGOS > PROCEDURE DIVISION > UPDATE-ACCUMULATOR

284 WHEN Poodle-Breed-Name
285 ADD INP-ADOPTED-AMOUNT
286 TO BREED-ADOPTIONS(POODLE-INDEX-VALUE)
287 WHEN Pomeranian-Breed-Name
288 ADD INP-ADOPTED-AMOUNT
289 TO BREED-ADOPTIONS(POMERANIAN-INDEX-VALUE)
290 WHEN Bulldog-Breed-Name
291 ADD INP-ADOPTED-AMOUNT
292 TO BREED-ADOPTIONS(BULDOG-INDEX-VALUE)
293 WHEN Jingo-Breed-Name
294 ADD INP-ADOPTED-AMOUNT
295 TO BREED-ADOPTIONS(JINGO-INDEX-VALUE)
296 WHEN OTHER
297 ADD INP-ADOPTED-AMOUNT
298 TO BREED-ADOPTIONS(OTHER-INDEX-VALUE)
299 END-EVALUATE.

300 WRITE-ADOPTION-BREED-REPORT.
301 WRITE ADOPTED-REPORT-REC.
302 IF ADOPT-REPORT-FS IS NOT EQUAL TO 00
303 DISPLAY "CANNOT WRITE RECORD PROPERLY: ~ ADOPT-REPORT-FS"
304 STOP RUN
305 END-IF.

306 CLOSE INPUT.
307 CLOSE ADOPTS-INPUT.
308

```

PROBLEMS **OUTPUT** **DEBUG CONSOLE** **TERMINAL**

```

from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
developer@ws-805520147629576-0:~/doggos-gse$ []

```

Ln 215, Col 58 (134 selected) Spaces: 4 UTF-8 LF COBOL Layout: US

DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

EXPLORER

- DOGGOS-GSE
 - > _devcontainer
 - > _ebg
 - > vscode
 - DOGGOS
 - > COBOL
 - BUILDZ.js
 - DOGGOS.CBL
 - > COPY
 - > scripts
 - BUILDZ.js
 - properties.json
 - WORKSPACEZ.js
 - > images
 - > scripts
 - gitattributes
 - gitignore
 - README.md
 - syncz_varsym
 - syncz.yml

DOGGOS.CBL M

```

DOGGOS > COBOL > PROGRAM: DOGGOS > PROCEDURE DIVISION > UPDATE-ACCUMULATOR

204 WHEN Poodle-Breed-Name
205 ADD INP-ADOPTED-AMOUNT
206 TO BREED-ADOPTIONS(POODLE-INDEX-VALUE)
207 WHEN Pomeranian-Breed-Name
208 ADD INP-ADOPTED-AMOUNT
209 TO BREED-ADOPTIONS(POMERANIAN-INDEX-VALUE)
210 WHEN Bulldog-Breed-Name
211 ADD INP-ADOPTED-AMOUNT
212 TO BREED-ADOPTIONS(BULDOG-INDEX-VALUE)
213 WHEN Jingo-Breed-Name
214 ADD INP-ADOPTED-AMOUNT
215 TO BREED-ADOPTIONS(JINGO-INDEX-VALUE)
216 WHEN Jingo-Breed-Name
217 ADD INP-ADOPTED-AMOUNT
218 TO BREED-ADOPTIONS(JINGO-INDEX-VALUE)
219 WHEN OTHER
220 ADD INP-ADOPTED-AMOUNT
221 TO BREED-ADOPTIONS(OTHER-INDEX-VALUE)
222 END-EVALUATE.

223 WRITE-ADOPTION-BREED-REPORT.
224 WRITE ADOPTED-REPORT-REC.
225 IF ADOPT-REPORT-FS IS NOT EQUAL TO 00
226 DISPLAY "CANNOT WRITE RECORD PROPERLY: ~ ADOPT-REPORT-FS"
227 STOP RUN
228 END-IF.

229 CLOSE INPUT.
230 CLOSE ADOPTS-INPUT.

```

PROBLEMS **OUTPUT** **DEBUG CONSOLE** **TERMINAL**

```

from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
developer@ws-805520147629576-0:~/doggos-gse$ []

```

Ln 216, Col 38 Spaces: 4 UTF-8 LF COBOL Layout: US

20. After pasting the lines of code change JINGO to HUSKY, or the dog breed picked earlier in the exercise.

```

DOGGOS > COBOL > PROGRAM: DOGGOS > PROCEDURE DIVISION > UPDATE-ACCUMULATOR
284      WHEN POODLE-BREED-NAME
285          ADD INP-ADOPTED-AMOUNT
286              TO BREED-ADOPTIONS(POODLE-INDEX-VALUE)
287      WHEN POMERANIAN-BREED-NAME
288          ADD INP-ADOPTED-AMOUNT
289              TO BREED-ADOPTIONS(POMERANIAN-INDEX-VALUE)
290      WHEN BULDOG-BREED-NAME
291          ADD INP-ADOPTED-AMOUNT
292              TO BREED-ADOPTIONS(BULDOG-INDEX-VALUE)
293      WHEN JINDO-BREED-NAME
294          ADD INP-ADOPTED-AMOUNT
295              TO BREED-ADOPTIONS(JINGO-INDEX-VALUE)
296      WHEN HUSKY-BREED-NAME
297          ADD INP-ADOPTED-AMOUNT
298              TO BREED-ADOPTIONS(HUSKY-INDEX-VALUE)
299      WHEN OTHER
300          ADD INP-ADOPTED-AMOUNT
301              TO BREED-ADOPTIONS(OTHER-INDEX-VALUE)
302
303      END-EVALUATE.
304
305      WRITF-ADOPTION-BREED-REPORT.
306      WRITE ADOPTED-REPORT-REC,
307      IF ADOPT-REPORT-FS IS NOT EQUAL TO 00
308          DISPLAY "CANNOT WRITE RECORD PROPERLY: " ADOPT-REPORT-FS
309          STOP RUN
310      END-IF.
311
312      file_to_upload: 3
313      success: 3
314      error: 0
315      skipped: 0
316
317      Data set uploaded successfully.
318      Data set created successfully.
319      | 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
320

```

from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished

At this point all the COBOL coding changes are complete. The way the workshop is setup all the changes were automatically saved locally.

Build the DOGGOS Application:

Pre setup if there is no Terminal window already up. On the three lines above the explorer extension click on it.

```

DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

DOGGOS > COBOL > DOGGOS.CBL > PROGRAM: DOGGOS > PROCEDURE DIVISION > UPDATE-ACCUMULATOR

284      WHEN POODLE-BREED-NAME
285          ADD INP-ADOPTED-AMOUNT
286              TO BREED-ADOPTIONS(POODLE-INDEX-VALUE)
287      WHEN POMERANIAN-BREED-NAME
288          ADD INP-ADOPTED-AMOUNT
289              TO BREED-ADOPTIONS(POMERANIAN-INDEX-VALUE)
290      WHEN BULLDOG-BREED-NAME
291          ADD INP-ADOPTED-AMOUNT
292              TO BREED-ADOPTIONS(BULLDOG-INDEX-VALUE)
293      WHEN JINGO-BREED-NAME
294          ADD INP-ADOPTED-AMOUNT
295              TO BREED-ADOPTIONS(JINGO-INDEX-VALUE)
296      WHEN HUSKY-BREED-NAME
297          ADD INP-ADOPTED-AMOUNT
298              TO BREED-ADOPTIONS(HUSKY-INDEX-VALUE)
299      WHEN OTHER
300          ADD INP-ADOPTED-AMOUNT
301              TO BREED-ADOPTIONS(OTHER-INDEX-VALUE)
302      END-EVALUATE.
303
304      WRITF-ADOPTION-BREED-REPORT.
305      WRITE ADOPTED-REPORT-REC,
306      IF ADOPT-REPORT-FS IS NOT EQUAL TO 00
307          DISPLAY "CANNOT WRITE RECORD PROPERLY: ~ ADOPT-REPORT-FS"
308          STOP RUN
309      END-IF.
310
311      file_to_upload: 3
312      success:    3
313      error:      0
314      skipped:   0
315
316      Data set uploaded successfully.
317      Data set created successfully.
318      | 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished
319

```

from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished

developer@ws-805520147629576-0:~/doggos-gse\$

Select Terminal then New Terminal, this will open a window in the workspace. Make sure the command line reads: developer@ws-805520147629576-0:~/doggos-gse\$. Where the ws-very long number is there. Also that you are in the doggos-gse\$ directory.

On the command line type in the following command: syncz -c “bldz”, and press enter.

```

DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

DOGGOS > COBOL > DOGGOS.CBL > PROGRAM: DOGGOS > PROCEDURE DIVISION > UPDATE-ACCUMULATOR

284      WHEN Poodle-Breed-Name
285          ADD INP-Adopted-Amount
286              TO Breed-Adoptions(Poodle-Index-Value)
287      WHEN Pomeranian-Breed-Name
288          ADD INP-Adopted-Amount
289              TO Breed-Adoptions(Pomeranian-Index-Value)
290      WHEN Bulldog-Breed-Name
291          ADD INP-Adopted-Amount
292              TO Breed-Adoptions(Bulldog-Index-Value)
293      WHEN Jindo-Breed-Name
294          ADD INP-Adopted-Amount
295              TO Breed-Adoptions(Jindo-Index-Value)
296      WHEN Husky-Breed-Name
297          ADD INP-Adopted-Amount
298              TO Breed-Adoptions(Husky-Index-Value)
299      WHEN OTHER
300          ADD INP-Adopted-Amount
301              TO Breed-Adoptions(Other-Index-Value)
302
303      END-EVALUATE.
304
305      WRITE Adoption-Breed-Report.
306      WRITE Adopted-Report-Rec.
307      IF Adopt-Report-FS IS NOT EQUAL TO 00
308          DISPLAY "CANNOT WRITE RECORD PROPERLY: " Adopt-Report-FS
309          STOP RUN
310      END-IF.

```

from: /home/developer/doggos-gse/scripts/files/tmp/RUNDOG.jcl
to: CUST010.PUBLIC.JCL(RUNDOG)

file_to_upload: 3
success: 3
error: 0
skipped: 0

Data set uploaded successfully.
Data set created successfully.
| 0% 0 | Uploading... es/DOGGOS.INPUTStartup script finished

Ln 218, Col 58 Spaces: 4 UTF-8 LF COBOL Layout: US

The following messages will go by in the terminal window.

```

developer@ws-805520147629576-0:~/doggos-gse$ syncz -c "bldz"
connecting cust010@10.1.2.73:2022...

```

```

syncing [DOGGOS/] to [doggos/]
remote directory 'doggos/' created.
synchronizing text files
sync: COPY/DOGADOPT.CPY
sync: scripts/version.js
sync: properties.json
sync: COPY/DATETIME.CPY
sync: scripts/report.js
sync: scripts/in25cob2.js
sync: COBOL/BUILDZ.js
sync: COBOL/DOGGOS.CBL
sync: COPY/
sync: scripts/
sync: scripts/protsym.js
sync: BUILDZ.js
sync: WORKSPACEZ.js
sync: COPY/ADOPTRPT.CPY
sync: COBOL/
creating local archive ... done.
uploading archive ... done.

```

```
decompressing on z/OS ... done.  
unpax on z/OS ... done.  
text files done.
```

```
bldz
```

```
-----gathering rules from package in root directory ...  
-----gathering rules from package 'COBOL' ...
```

```
+-----+  
| 6 candidate genrule(s) found in build files |  
+-----+
```

```
-----preparing rules ...
```

```
+-----+  
| ... starting build ... |  
+-----+
```

```
[succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)  
[succeeded] ... //:ds_alloc_CUST010.PUBLIC.PROFLIB (workspace)  
[succeeded] ... //:ds_copy_CUST010.DOGGOS.COPYBOOK (workspace)  
[succeeded] ... //:PROTSYM_Alloc (workspace)  
[succeeded] ... //:initPROTSYM (workspace)  
[succeeded] ... //COBOL:ds_alloc_CUST010.PUBLIC.LOADLIB  
[succeeded] ... //COBOL:cobol_compile#DOGGOS.CBL  
[succeeded] ... //COBOL:in25cob2  
[succeeded] ... //COBOL:binder#doggos  
[succeeded] ... //COBOL:copyLoad  
[succeeded] ... //:all
```

```
+-----+  
| ... build succeeded ... executed 11, up-to-date 0, succeeded 11, failed 0 |  
+-----+
```

```
exit code: 0
```

The message that should show up is the following:

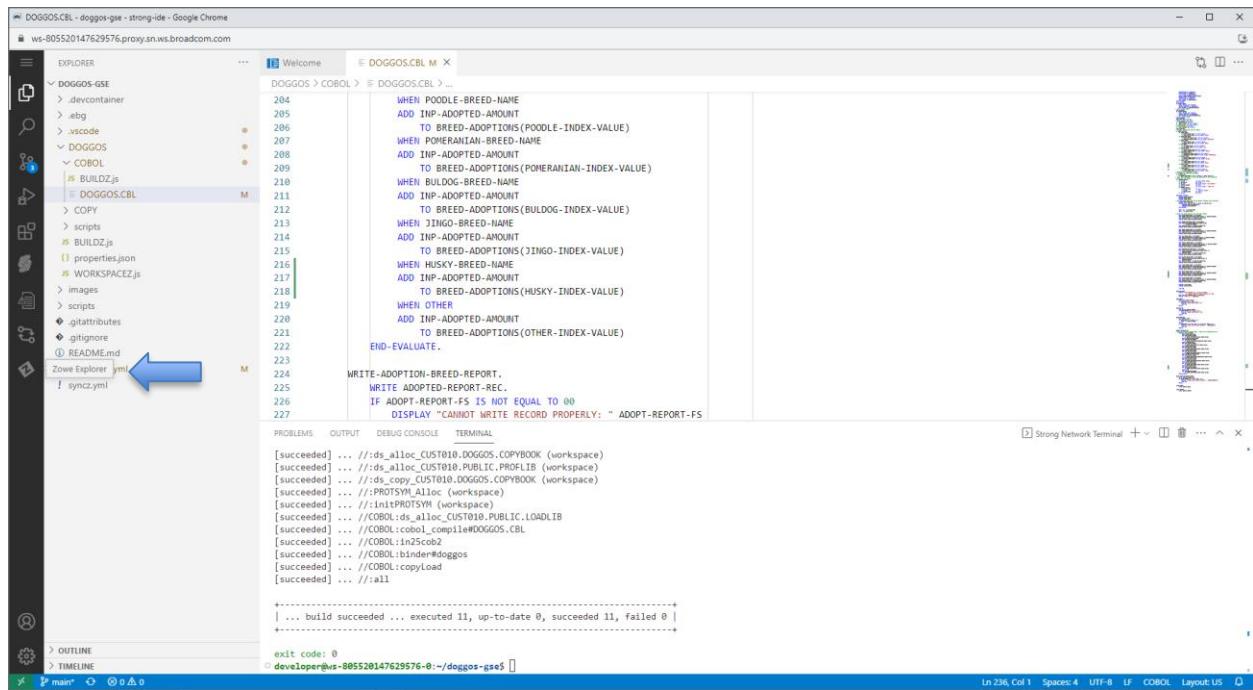
```
+-----+  
| ... build succeeded ... executed 11, up-to-date 0, succeeded 11, failed 0 |  
+-----+
```

At this point the build of DOGGOS is complete.

Run the DOGGOS application AFTER the change is made and the build is run

Using the workspace to run the application.

- 1) Go to the Zowe Explorer Extension (the z icon in the VS Code Activity Bar). Then click on it.



The screenshot shows the VS Code interface with the following details:

- Activity Bar:** Shows the 'Zowe Explorer' icon highlighted with a blue arrow.
- Explorer View:** Displays the file structure of the 'DOGGOS.CBL' workspace, including files like 'BUILDZ.js', 'DOGGOS.CBL', and 'README.md'.
- Editor View:** Shows the COBOL source code for 'DOGGOS.CBL'. The code includes logic for breeding different dog breeds (POODLE, BULLDOG, JINGO, HUSKY) and handling other breeds. It also includes a section for writing adoption reports and handling errors if records cannot be written properly.
- Terminal View:** Displays the build logs, indicating a successful build process.
- Status Bar:** Shows the terminal configuration ('Strong Network Terminal'), file status ('main*'), and other settings.

- 2) Has is there access to the mainframe is listed. Notice the zosmf under DATA SETS. Also notice the magnifying glass.

```

261 WHEN POODLE-BREED-NAME
262   ADD INP-ADOPTED-AMOUNT
263     TO BREED-ADOPTIONS(POODLE-INDEX-VALUE)
264 WHEN POMERANIAN-BREED-NAME
265   ADD INP-ADOPTED-AMOUNT
266     TO BREED-ADOPTIONS(POMERANIAN-INDEX-VALUE)
267 WHEN BULDOG-BREED-NAME
268   ADD INP-ADOPTED-AMOUNT
269     TO BREED-ADOPTIONS(BULDOG-INDEX-VALUE)
270 WHEN JINGO-BREED-NAME
271   ADD INP-ADOPTED-AMOUNT
272     TO BREED-ADOPTIONS(JINGO-INDEX-VALUE)
273 WHEN HUSKY-BREED-NAME
274   ADD INP-ADOPTED-AMOUNT
275     TO BREED-ADOPTIONS(HUSKY-INDEX-VALUE)
276 WHEN OTHER
277   ADD INP-ADOPTED-AMOUNT
278     TO BREED-ADOPTIONS(OTHER-INDEX-VALUE)
279 END-EVALUATE.
280
281 WRITE-ADOPTION-BREED-REPORT.
282 WRITE ADOPTED-REPORT-REC.
283 IF ADOPT-REPORT-FS IS NOT EQUAL TO 00
284   DISPLAY "CANNOT WRITE RECORD PROPERLY: " ADOPT-REPORT-FS
285
286 [succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)
287 [succeeded] ... //:ds_copy_CUST010.PUBLIC.PROFLIB (workspace)
288 [succeeded] ... //:PROFTSYM Alloc (workspace)
289 [succeeded] ... //:initPROFTSYM (workspace)
290 [succeeded] ... //:COBOL:ds_alloc_CUST010.PUBLIC.LOADLIB
291 [succeeded] ... //:COBOL:cobol_compile#W006G05.CBL
292 [succeeded] ... //:COBOL:in25cob2
293 [succeeded] ... //:COBOL:binder#dggos
294 [succeeded] ... //:COBOL:copyLoad
295 [succeeded] ... //:all1
296
297 | ... build succeeded ... executed 11, up-to-date 0, succeeded 11, failed 0 |
298
299 exit code: 0
developer@ws-805520147629576-0:~/doggos-gse$ 

```

Ln 236, Col 1 Spaces: 4 UTF-8 LF COBOL Layout: US

- 3) Click on the magnifier icon and then enter the data set CUST00X.PUBLIC to add all the data sets with this prefix to the Zowe Explorer Extension. Remember that the X is the number assigned to you for this workshop.

```

261 WHEN POODLE-BREED-NAME
262   ADD INP-ADOPTED-AMOUNT
263     TO BREED-ADOPTIONS(POODLE-INDEX-VALUE)
264 WHEN POMERANIAN-BREED-NAME
265   ADD INP-ADOPTED-AMOUNT
266     TO BREED-ADOPTIONS(POMERANIAN-INDEX-VALUE)
267 WHEN BULDOG-BREED-NAME
268   ADD INP-ADOPTED-AMOUNT
269     TO BREED-ADOPTIONS(BULDOG-INDEX-VALUE)
270 WHEN JINGO-BREED-NAME
271   ADD INP-ADOPTED-AMOUNT
272     TO BREED-ADOPTIONS(JINGO-INDEX-VALUE)
273 WHEN HUSKY-BREED-NAME
274   ADD INP-ADOPTED-AMOUNT
275     TO BREED-ADOPTIONS(HUSKY-INDEX-VALUE)
276 WHEN OTHER
277   ADD INP-ADOPTED-AMOUNT
278     TO BREED-ADOPTIONS(OTHER-INDEX-VALUE)
279 END-EVALUATE.
280
281 WRITE-ADOPTION-BREED-REPORT.
282 WRITE ADOPTED-REPORT-REC.
283 IF ADOPT-REPORT-FS IS NOT EQUAL TO 00
284   DISPLAY "CANNOT WRITE RECORD PROPERLY: " ADOPT-REPORT-FS
285
286 [succeeded] ... //:ds_alloc_CUST010.PUBLIC.COPYBOOK (workspace)
287 [succeeded] ... //:ds_copy_CUST010.DOGGOS.COPYBOOK (workspace)
288 [succeeded] ... //:PROFTSYM Alloc (workspace)
289 [succeeded] ... //:initPROFTSYM (workspace)
290 [succeeded] ... //:COBOL:ds_alloc_CUST010.PUBLIC.LOADLIB
291 [succeeded] ... //:COBOL:cobol_compile#W006G05.CBL
292 [succeeded] ... //:COBOL:in25cob2
293 [succeeded] ... //:COBOL:binder#dggos
294 [succeeded] ... //:COBOL:copyLoad
295 [succeeded] ... //:all1
296
297 | ... build succeeded ... executed 11, up-to-date 0, succeeded 11, failed 0 |
298
299 exit code: 0
developer@ws-805520147629576-0:~/doggos-gse$ 

```

Ln 236, Col 1 Spaces: 4 UTF-8 LF COBOL Layout: US

4) The mainframe will return a list of dataset that match the search criteria. This is similar to ISPF 3.4.

Doggos.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.su.broadcom.com

ZONE EXPLORER

DATA SETS

- > Favorites
- > zosmf
- CUST010.PUBLIC.INPUT
- CUST010.PUBLIC.JCL
- CUST010.PUBLIC.LOADLIB
- CUST010.PUBLIC.PROFLIB
- CUST010.PUBLIC.PROTSYM

UNIX SYSTEM SERVICES (USS)

- > Favorites
- > zosmf

JOBS

- > Favorites
- > zosmf

Welcome DOGGOS.CBL M X

DOGGOS > COBOL > ...

284 WHEN POODLE-BREED-NAME
285 ADD INP-ADOPTED-AMOUNT
286 TO BREED-ADOPTIONS(POODLE-INDEX-VALUE)
287 WHEN POMERANIAN-BREED-NAME
288 ADD INP-ADOPTED-AMOUNT
289 TO BREED-ADOPTIONS(POMERANIAN-INDEX-VALUE)
290 WHEN BULDOG-BREED-NAME
291 ADD INP-ADOPTED-AMOUNT
292 TO BREED-ADOPTIONS(BULDOG-INDEX-VALUE)
293 WHEN JINGO-BREED-NAME
294 ADD INP-ADOPTED-AMOUNT
295 TO BREED-ADOPTIONS(JINGO-INDEX-VALUE)
296 WHEN HUSKY-BREED-NAME
297 ADD INP-ADOPTED-AMOUNT
298 TO BREED-ADOPTIONS(HUSKY-INDEX-VALUE)
299 WHEN OTHER
300 ADD INP-ADOPTED-AMOUNT
301 TO BREED-ADOPTIONS(OTHER-INDEX-VALUE)
302 END-EVALUATE.
303
304 WRITE-ADOPTION-BREED-REPORT.
305 WRITE ADOPTED-REPORT-REC.
306 IF ADOPT-REPORT-FS IS NOT EQUAL TO 00
307 DISPLAY "CANNOT WRITE RECORD PROPERLY: " ADOPT-REPORT-FS

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

[succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:ds_copy_CUST010.PUBLIC.PROFLIB (workspace)
[succeeded] ... //:PROTSYMAlloc (workspace)
[succeeded] ... //:initPROTSYM (workspace)
[succeeded] ... //:COBOL:ds_alloc@CUST010.PUBLIC.LOADLIB
[succeeded] ... //:COBOL:cobol_compile@DOGGOS.CBL
[succeeded] ... //:COBOL:i25c02
[succeeded] ... //:COBOL:binder#doggos
[succeeded] ... //:COBOL:copyLoad
[succeeded] ... //:all

+-----+
| ... build succeeded ... executed 11, up-to-date 0, succeeded 11, failed 0 |
+-----+

exit code: 0
developer@ws-805520147629576-0:~/doggos-gse\$

Strong Network Terminal

Ln 236, Col 1 Spaces: 4 UTF-8 LF COBOL Layout: US

5) Edit the CUST00X.PUBLIC.INPUT data set by clicking on it.

The screenshot shows the DOGGOS.CBL M extension integrated into the VS Code interface. The left sidebar displays the ZONE EXPLORER, DATA SETS, and JOBS sections. The main area shows a list of resources under CUST010.PUBLIC.INPUT, including SHIBA, KORG1, CHI, SHIBA, and JINGO. The bottom section features a terminal window with the following output:

```
[succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:ds_copy_CUST010.PUBLIC.PROFLIB (workspace)
[succeeded] ... //:ds_copy_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:PROTSYM_Alloc (workspace)
[succeeded] ... //:ln1PRTSYM (workspace)
[succeeded] ... //:COBOL:ds_alloc_CUST010.PUBLIC.LOADLIB
[succeeded] ... //:COBOL:cobol_compile#DOGGOS.CBL
[succeeded] ... //:COBOL:in2scdb
[succeeded] ... //:COBOL:bind#doggos
[succeeded] ... //:COBOL:copyLoad
[succeeded] ... //:all

+-----+
| ... build succeeded ... executed 11, up-to-date 0, succeeded 11, failed 0 |
+-----+

exit code: 0
developer@ws-805520147629576-0:~/doggos-gse5
```

- 6) Add the following lines with the name of the dog breed you chose in the code changes.

- a. HUSKY 008
b. HUSKY 009

The screenshot shows the Zowe Explorer interface in a browser window. The left sidebar contains sections for ZOWE EXPLORER, DATA SETS, and JOBS. The main area displays a file tree under 'DATA SETS' with a node 'CUST010.PUBLIC.INPUT' expanded, showing sub-directories like 'COPYBOOK', 'PROFLIB', 'LOADLIB', and 'PROTSYM'. A list of datasets is shown with entries 1 through 7, where entry 7 is 'HUSKY' and entry 8 is also 'HUSKY'. The right side of the interface has tabs for 'Welcome', 'DOGGOS.CBL M', and 'CUST010.PUBLIC.INPUT X'. Below the tabs is a terminal window showing build logs:

```
[succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:ds_alloc_CUST010.PUBLIC.PROFLIB (workspace)
[succeeded] ... //:ds_copy_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:PROTSYM Alloc (workspace)
[succeeded] ... //:COBOL:ds_alloc_CUST010.PUBLIC.LOADLIB
[succeeded] ... //:COBOL:ds_compile#CUST010.DOGGOS.CBL
[succeeded] ... //:COBOL:i25c03
[succeeded] ... //:COBOL:binder#doggos
[succeeded] ... //:COBOL:copyLoad
[succeeded] ... //:all

+-----+
| ... build succeeded ... executed 11, up-to-date 0, succeeded 11, failed 0 |
+-----+
exit code: 0
developer@ws-805520147629576-0:~/doggos-gxe$
```

The terminal status bar at the bottom indicates "Data set uploaded successfully."

- 7) After the changes are made close the file.
8) In the ZOWE EXPLORER window expand the CUST00X.PUBLIC.JCL folder.

```

DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

DATA EXPLORER
  ZONE EXPLORER
    DATA SETS
      Favorites
      zosmf
      CUST010.PUBLIC.INPUT
        CUST010.PUBLIC.JCL
          DBGDODG
          LSTRPRF
          RUNDODG
      CUST010.PUBLIC.LOADLIB
      CUST010.PUBLIC.PROFLIB
      CUST010.PUBLIC.PROTSYM

  UNIX SYSTEM SERVICES (USS)
    Favorites
    zosmf

JOBS
  Favorites
  zosmf

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
[...]
[Succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)
[Succeeded] ... //:ds_alloc_CUST010.PUBLIC.PROFLIB (workspace)
[Succeeded] ... //:ds_copy_CUST010.DOGGOS.COPYBOOK (workspace)
[...]
[...] //:PROTSYM Alloc (workspace)
[Succeeded] ... //:initPROTSYM (workspace)
[Succeeded] ... //:COBOL:ds_alloc_CUST010.PUBLIC.LOADLIB
[Succeeded] ... //:COBOL:cobol_compile#DOGGOS.CBL
[Succeeded] ... //:COBOL:in2scob2
[Succeeded] ... //:COBOL:binder#doggos
[Succeeded] ... //:COBOL:copyLoad
[Succeeded] ... //:all

exit code: 0
developer@ws-805520147629576-0:~/doggos-gse$ []

```

Ln 236, Col 1 Spaces: 4 UTF-8 LF COBOL Layout: US

9) Right click the RUNDODG and select Submit Job menu item.

```

DOGGOS.CBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

DATA EXPLORER
  ZONE EXPLORER
    DATA SETS
      Favorites
      zosmf
      CUST010.PUBLIC.INPUT
        CUST010.PUBLIC.JCL
          RUNDODG
          DBGDODG
          LSTRPRF
      CUST010.PUBLIC.LOADLIB
      CUST010.PUBLIC.PROFLIB
      CUST010.PUBLIC.PROTSYM

  UNIX SYSTEM SERVICES (USS)
    Favorites
    zosmf

JOBS
  Favorites
  zosmf

Submit Job
  Pull from Mainframe
  Show Attributes
  Copy Ctrl+C
  Add to Favorites
  Add to Favorites
  Edit Member
  Rename Member
  Delete

Browse With Data Editor for Mainframe
Edit With Data Editor for Mainframe
Show properties

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
[...]
[Succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)
[Succeeded] ... //:ds_alloc_CUST010.PUBLIC.PROFLIB (workspace)
[Succeeded] ... //:ds_copy_CUST010.DOGGOS.COPYBOOK (workspace)
[...]
[...] //:PROTSYM Alloc (workspace)
[Succeeded] ... //:initPROTSYM (workspace)
[Succeeded] ... //:COBOL:ds_alloc_CUST010.PUBLIC.LOADLIB
[Succeeded] ... //:COBOL:cobol_compile#DOGGOS.CBL
[Succeeded] ... //:COBOL:in2scob2
[Succeeded] ... //:COBOL:binder#doggos
[Succeeded] ... //:COBOL:copyLoad
[Succeeded] ... //:all

exit code: 0
developer@ws-805520147629576-0:~/doggos-gse$ []

```

Ln 236, Col 1 Spaces: 4 UTF-8 LF COBOL Layout: US

10) Click Submit to run the JCL. The job is not submitted and running on the mainframe.

The screenshot shows the DOGGOS.CBL project in the ZOWE Explorer. The terminal window displays the build logs:

```
[succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:ds_alloc_CUST010.PUBLIC.PROFLIB (workspace)
[succeeded] ... //:ds_copy_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:PROTOSYM Alloc (workspace)
[succeeded] ... //:INITPROTOSYM (workspace)
[succeeded] ... //:C0BOL:ds_alloc_CUST010.LOADLIB
[succeeded] ... //:C0BOL:cobol_compile#DOGGOS.CBL
[succeeded] ... //:C0BOL:in2scob2
[succeeded] ... //:C0BOL:binderr#doggos
[succeeded] ... //:C0BOL:copyLoad
[succeeded] ... //:all

| ... build succeeded ... executed 11, up-to-date 8, succeeded 11, failed 0 |
+-----+
exit code: 0
developer@ws-805520147629576-0:~/doggos-gse$
```

In the bottom right corner of the terminal window, there is a message: "Job submitted JOB06998".

11) The job is now running on the mainframe. On the bottom right corner notice the pop up message with the job number. Click on it.

The screenshot shows the DOGGOS.CBL project in the ZOWE Explorer. The terminal window displays the build logs:

```
[succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:ds_alloc_CUST010.PUBLIC.PROFLIB (workspace)
[succeeded] ... //:ds_copy_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:PROTOSYM Alloc (workspace)
[succeeded] ... //:INITPROTOSYM (workspace)
[succeeded] ... //:C0BOL:ds_alloc_CUST010.LOADLIB
[succeeded] ... //:C0BOL:cobol_compile#DOGGOS.CBL
[succeeded] ... //:C0BOL:in2scob2
[succeeded] ... //:C0BOL:binderr#doggos
[succeeded] ... //:C0BOL:copyLoad
[succeeded] ... //:all

| ... build succeeded ... executed 11, up-to-date 8, succeeded 11, failed 0 |
+-----+
exit code: 0
developer@ws-805520147629576-0:~/doggos-gse$
```

A blue arrow points to the message "Job submitted JOB06998" in the terminal window.

- 12) In the ZOWE EXPLORER window the JOBS section has been expanded and the RUNDODXX job is there.

```

DOGGOS.CBL - doggos-gae - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

DATA EXPLORER          Welcome          DOGGOS.CBL M X

JOBS
+ Favorites
+ zosmf
  + CUST010.PUBLIC.INPUT
    + DB2ODG
      + LSTRPR
        + RUNDODG
    + CUST010.PUBLIC.LOADLIB
    + CUST010.PUBLIC.PROFLIB
    + CUST010.PUBLIC.PROTSYM

  + CUST010.PUBLIC.JCL
    + DB2ODG
      + LSTRPR
        + RUNDODG
    + CUST010.PUBLIC.LOADLIB
    + CUST010.PUBLIC.PROFLIB
    + CUST010.PUBLIC.PROTSYM

  + UNIX SYSTEM SERVICES (USS)
    + Favorites
    + zosmf

JOBS
+ Favorites
+ zosmf
  + RUNDODG10(JOB06998) - CC 0000

```

```

204 WHEN POODLE-BREED-NAME
205 ADD INP-ADOPTED-AMOUNT
206 TO BREED-ADOPTIONS(POODLE-INDEX-VALUE)
207 WHEN POMERANIAN-BREED-NAME
208 ADD INP-ADOPTED-AMOUNT
209 TO BREED-ADOPTIONS(POMERANIAN-INDEX-VALUE)
210 WHEN BULLDOG-BREED-NAME
211 ADD INP-ADOPTED-AMOUNT
212 TO BREED-ADOPTIONS(BULLDOG-INDEX-VALUE)
213 WHEN JINGO-BREED-NAME
214 ADD INP-ADOPTED-AMOUNT
215 TO BREED-ADOPTIONS(JINGO-INDEX-VALUE)
216 WHEN HUSKY-BREED-NAME
217 ADD INP-ADOPTED-AMOUNT
218 TO BREED-ADOPTIONS(HUSKY-INDEX-VALUE)
219 WHEN OTHER
220 ADD INP-ADOPTED-AMOUNT
221 TO BREED-ADOPTIONS(OTHER-INDEX-VALUE)
222 END-EVALUATE.
223
224 WRITE-ADOPTION-BREED-REPORT.
225 WRITE-ADOPTED-REPORT-REC.
226 IF ADOPT-REPORT-FS IS NOT EQUAL TO 00
227   DISPLAY "CANNOT WRITE RECORD PROPERLY: " ADOPT-REPORT-FS

[succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:ds_copy_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:PROTSYM Alloc (workspace)
[succeeded] ... //:initPROTSYM (workspace)
[succeeded] ... //:COBOL.ds_alloc_CUST010.PUBLIC.LOADLIB
[succeeded] ... //:COBOL.ds_copy_CUST010.PUBLIC.LOADLIB#DOGGOS.CBL
[succeeded] ... //:COBOL:is25c02
[succeeded] ... //:COBOL:binder#doggos
[succeeded] ... //:COBOL:copyLoad
[succeeded] ... //:all

+ ... build succeeded ... executed 11, up-to-date 0, succeeded 11, failed 0 +
+-----+
exit code: 0
developer@ws-805520147629576-0:~/doggos-gae$ 

```

Job submitted JOB06998

- 13) Expand the job RUNDODGXX(JOBXXXX) and click on the RUN:OUTREP to see the results.

```

DOGGOS.CBL - doggos-gae - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

DATA EXPLORER          Welcome          DOGGOS.CBL M X

JOBS
+ Favorites
+ zosmf
  + CUST010.PUBLIC.INPUT
    + DB2ODG
      + LSTRPR
        + RUNDODG
    + CUST010.PUBLIC.LOADLIB
    + CUST010.PUBLIC.PROFLIB
    + CUST010.PUBLIC.PROTSYM

  + CUST010.PUBLIC.JCL
    + DB2ODG
      + LSTRPR
        + RUNDODG
    + CUST010.PUBLIC.LOADLIB
    + CUST010.PUBLIC.PROFLIB
    + CUST010.PUBLIC.PROTSYM

  + UNIX SYSTEM SERVICES (USS)
    + Favorites
    + zosmf

JOBS
+ Favorites
+ zosmf
  + RUNDODG10(JOB06998) - CC 0000
    + JS2JESMSIGL - 14
    + JS2JESICL - 8
    + JS2JESYSMSG - 22
    + RUN:OUTREP - 10
    + RUN:SYSOUT - 2

```

```

204 WHEN POODLE-BREED-NAME
205 ADD INP-ADOPTED-AMOUNT
206 TO BREED-ADOPTIONS(POODLE-INDEX-VALUE)
207 WHEN POMERANIAN-BREED-NAME
208 ADD INP-ADOPTED-AMOUNT
209 TO BREED-ADOPTIONS(POMERANIAN-INDEX-VALUE)
210 WHEN BULLDOG-BREED-NAME
211 ADD INP-ADOPTED-AMOUNT
212 TO BREED-ADOPTIONS(BULLDOG-INDEX-VALUE)
213 WHEN JINGO-BREED-NAME
214 ADD INP-ADOPTED-AMOUNT
215 TO BREED-ADOPTIONS(JINGO-INDEX-VALUE)
216 WHEN HUSKY-BREED-NAME
217 ADD INP-ADOPTED-AMOUNT
218 TO BREED-ADOPTIONS(HUSKY-INDEX-VALUE)
219 WHEN OTHER
220 ADD INP-ADOPTED-AMOUNT
221 TO BREED-ADOPTIONS(OTHER-INDEX-VALUE)
222 END-EVALUATE.
223
224 WRITE-ADOPTION-BREED-REPORT.
225 WRITE-ADOPTED-REPORT-REC.
226 IF ADOPT-REPORT-FS IS NOT EQUAL TO 00
227   DISPLAY "CANNOT WRITE RECORD PROPERLY: " ADOPT-REPORT-FS

[succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:ds_copy_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:PROTSYM Alloc (workspace)
[succeeded] ... //:initPROTSYM (workspace)
[succeeded] ... //:COBOL.ds_alloc_CUST010.PUBLIC.LOADLIB
[succeeded] ... //:COBOL.ds_copy_CUST010.PUBLIC.LOADLIB#DOGGOS.CBL
[succeeded] ... //:COBOL:is25c02
[succeeded] ... //:COBOL:binder#doggos
[succeeded] ... //:COBOL:copyLoad
[succeeded] ... //:all

+ ... build succeeded ... executed 11, up-to-date 0, succeeded 11, failed 0 +
+-----+
exit code: 0
developer@ws-805520147629576-0:~/doggos-gae$ 

```

Job submitted JOB06998

- 14) The new dog breed “HUSKY” is listed and the counter reports 17 adopted times per 01 day.

BREED	WAS ADOPTED TIMES PER 01 DAY
SHIBA	008
SHNAUTZER	008
KORG	007
CHI	001
POODLE	000
POMERANIAN	000
LABRADOR	000
BUDDOG	000
JINGO	000
HUSKY	017
OTHER	000

```
[succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:ds_alloc_CUST010.PUBLIC.PROFLIB (workspace)
[succeeded] ... //:copy_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:PROTSYNSYN Alloc (workspace)
[succeeded] ... //:COROL:ds_alloc_CUST010.PUBLIC.LOADLIB
[succeeded] ... //:COROL:cobol_compile#DOGGOS.CBL
[succeeded] ... //:COROL:in2cob2
[succeeded] ... //:COROL:bind#doggos
[succeeded] ... //:COROL:copyLoad
[succeeded] ... //:all
+-----+
| ... build succeeded ... executed 11, up-to-date 0, succeeded 11, failed 0 |
+-----+
exit code: 0
developer@ws-805520147629576-0:~/doggos-gse$
```

Debug

Let's introduce a bug in the program data by editing the CUST0XX.PUBLIC.INPUT that was changed before.

```
home > developer > strong-ide > extensions > zowe.vscode-extension-for-zowe-2.9.2-universal > resources > temp > _D_ > zosmf > CUST010.PUBLIC.INPUT
1 SHIBA 006
2 KORG 007
3 CHI 001
4 SHIBA 002
5 JINGO 006
6 HUSKY 008
7 HUSKY 009
```

ZOWE EXPLORER

- DATA SETS
 - CUST010
 - CUST010.BRIGHT.MARBLES.COBOL
 - CUST010.BRIGHT.MARBLES.JCL
 - CUST010.BRIGHT.MARBLES.PARMLIB
 - CUST010.ENDVTEAM.ZFS
 - CUST010.ISPF.ISPPROF
 - CUST010.MARBLES.JCL
 - CUST010.MTE.JCL
 - CUST010.PUBLIC.INPUT
 - CUST010.PUBLIC.ICL
 - CUST010.RECEIVE.MAIL
- UNIX SYSTEM SERVICES (USS)
 - Favorites
 - zosmf

JOB

- Favorites
- zosmf

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
* developer@ws-805520147629576-0:~/doggos-gse$ ls
DOGGOS images README.md scripts syncz_vars.yml syncz.yml
* developer@ws-805520147629576-0:~/doggos-gse$ [
```

main* Data set uploaded successfully.

1. Go to the input file and change the breed from “JINGO” to “JINGA”

```
home > developer > strong-ide > extensions > zowe.vscode-extension-for-zowe-2.9.2-universal > resources > temp > _D_ > zosmf > CUST010.PUBLIC.INPUT
1 SHIBA 006
2 KORG 007
3 CHI 001
4 SHIBA 002
5 JINGA 006
6 HUSKY 008
7 HUSKY 009
```

ZOWE EXPLORER

- DATA SETS
 - CUST010
 - CUST010.BRIGHT.MARBLES.COBOL
 - CUST010.BRIGHT.MARBLES.JCL
 - CUST010.BRIGHT.MARBLES.PARMLIB
 - CUST010.ENDVTEAM.ZFS
 - CUST010.ISPF.ISPPROF
 - CUST010.MARBLES.JCL
 - CUST010.MTE.JCL
 - CUST010.PUBLIC.INPUT
 - CUST010.PUBLIC.ICL
 - CUST010.RECEIVE.MAIL
- UNIX SYSTEM SERVICES (USS)
 - Favorites
 - zosmf

JOB

- Favorites
- zosmf

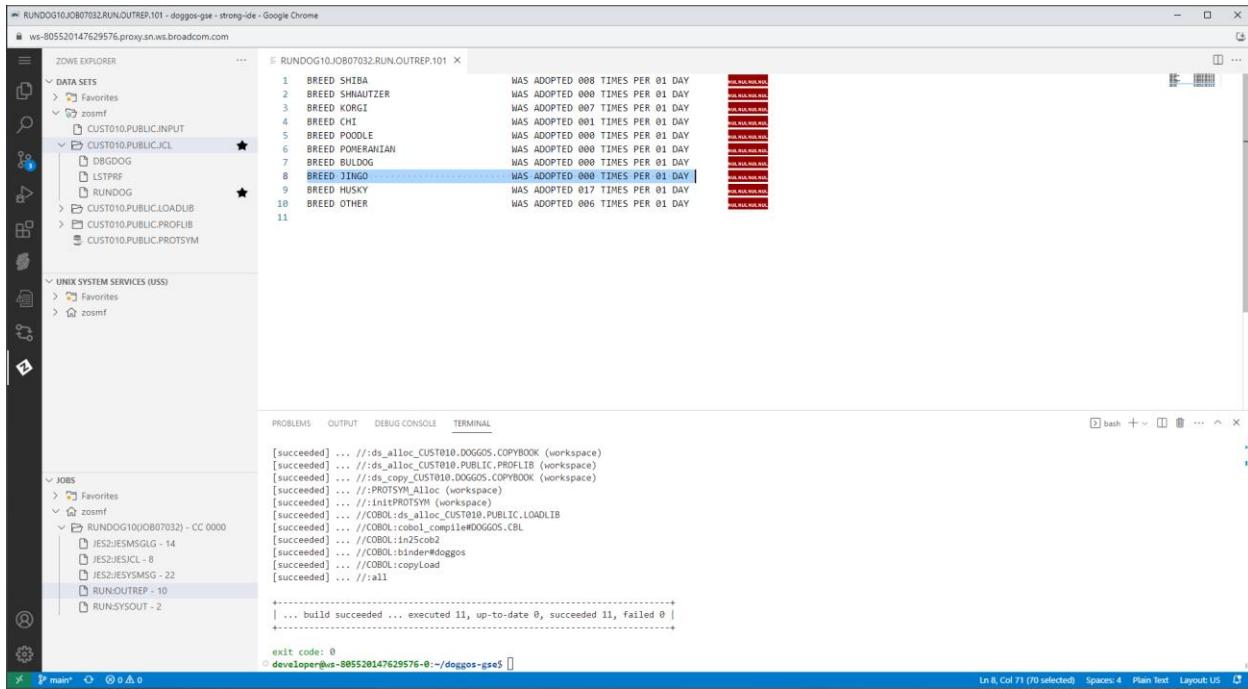
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
* developer@ws-805520147629576-0:~/doggos-gse$ ls
DOGGOS images README.md scripts syncz_vars.yml syncz.yml
* developer@ws-805520147629576-0:~/doggos-gse$ [
```

main* Data set uploaded successfully.

2. Close the file.

3. Rerun step 8 to step 14 from above. Notice the output is incorrect JINGO is no 000 and not 006.



The screenshot shows the Zowe Explorer interface in a browser window. The left sidebar contains sections for DATA SETS, UNIX SYSTEM SERVICES (USS), and JOBS. The main pane displays a list of dog breeds with their adoption statistics. Breed JINGO is selected, indicated by a blue highlight bar. The terminal pane at the bottom shows the command-line output of the build process, which includes steps like //ds_alloc, //copy, //initPROTSYM, //COBOL.ds_alloc, //COBOL.i32542, //COBOL.copyLoad, and //all. The output indicates success for all steps except the final //all, which failed with code 0.

Breed	Adoption Count
BREED SHIBA	008
BREED SHNAUTZER	000
BREED KORGI	007
BREED CHI	001
BREED POODLE	000
BREED POMERANIAN	000
BREED BULLDOG	000
BREED JINGO	000
BREED HUSKY	017
BREED OTHER	006

```
[succeeded] ... //:ds_alloc_CUST010.DOGGOS,COPYBOOK (workspace)
[succeeded] ... //:ds_alloc_CUST010.PUBLIC.PROFLIB (workspace)
[succeeded] ... //:ds_copy_CUST010.DOGGOS,COPYBOOK (workspace)
[succeeded] ... //:PROTSYM Alloc (workspace)
[succeeded] ... //:initPROTSYM (workspace)
[succeeded] ... //:COBOL.ds_alloc_CUST010.PUBLIC.LOADLIB
[succeeded] ... //:COBOL.i32542
[succeeded] ... //:COBOL.binderrddggs
[succeeded] ... //:COBOL:copyLoad
[succeeded] ... //:all
+
+-----+
| ... build succeeded ... executed 11, up-to-date 0, succeeded 11, failed 0 |
+-----+
exit code: 0
developer@hs-805520147629576-0:~/doggos-gae$
```

To use the Debug feature in VS Code for this class click on the Debug Extension that looks like an arrow with the bug on it. It looks like this:



RUNDOG10.JOB07032.RUN.OUTREP.101 - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

ZODEX EXPLORER

- DATA SETS
- Favorites
- zosmf
 - CUST010.PUBLIC.INPUT
 - CUST010.PUBLIC.JCL
 - DBGDOD
 - LSTRPRF
- Run and Debug (Ctrl+Shift+D) ←
- CUST010.PUBLIC.LOADLIB
- CUST010.PUBLIC.PROFLIB
- CUST010.PUBLIC.PROTSY

UNIX SYSTEM SERVICES (USS)

- Favorites
- zosmf

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

JOB

- Favorites
- zosmf
 - RUNDOG10(JOB07032) - CC 0000
 - JES2JESMSG1G - 14
 - JES2JESICL - 8
 - JES2JESYSMSG - 22
 - RUNOUTREP - 10
 - RUNSOUT - 2

exit code: 0
developer@ws-805520147629576-0:~/doggos-gse\$

Ln 8, Col 71 (70 selected) Spaces: 4 Plain Text Layout: US

This will bring you into the Debug screen where you will click on the gear, which is the “Open launch json”.

RUNDOG10.JOB07032.RUN.OUTREP.101 - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

RUN AND DEBUG DOGGOS ← B2.RUN.OUTREP.101 x

Open launch.json

VARIABLES

BREED SHIBA	HAS ADOPTED 008 TIMES PER 01 DAY
BREED SHIAUTZER	HAS ADOPTED 000 TIMES PER 01 DAY
BREED KORG1	HAS ADOPTED 007 TIMES PER 01 DAY
BREED CHI	HAS ADOPTED 001 TIMES PER 01 DAY
BREED POODLE	HAS ADOPTED 000 TIMES PER 01 DAY
BREED POMERANIAN	HAS ADOPTED 000 TIMES PER 01 DAY
BREED BULDOG	HAS ADOPTED 000 TIMES PER 01 DAY
BREED JINGO	HAS ADOPTED 000 TIMES PER 01 DAY
BREED HUSKY	HAS ADOPTED 017 TIMES PER 01 DAY
BREED OTHER	HAS ADOPTED 006 TIMES PER 01 DAY

WATCH

CALL STACK

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

exit code: 0
developer@ws-805520147629576-0:~/doggos-gse\$

Ln 11, Col 1 Spaces: 4 Plain Text Layout: US

This will open the launch.json file which has already been configured for you. In this file you will see the following:

- 1) Name which is the name of the debugging session. You can have multiple debugging sessions saved.
- 2) Type which tell debug is this an InterTest Batch or InterTest for CICS debug session.
- 3) ProgramName is the name of the program that is going to be debugged.
- 4) Protsym is the name of the dataset that has the program listing (CUST010.PLUBLIC.PROTSYM).
- 5) InterTestHost is the name of the system the application is going to be running on (10.1.2.73).
- 6) InterTestPort this is the port number that the Testing Tools server is listening on. To use Debug with the Testing Tools a Testing Tools server has to be up and running on the system.
- 7) InterTestUser is the user id of the person testing the application.
- 8) InterTestSecure is set to false unless you are using a secure connection.
- 9) ConvertedJCL specify the data set and member of the JCL that is executed for the workshop (CUST010.PUBLIC.JCL(DBGDOG)
- 10) VariableOrder this is the order in the variable screen in which the fields are displayed.

```

{
  "version": "0.2.0",
  "configurations": [
    {
      "name": "DOGGOS BATCH DEBUG",
      "type": "InterTest-batch",
      "request": "launch",
      "programName": ["DOGGOS"],
      "protsym": ["cust010.PUBLIC.PROTSYM"],
      "interTestHost": "10.1.2.73",
      "interTestPort": 6023,
      "interTestUserName": "cust010",
      "interTestSecure": false,
      "convertedJCL": "cust010.PUBLIC.JCL(DBGDOG)",
      "variableOrder": "alphabetical"
    }
  ]
}

```

The terminal output shows the build process:

```

[succeeded] ... //:ds_alloc_CUST010.DOGGOS_COPYBOOK (workspace)
[succeeded] ... //:ds_alloc_CUST010.PUBLIC.PROFLIB (workspace)
[succeeded] ... //:ds_copy_CUST010.DOGGOS_COPYBOOK (workspace)
[succeeded] ... //:PROTSYM Alloc (workspace)
[succeeded] ... //:initPROTSYM (workspace)
[succeeded] ... //:COBOL:ds_alloc_CUST010.PUBLIC.LOADLIB
[succeeded] ... //:COBOL:cobol_compile#W00G05.CBL
[succeeded] ... //:COBOL:ini25cob2
[succeeded] ... //:COBOL:binder#doggos
[succeeded] ... //:COBOL:copyLoad
[succeeded] ... //:all

```

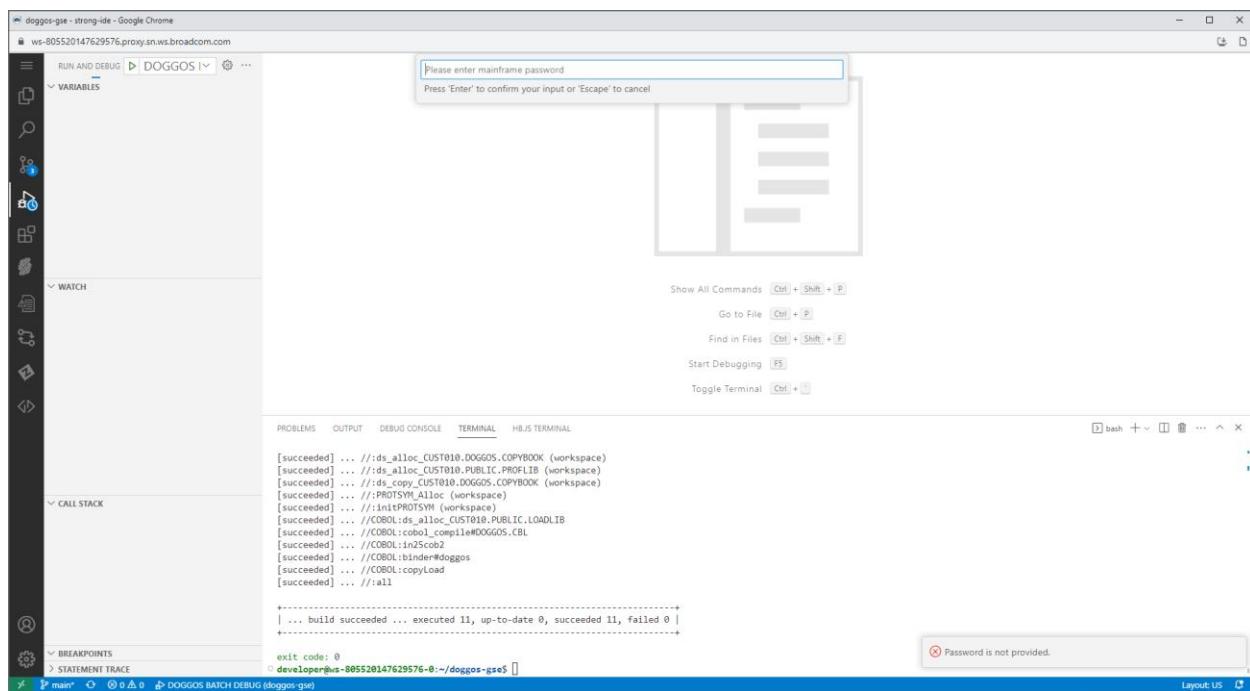
Breakpoints and statement trace are also visible in the bottom left.

Let's Debug the application.

- 1) Click on the arrow next to DOGGOS BATCH DEBUG:



- 2) You will be prompted to enter the Mainframe Password that was assigned to you. In this case it is the same as the userID: CUST00X. Where X is the number that has been assigned to you.



- 3) At this point you are now in a debug session. The debugger fetched the extended source and submitted the converted JCL and stopped that the initial program intercept.

The screenshot shows the DOGGOS batch debug interface. The main area displays the COBOL source code for the DOGGOS program. The code includes sections for defining data items like DOG-BREED, FILLER, and REPORT-PERIOD, and performing various operations such as PRINT-WELCOME, OPEN-INPUT, OPEN-OUTPUT, and READ. A specific section of the code is highlighted in yellow.

VARIABLES panel:

- Locals
 - > ACCUMULATOR
 - > ADOPT-REPORT-FS: 0
 - > ADOPTED-DOGS-REC
 - > ADOPTED-REPORT-REC
 - > ADOPTED-RESULT
 - > ADOPTIONS-FS: 0
 - > BREED-INDEXES
 - > CURR-DATE
 - > END-OF-FILE: 1
 - > END-OF-INPUT: 0

- 4) Now where oh where to put a breakpoint to start debugging my code.
- 5) In the previous step the job ran and we noticed that the JINGO breed was wrong. So let's start by putting a breakpoint where the value is updated.
- 6) To see how JINGO is defined on the left side collapsed is a section **VARIABLES**. Expand it.

The screenshot shows the DOGGOS batch debug interface with the VARIABLES panel expanded. A breakpoint has been set on the variable 'ADOPTED-FILLER'. The code in the editor shows the definition of this variable and its usage in the program.

VARIABLES panel:

- Locals
 - > ACCUMULATOR
 - > ADOPT-REPORT-FS: 0
 - > ADOPTED-DOGS-REC
 - > ADOPTED-REPORT-REC
 - > ADOPTED-RESULT
 - > ADOPTIONS-FS: 0
 - > BREED-INDEXES
 - > CURR-DATE
 - > END-OF-FILE: 1
 - > END-OF-INPUT: 0

7) This is where the Local fields are stored. Expand BREED-INDEXS.

```

98 * BREED INTO THE REPORT
99   01 ADOPTED-RESULT.
100   05 FILLER          PIC X(6) VALUE "BREED ".
101   05 DOG-BREED      PIC X(30).
102   05 FILLER          PIC X(13) VALUE " WAS ADOPTED ".
103   05 ADOPTED-AMOUNT PIC 9(3),
104   05 FILLER          PIC X(11) VALUE " TIMES PER ".
105   05 REPORT-PERIOD,
106     10 REPORT-TIME  PIC 9(2).
107     10 FILLER        PIC X(1) VALUE " ".
108     10 PERIOD-NAME  PIC X(10).
109     05 FILLER        PIC X(4).
110
111 PROCEDURE DIVISION.
112   PERFORM PRINT-WELCOME.
113   PERFORM OPEN-INPUT.
114   PERFORM OPEN-OUTPUT.
115   READ THE INPUT UNTIL THE END AND UPDATE INTERNAL DATA STRUCTURE
116   PERFORM READ-ADOPTION.
117   PERFORM UNTIL END-OF-INPUT IS EQUAL TO END-OF-FILE
118     PERFORM UPDATE-ACCUMULATOR
119     PERFORM READ-ADOPTION
120   END-PERFORM.
121

```

8) There is the list of breeds from the application. Expand JINGO-INDEX.

```

98 * BREED-INDEXS
99   01 ADOPTED-RESULT.
100   05 FILLER          PIC X(6) VALUE "BREED ".
101   05 DOG-BREED      PIC X(30).
102   05 FILLER          PIC X(13) VALUE " WAS ADOPTED ".
103   05 ADOPTED-AMOUNT PIC 9(3),
104   05 FILLER          PIC X(11) VALUE " TIMES PER ".
105   05 REPORT-PERIOD,
106     10 REPORT-TIME  PIC 9(2).
107     10 FILLER        PIC X(1) VALUE " ".
108     10 PERIOD-NAME  PIC X(10).
109     05 FILLER        PIC X(4).
110
111 PROCEDURE DIVISION.
112   PERFORM PRINT-WELCOME.
113   PERFORM OPEN-INPUT.
114   PERFORM OPEN-OUTPUT.
115   READ THE INPUT UNTIL THE END AND UPDATE INTERNAL DATA STRUCTURE
116   PERFORM READ-ADOPTION.
117   PERFORM UNTIL END-OF-INPUT IS EQUAL TO END-OF-FILE
118     PERFORM UPDATE-ACCUMULATOR
119     PERFORM READ-ADOPTION
120   END-PERFORM.
121

```

- 9) You now see the JINGO-BREED-NAME whose value is JINGO and also the index value. Now expand JINGO-BREED-NAME.

The screenshot shows the DOGGOS IDE interface. On the left, the 'VARIABLES' pane displays several variables, including 'JINGO-INDEX' which is expanded to show its data type (ALPHA), hex data (d1c95dc7d6), picture (X(5)), storage type (CHAR), and value (JINGO). Below it, 'JINGO-BREED-NAME' is also expanded, showing its data type (ALPHA), hex data (d1c95dc7d6), picture (X(5)), storage type (CHAR), and value (JINGO). Other variables like CHI-INDEX, HUSKY-INDEX, KORG-INDEX, OTHER-INDEX, and POMERANIAN-INDEX are listed. The 'PROCEDURE DIVISION' pane contains the main program logic:

```

    * BREED INTO THE REPORT
    98     01 ADOPTED-RESULT.
    99       05 FILLER          PIC X(6) VALUE "BREED ".
   100      05 DOG-BREED      PIC X(30).
   101      05 FILLER          PIC X(13) VALUE " WAS ADOPTED ".
   102      05 FILLER          PIC 9(3).
   103      05 ADOPTED-AMOUNT  PIC X(11) VALUE " TIMES PER ".
   104      05 FILLER          PIC 9(2).
   105      10 REPORT-TIME    PIC X(1) VALUE " ".
   106      10 FILLER          PIC X(10).
   107      10 PERIOD-NAME    PIC X(4).
   108      05 FILLER          PIC 9(4).
   109
   110
   111 PROCEDURE DIVISION.
   112   PERFORM PRINT-WELCOME.
   113   PERFORM OPEN-INPUT.
   114   PERFORM OPEN-OUTPUT.
   115   READ THE INPUT UNTIL THE END AND UPDATE INTERNAL DATA STRUCTURE
   116   PERFORM READ-ADOPTION.
   117   PERFORM UNTIL END-OF-INPUT IS EQUAL TO END-OF-FILE
   118     PERFORM UPDATE-ACCUMULATOR
   119     PERFORM READ-ADOPTION
   120   END-PERFORM.
   121

```

The bottom of the screen shows the Java stack trace and terminal output. The terminal output includes several lines of Java code related to the DOGGOS application's internal logic.

- 10) Here you see how the field is defined and the Hex Data as well.
 11) Let's find the first place in the code by searching for JINGO. To do this we will try another way. Put your mouse on the “bread crumbs” PROCEDURE DIVISION.

The screenshot shows the DOGGOZ IDE interface. The main window displays assembly code for a procedure named 'ADOPTED-RESULT'. The code includes various registers like R0 through R15, memory locations like 99, 100, etc., and labels like 'ADOPTED-RESULT'. A yellow highlight covers several lines of code, including 'PERFORM OPEN-INPUT' and 'PERFORM OPEN-OUTPUT'. To the right of the code editor, a vertical stack trace for 'DOGGOZ_BATCH DEBUG (doggoz.qe)' is visible, listing multiple Java frames. The bottom status bar indicates the current line (Ln 113), column (Col 64), and other details.

12) Notice that the display changed and that the program is now broken into its divisions.

The screenshot shows the DOGGOs application interface. The main window displays the source code for the `PROGRAM: DOGGOs` in the `PROCEDURE DIVISION`. The code handles breed input, adoption counts, and reporting. The interface includes a left sidebar with navigation links like RUN AND DEBUG, DOGGOs, VARIABLES, WATCH, CALL STACK, and BREAKPOINTS. A bottom toolbar provides options for main, statement trace, and doggo batch debug.

```
PROGRAM DIVISION
  .4z > entries > DOGGOs_23214_95521_CUST010.PUBLIC.PROTSYM.cbl > PROGRAM: DOGGOs > PROCEDURE DIVISION

  111      PROCEDURE DIVISION.
  112        PERFORM PRINT-WELCOME.
  113        PERFORM OPEN-INPUT.
  114        PERFORM OPEN-OUTPUT.
  115        READ THE INPUT UNTIL THE END AND UPDATE INTERNAL DATA STRUCTURE
  116        PERFORM READ-ADOPTION.
  117        PERFORM UNTIL END-OF-INPUT IS EQUAL TO END-OF-FILE
  118          PERFORM UPDATE-ACCUMULATOR
  119          PERFORM READ-ADOPTION
  120        END-PERFORM.
  121
  122        MOVE 'DAY' TO PERIOD-NAME.
  123        MOVE 1 TO REPORT-TIME.
  124
  125        * WRITE EACH BREED RESULTS INTO THE FINAL REPORT
  126        MOVE SHIBA-BREED-NAME TO DOG-BREED.
  127        MOVE BREED-ADOPTIONS(SHIBA-INDEX-VALUE) TO ADOPTED-AMOUNT.
  128        MOVE ADOPTED-RESULT TO ADOPTED-REPORT-REC.
  129        PERFORM WRITE-ADOPTION-BREED-REPORT.
  130
  131        MOVE SHMAUTZER-BREED-NAME TO DOG-BREED.
  132        MOVE BREED-ADOPTIONS(SHMAUTZER-INDEX-VALUE)
  133          TO ADOPTED-AMOUNT.
  134
  135      END-PROCEDURE.
```

13) Expand the DATA DIVISION section, then expand the WORKING STORAGE SECTION.

The screenshot shows the StrongIDE debugger interface for the DOGGOS program. The left sidebar contains navigation tabs like RUN AND DEBUG, CALL STACK, and WATCH. The main pane displays the COBOL source code. A context menu is open over the WORKING-STORAGE SECTION, highlighting the 'WORKING-STORAGE SECTION' option. The code in the main pane includes definitions for variables like BREED-INDEXES, CHI-INDEX, HUSKY-INDEX, JINGO-INDEX, KORGI-INDEX, OTHER-INDEX, POMERANIAN-INDEX, and POODLE-INDEX, along with their respective values and report definitions.

```

        DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl - doggos-gse - strong-ide - Google Chrome
        ws-805520147629576.proxy.sr.ws.broadcom.com

        RUN AND DEBUG  DOGGOS I...  ...  DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl  PROGRAM: DOGGOS > PROCEDURE DIVISION

        VARIABLES
        <--> BULLDOG-INDEX
        <--> CHI-INDEX
        <--> HUSKY-INDEX
        <--> JINGO-INDEX
        <--> JINGO-BREED-NAME: JINGO
        <--> JINGO-INDEX-VALUE: 8
        <--> KORGI-INDEX
        <--> OTHER-INDEX
        <--> POMERANIAN-INDEX
        <--> POODLE-INDEX
        <--> WATCH

        WORKING-STORAGE SECTION.
        49      * INPUT RECORDS FILE STATUS
        50      01 ADOPTIONS-FS PIC 9(2).
        51      01 END-OF-INPUT PIC 9(1) VALUE 0.
        52      01 END-OF-FILE PIC 9(1) VALUE 1.
        53      * OUTPUT REPORT FILE STATUS
        54      01 ADOPT-REPORT-FS PIC 9(2).
        COPY DATETIME.
        * INTERNAL TIMESTAMP REPRESENTATION WITHIN THE DOGGOS PROGRAM
        57      01 CURR-DATE.
        58      05 CURR-MONTH PIC 9(2).
        59      05 CURR-DAY PIC 9(2).
        60      * INTERNAL ACCUMULATOR FOR EACH BREED
        61      01 BREED-INDEXES.
        62          05 SHIBA-INDEX.
        63              10 SHIBA-INDEX-VALUE PIC 9(1) VALUE 1.
        64              10 SHIBA-BREED-NAME PIC X(5) VALUE 'SHIBA'.
        65          05 SHNAUTZER-INDEX.
        66              10 SHNAUTZER-INDEX-VALUE PIC 9(1) VALUE 2.
        67              10 SHNAUTZER-BREED-NAME PIC X(9) VALUE 'SHNAUTZER'.
        68          05 KORGI-INDEX.
        69              10 KORGI-INDEX-VALUE PIC 9(1) VALUE 3.
        70              10 KORGI-BREED-NAME PIC X(5) VALUE 'KORGI'.
        71              10 KORGI-BREED-NAME PIC X(5) VALUE 'KORGI'.

        PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  HELP/TUTORIAL
        at java.base/jdk.internal.util.Preconditions.outOfBoundsCheckIndex(Preconditions.java:248)
        at java.base/jdk.internal.util.Preconditions.checkIndex(Preconditions.java:248)
        at java.base/java.util.ArrayList.get(ArrayList.java:459)
        at com.broadcom.idas.DebuggerAdapter.getValue(DebuggerAdapter.java:251)
        at com.broadcom.idas.DebuggerAdapter.getWatchVariableValue(DebuggerAdapter.java:258)
        at com.broadcom.idas.repl.ReplService.executeEvaluate(ReplService.java:48)
        at com.broadcom.idas.DapServer.lambda$evaluate$17(DapServer.java:449)
        at java.base/java.util.concurrent.CompletableFuture$AsyncSupply.run(CompletableFuture.java:1700)
        at java.base/java.util.concurrent.CompletableFuture$AsyncSupply.exec(CompletableFuture.java:1692)
        at java.base/java.util.concurrent.ForkJoinTask.doExec(ForkJoinTask.java:290)
        at java.base/java.util.concurrent.ForkJoinPool$WorkQueue.topLevelExec(ForkJoinPool.java:1020)
        at java.base/java.util.concurrent.ForkJoinPool.scan(ForkJoinPool.java:1656)
        at java.base/java.util.concurrent.ForkJoinPool.runWorker(ForkJoinPool.java:1594)
        at java.base/java.util.concurrent.ForkJoinWorkerThread.run(ForkJoinWorkerThread.java:183)

        LHS 113, Col 64  Spaces: 4  UTF-8  LF  COBOL  Layout: US  ...

        CALL STACK  Single step stop
        DOGGOS:113 DOGGOS_23214_95521_CU...
        BREAKPOINTS
        STATEMENT TRACE
        DOGGOS BATCH DEBUG (doggos-gse)

        Filter (e.g. text, exclude)
```

14) Scroll down to BREED-INDEXES and expand it, then scroll down to JINGO-INDEX

The screenshot shows the StrongIDE debugger interface for the DOGGOS program. The left sidebar contains navigation tabs like RUN AND DEBUG, CALL STACK, and WATCH. The main pane displays the COBOL source code. A context menu is open over the BREED-INDEXES section, highlighting the 'BREED-INDEXES' option. The code in the main pane includes definitions for variables like BREED-INDEXES, CHI-INDEX, HUSKY-INDEX, JINGO-INDEX, KORGI-INDEX, OTHER-INDEX, POMERANIAN-INDEX, and POODLE-INDEX, along with their respective values and report definitions.

```

        DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl - doggos-gse - strong-ide - Google Chrome
        ws-805520147629576.proxy.sr.ws.broadcom.com

        RUN AND DEBUG  DOGGOS I...  ...  DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl  PROGRAM: DOGGOS > PROCEDURE DIVISION

        VARIABLES
        <--> BREED-INDEXES
        <--> BULLDOG-INDEX
        <--> CHI-INDEX
        <--> HUSKY-INDEX
        <--> JINGO-INDEX
        <--> JINGO-BREED-NAME: JINGO
        <--> JINGO-INDEX-VALUE: 8
        <--> KORGI-INDEX
        <--> OTHER-INDEX
        <--> POMERANIAN-INDEX
        <--> POODLE-INDEX
        <--> WATCH

        BREED-INDEXES.
        62          05 SHIBA-INDEX.
        63              10 SHIBA-INDEX-VALUE PIC 9(1) VALUE 1.
        64              10 SHIBA-BREED-NAME PIC X(5) VALUE 'SHIBA'.
        65          05 SHNAUTZER-INDEX.
        66              10 SHNAUTZER-INDEX-VALUE PIC 9(1) VALUE 2.
        67              10 SHNAUTZER-BREED-NAME PIC X(9) VALUE 'SHNAUTZER'.
        68          05 KORGI-INDEX.
        69              10 KORGI-INDEX-VALUE PIC 9(1) VALUE 3.
        70              10 KORGI-BREED-NAME PIC X(5) VALUE 'KORGI'.
        71              10 KORGI-BREED-NAME PIC X(5) VALUE 'KORGI'.
        72          05 CHI-INDEX.
        73              10 CHI-INDEX-VALUE PIC 9(1) VALUE 4.
        74              10 CHI-BREED-NAME PIC X(6) VALUE 'CHI'.
        75          05 POMERANIAN-INDEX.
        76              10 POMERANIAN-INDEX-VALUE PIC 9(1) VALUE 5.
        77              10 POMERANIAN-BREED-NAME PIC X(6) VALUE 'POODLE'.
        78          05 POMERANIAN-INDEX.
        79              10 POMERANIAN-INDEX-VALUE PIC 9(1) VALUE 6.
        80              10 POMERANIAN-BREED-NAME PIC X(6) VALUE 'POMERANIAN'.
        81          05 BULLDOG-INDEX.
        82              10 BULLDOG-INDEX-VALUE PIC 9(1) VALUE 7.
        83              10 BULLDOG-BREED-NAME PIC X(6) VALUE 'BULLDOG'.
        84          05 JINGO-INDEX.
        85              10 JINGO-INDEX-VALUE PIC 9(1) VALUE 8.

        PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  HELP/TUTORIAL
        at java.base/jdk.internal.util.Preconditions.outOfBoundsCheckIndex(Preconditions.java:248)
        at java.base/jdk.internal.util.Preconditions.checkIndex(Preconditions.java:248)
        at java.base/java.util.ArrayList.get(ArrayList.java:459)
        at com.broadcom.idas.DebuggerAdapter.getValue(DebuggerAdapter.java:251)
        at com.broadcom.idas.DebuggerAdapter.getWatchVariableValue(DebuggerAdapter.java:258)
        at com.broadcom.idas.repl.ReplService.executeEvaluate(ReplService.java:48)
        at com.broadcom.idas.DapServer.lambda$evaluate$17(DapServer.java:449)
        at java.base/java.util.concurrent.CompletableFuture$AsyncSupply.run(CompletableFuture.java:1700)
        at java.base/java.util.concurrent.CompletableFuture$AsyncSupply.exec(CompletableFuture.java:1692)
        at java.base/java.util.concurrent.ForkJoinTask.doExec(ForkJoinTask.java:290)
        at java.base/java.util.concurrent.ForkJoinPool$WorkQueue.topLevelExec(ForkJoinPool.java:1020)
        at java.base/java.util.concurrent.ForkJoinPool.scan(ForkJoinPool.java:1656)
        at java.base/java.util.concurrent.ForkJoinPool.runWorker(ForkJoinPool.java:1594)
        at java.base/java.util.concurrent.ForkJoinWorkerThread.run(ForkJoinWorkerThread.java:183)

        LHS 113, Col 64  Spaces: 4  UTF-8  LF  COBOL  Layout: US  ...

        CALL STACK  Single step stop
        DOGGOS:113 DOGGOS_23214_95521_CU...
        BREAKPOINTS
        STATEMENT TRACE
        DOGGOS BATCH DEBUG (doggos-gse)

        Filter (e.g. text, exclude)
```

15) Expand JINGO-INDEX and double click JINGO-BREED-NAME.

The screenshot shows the DOGGOZ-GSE debugger interface with the following details:

- Top Bar:** DOGGOZ_23214_95521.CUST010.PUBLIC.PROTSYM.cbl - doggos-gse - strong-ide - Google Chrome
- Address Bar:** ws-805520147629576.proxy.sn.ws.broadcom.com
- Left Sidebar:** RUN AND DEBUG, DOGGOZ, VARIABLES, WATCH, CALL STACK, BREAKPOINTS, STATEMENT TRACE.
- Middle Area:** Shows assembly code for DOGGOZ_23214_95521.CUST010.PUBLIC.PROTSYM.cbl. The code includes definitions for CHI-BREED-NAME, POODLE-BREED-NAME, POMERANIAN-BREED-NAME, BULLDOG-BREED-NAME, JINGO-BREED-NAME, HUSKY-BREED-NAME, OTHER-BREED-NAME, and ACCUMULATOR.
- Right Area:** Shows memory dump sections for JINGO-INDEX, JINGO-INDEX-VALUE, and JINGO-BREED-NAME. A yellow box highlights the JINGO-BREED-NAME section.
- Bottom Area:** PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, HBJS TERMINAL, and a terminal window showing build logs.

16) Note that the cursor is now positioned on the field JINGO-BREED-NAME. Now using a previous command right click the field name JINGO-BREED-NAME and select Peek and then Peek References

```

    .c42 > extsrcs > DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl > PROGRAM: DOGGOS > DATA DIVISION > { } WORKING-STORAGE SECTION > 05 BREED-INDEXES > 05 JINGO-INDEX > 05 JINGO-BREED-NAME
    75      05 POODLE-INDEX.
    76          10 POODLE-INDEX-VALUE PIC 9(1) VALUE 5.
    77          10 POODLE-BREED-NAME PIC X(6) VALUE 'POODLE'.
    78      05 POMERANIAN-INDEX.
    79          10 POMERANIAN-INDEX-VALUE PIC 9(1) VALUE 6.
    80          10 POMERANIAN-BREED-NAME PIC X(10) VALUE 'POMERANIAN'.
    81      05 BULDOG-INDEX.
    82          10 BULDOG-INDEX-VALUE PIC 9(1) VALUE 7.
    83          10 BULDOG-BREED-NAME PIC X(6) VALUE 'BULDOG'.
    84      05 OTHER-INDEX.
    85          10 JINGO-INDEX-VALUE PIC 9(1) VALUE 8.
    86          10 JINGO-BREED-NAME PIC X(5) VALUE 'JINGO'.
    87      05 HUSKY-INDEX.
    88          Go To Definition Ctrl+F12
    89          Go To References Shift+F12
    90          Peek >
    91          Find All References Shift+Alt+F12
    92          Change All Occurrences Ctrl+F2
    93          Format Document Shift+Alt+F
    94          Refactor... Ctrl+Shift+R
    95      * INTERNAL DATA STRUCTURE
    96      * THE AMOUNT OF ADOPTIONS
    97      * 01 ACCUMULATOR.
    98      * 05 BREED-ADOPTIONS.
    99      * FINAL DATA STRUCTURE T

```

17) That will return the following screen.

```

    .c42 > extsrcs > DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl > PROGRAM: DOGGOS > DATA DIVISION > { } WORKING-STORAGE SECTION > 05 BREED-INDEXES > 05 JINGO-INDEX > 05 JINGO-BREED-NAME
    84      05 JINGO-INDEX.
    85          10 JINGO-INDEX-VALUE PIC 9(1) VALUE 8.
    86          10 JINGO-BREED-NAME PIC X(5) VALUE 'JINGO'.
    DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl -> doggos-gse.cbt/entries - References (3)
    87          * 05 JINGO-BREED-NAME.
    88          * 10 JINGO-BREED-NAME PIC X(5) VALUE 'JINGO'.
    89          * MOVE JINGO-BREED-NAME TO DOG-BREED.
    90          * WHEN JINGO-BREED-NAME
    91          * 10 OTHER-INDEX-VALUE PIC 9(2) VALUE 10.
    92          * 10 OTHER-BREED-NAME PIC X(5) VALUE 'OTHER'.
    93      * INTERNAL DATA STRUCTURE TO KEEP
    94      * THE AMOUNT OF ADOPTIONS PER BREED.
    95      * 05 HUSKY-INDEX.
    96          10 HUSKY-INDEX-VALUE PIC 9(1) VALUE 9.
    97          10 HUSKY-BREED-NAME PIC X(5) VALUE 'HUSKY'.

```

18) Select the WHEN JINGO-GREED NAME to see the position in the code that the field is references.

The screenshot shows the DOGGOS integrated development environment (IDE) interface. The main window displays a COBOL source code editor with syntax highlighting for various programming constructs. A vertical sidebar on the left contains navigation links for 'RUN AND DEBUG', 'DOGGOS', 'WATCH', and 'CALL STACK'. The bottom section features a 'CALL STACK' pane showing the execution path from the main program down to specific library routines like 'copybook' and 'loadlib'. A status bar at the bottom provides information about the current file ('DOGGOS.BATCH.DEBUG') and the developer's environment ('ws-805520147629576.proxy.sns.broadcom').

19) Then double click inside the code on the line WHEN JINGO-BREED-
NAME.

The screenshot shows the DOGGOS IDE interface with the following details:

- Top Bar:** DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl - doggos-gse - strongIDE - Google Chrome
- Left Sidebar:** RUN AND DEBUG, DOGGOS, VARIABLES, WATCH.
- VARIABLES Section:**
 - BREED-INDEXES
 - BULDODG-INDEX
 - CHI-INDEX
 - HUSKY-INDEX
 - JINGO-INDEX
 - JINGO-BREED-NAME: JINGO
 - JINGO-INDEX-VALUE: 8
 - KORG-INDEX
 - OTHER-INDEX
 - POMERANIAN-INDEX
 - POODLE-INDEX
- Code Editor:** DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl (Line 249)

```
.cbl>.extsrcs> DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl > PROGRAM: DOGGOS > PROCEDURE DIVISION > UPDATE-ACCUMULATOR
ADD INP-ADOPTED-AMOUNT
    TO BREED-ADoptions(KORG-INDEX-VALUE)
WHEN POODLE-BREED-NAME
ADD INP-ADOPTED-AMOUNT
    TO BREED-ADoptions(POODLE-INDEX-VALUE)
WHEN POMERANIAN-BREED-NAME
ADD INP-ADOPTED-AMOUNT
    TO BREED-ADoptions(POMERANIAN-INDEX-VALUE)
WHEN BULDODG-BREED-NAME
ADD INP-ADOPTED-AMOUNT
    TO BREED-ADoptions(BULDODG-INDEX-VALUE)
WHEN JINGO-BREED-NAME
ADD INP-ADOPTED-AMOUNT
    TO BREED-ADoptions(JINGO-INDEX-VALUE)
WHEN HUSKY-BREED-NAME
ADD INP-ADOPTED-AMOUNT
    TO BREED-ADoptions(HUSKY-INDEX-VALUE)
WHEN OTHER
ADD INP-ADOPTED-AMOUNT
    TO BREED-ADoptions(OTHER-INDEX-VALUE)
END-EVALUATE.
WRITE-ADOPTION-BREED-REPORT.
```

- Bottom Navigation:** PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, HBJS TERMINAL, bash
- Call Stack:** DOGGOS:113 DOGGOS_23214_95521_CU...
- Breakpoints:** None

- 20) Now a breakpoint can be added after this condition to see if the application makes it that far. To add the breakpoint move the mouse to just left of the line ADD INP-ADOPTED-AMOUNT.

```

DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYMCBL - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sx.ws.broadcom.com

RUN AND DEBUG | DOGGOS | ... | DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYMCBL | PROGRAM: DOGGOS | PROCEDURE DIVISION | UPDATE-ACCUMULATOR

.c4z > .extsrcs > DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYMCBL > PROGRAM: DOGGOS > PROCEDURE DIVISION > UPDATE-ACCUMULATOR

VARIABLES
    BREED-INDEXES
        BULDOG-INDEX
        CHI-INDEX
        HUSKY-INDEX
        JINGO-INDEX
            JINGO-BREED-NAME: JINGO
            JINGO-INDEX-VALUE: 8
        KORG-INDEX
        OTHER-INDEX
        POMERANIAN-INDEX
        POODLE-INDEX
    WATCH
        #239 ADD INP-ADOPTED-AMOUNT
        TO BREED-ADOPTIONS(KORG-INDEX-VALUE)
        WHEN POODLE-BREED-NAME
        ADD INP-ADOPTED-AMOUNT
        TO BREED-ADOPTIONS(POODLE-INDEX-VALUE)
        WHEN POMERANIAN-BREED-NAME
        ADD INP-ADOPTED-AMOUNT
        TO BREED-ADOPTIONS(POMERANIAN-INDEX-VALUE)
        WHEN BULDOG-BREED-NAME
        ADD INP-ADOPTED-AMOUNT
        TO BREED-ADOPTIONS(BULDOG-INDEX-VALUE)
        WHEN JINGO-BREED-NAME
        ADD INP-ADOPTED-AMOUNT
        TO BREED-ADOPTIONS(JINGO-INDEX-VALUE)
        WHEN HUSKY-BREED-NAME
        ADD INP-ADOPTED-AMOUNT
        TO BREED-ADOPTIONS(HUSKY-INDEX-VALUE)
        WHEN OTHER
        ADD INP-ADOPTED-AMOUNT
        TO BREED-ADOPTIONS(OTHER-INDEX-VALUE)
    END-EVALUATE.
    WRITE-ADOPTION-BREED-REPORT.

CALL STACK
Single step stop
DOGGOS:113 DOGGOS_23214_95521_CU...
BRAKES
BREAKPOINTS
STATEMENT TRACE

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL HJS TERMINAL
[ succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)
[ succeeded] ... //:ds_alloc_CUST010.PUBLIC.PROFLIB (workspace)
[ succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)
[ succeeded] ... //:PROTSM_ALLIN (workspace)
[ succeeded] ... //:initPROTSMW (workspace)
[ succeeded] ... //COBOL:ds_alloc_CUST010.PUBLIC.LOADLIB
[ succeeded] ... //COBOL::cobol_compile#DOGGOS.CBL
[ succeeded] ... //COBOL::i:n2Scd2
[ succeeded] ... //COBOL:binder#doggos
[ succeeded] ... //COBOL:c:copyLoad
[ succeeded] ... //:all
+-----+ ... build succeeded ... executed 11, up-to-date 0, succeeded 11, failed 0 |
+-----+
exit code: 0
developer@ws-805520147629576-0:~/doggos-gse$ [ ]

```

Ln 239, Col 59 Spaces: 4 UTF-8 LF COBOL Layout: US

- 21) Click in that area and the red dot will stay. Also notice on the left section under breakpoint that line is now there.

```

    .c42 > .extsrcs > DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl > PROGRAM: DOGGOS > PROCEDURE DIVISION > UPDATE-ACCUMULATOR
    227 ADD INP-ADOPTED-AMOUNT
    228 TO BREED-ADOPTIONS(KORG-INDEX-VALUE)
    229 WHEN POMERANIAN-BREED-NAME
    230 ADD INP-ADOPTED-AMOUNT
    231 TO BREED-ADOPTIONS(POODLE-INDEX-VALUE)
    232 WHEN POODLE-BREED-NAME
    233 ADD INP-ADOPTED-AMOUNT
    234 TO BREED-ADOPTIONS(POMERANIAN-INDEX-VALUE)
    235 WHEN BULDOG-BREED-NAME
    236 ADD INP-ADOPTED-AMOUNT
    237 TO BREED-ADOPTIONS(BULDOG-INDEX-VALUE)
    238 WHEN JINGO-BREED-NAME
    239 ADD INP-ADOPTED-AMOUNT
    240 TO BREED-ADOPTIONS(JINGO-INDEX-VALUE)
    241 WHEN HUSKY-BREED-NAME
    242 ADD INP-ADOPTED-AMOUNT
    243 TO BREED-ADOPTIONS(HUSKY-INDEX-VALUE)
    244 WHEN OTHER
    245 ADD INP-ADOPTED-AMOUNT
    246 TO BREED-ADOPTIONS(OTHER-INDEX-VALUE)
    247 END-EVALUATE.
    248 WRITE-ADOPTION-BREED-REPORT.
    249

```

The screenshot shows the DOGGOS debugger interface with the code for the UPDATE-ACCUMULATOR procedure. A breakpoint is set at line 249. The code handles various breeds: JINGO, KORG, HUSKY, and BULDOG. It adds adoption amounts to their respective breed adoption counts. The code is part of a larger program named DOGGOS.

22) In addition we know that the value for OTHER breeds is wrong as well, so at this point it would behoove us to add a breakpoint there as well.

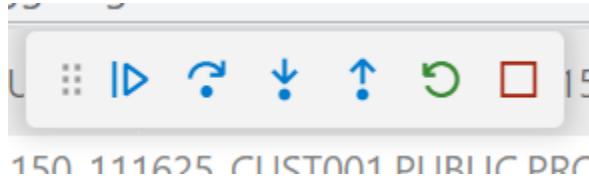
```

    .c42 > .extsrcs > DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl > PROGRAM: DOGGOS > PROCEDURE DIVISION > UPDATE-ACCUMULATOR
    227 ADD INP-ADOPTED-AMOUNT
    228 TO BREED-ADOPTIONS(KORG-INDEX-VALUE)
    229 WHEN POMERANIAN-BREED-NAME
    230 ADD INP-ADOPTED-AMOUNT
    231 TO BREED-ADOPTIONS(POODLE-INDEX-VALUE)
    232 WHEN POODLE-BREED-NAME
    233 ADD INP-ADOPTED-AMOUNT
    234 TO BREED-ADOPTIONS(POMERANIAN-INDEX-VALUE)
    235 WHEN BULDOG-BREED-NAME
    236 ADD INP-ADOPTED-AMOUNT
    237 TO BREED-ADOPTIONS(BULDOG-INDEX-VALUE)
    238 WHEN JINGO-BREED-NAME
    239 ADD INP-ADOPTED-AMOUNT
    240 TO BREED-ADOPTIONS(JINGO-INDEX-VALUE)
    241 WHEN HUSKY-BREED-NAME
    242 ADD INP-ADOPTED-AMOUNT
    243 TO BREED-ADOPTIONS(HUSKY-INDEX-VALUE)
    244 WHEN OTHER
    245 ADD INP-ADOPTED-AMOUNT
    246 TO BREED-ADOPTIONS(OTHER-INDEX-VALUE)
    247 END-EVALUATE.
    248 WRITE-ADOPTION-BREED-REPORT.
    249

```

This screenshot shows the DOGGOS debugger interface with two breakpoints set: one at line 249 and another at line 245. The code is identical to the previous screenshot, handling breeds JINGO, KORG, HUSKY, and BULDOG, and adding adoption amounts to their respective breed adoption counts. The code is part of a larger program named DOGGOS.

23) At this point with the breakpoints set we have the ability to continue the execution of the application by clicking the play button on the left of the debug toolbar:



24) At this point notice the fact that while we were looping through the breeds the debugger has skipped the breakpoint on the line ADD INP-ADOPTED-AMOUNT for JINGO. But it stopped at the same line for OTHER.

```

DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

RUN AND DEBUG DOGGOS I...  DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl  PROGRAM: DOGGOS  PROCEDURE DIVISION > UPDATE-ACCUMULATOR

VARIABLES
BREED-INDEXES
> BULDOG-INDEX
> CHI-INDEX
> HUSKY-INDEX
> JINGO-INDEX
> JINGO-BREED-NAME: JINGO
> JINGO-INDEX-VALUE: 8
> KORG-INDEX
> OTHER-INDEX
> POMERANIAN-INDEX
> POODLE-INDEX

WATCH
CALL STACK Stop at breakpoint
DOGGOS:245 DOGGOS_23214_95521_CU...
DOGGOS:245 DOGGOS_23214_95521_CU...

BREAKPOINTS
DOGGOS_23214_95521_CUST010_P...  DOGGOS_23214_95521_CU...
DOGGOS:245 WHEN JINGO-BREED-NAME
DOGGOS:245 WHEN BULDOG-BREED-NAME
DOGGOS:245 WHEN HUSKY-BREED-NAME
DOGGOS:245 WHEN KORG-BREED-NAME
DOGGOS:245 WHEN OTHER-INDEX
DOGGOS:245 WHEN POMERANIAN-BREED-NAME
DOGGOS:245 WHEN POODLE-BREED-NAME
DOGGOS:245 WHEN CHI-BREED-NAME

STATEMENT TRACE
DOGGOS:245 ADD INP-ADOPTED-AMOUNT
DOGGOS:241 WHEN HUSKY-BREED-NAME
DOGGOS:238 WHEN JINGO-BREED-NAME
DOGGOS:235 WHEN BULDOG-BREED-NAME
DOGGOS:232 WHEN POMERANIAN-BREED-NAME
DOGGOS:229 WHEN POODLE-BREED-NAME
DOGGOS:226 WHEN KORG-BREED-NAME
DOGGOS:223 WHEN CHI-BREED-NAME

227      ADD INP-ADOPTED-AMOUNT
228          TO BREED-ADoptions(KORG-INDEX-VALUE)
229          WHEN POODLE-BREED-NAME
230          ADD INP-ADOPTED-AMOUNT
231              TO BREED-ADoptions(POODLE-INDEX-VALUE)
232          WHEN POMERANIAN-BREED-NAME
233          ADD INP-ADOPTED-AMOUNT
234              TO BREED-ADoptions(POMERANIAN-INDEX-VALUE)
235          WHEN BULDOG-BREED-NAME
236          ADD INP-ADOPTED-AMOUNT
237              TO BREED-ADoptions(BULDOG-INDEX-VALUE)
238          WHEN JINGO-BREED-NAME
239          ADD INP-ADOPTED-AMOUNT
240              TO BREED-ADoptions(JINGO-INDEX-VALUE)
241          WHEN HUSKY-BREED-NAME
242          ADD INP-ADOPTED-AMOUNT
243              TO BREED-ADoptions(HUSKY-INDEX-VALUE)
244          WHEN OTHER
245          ADD INP-ADOPTED-AMOUNT
246              TO BREED-ADoptions(OTHER-INDEX-VALUE)
247          END-EVALUATE.
248
249      WRITE-ADOPTION-BREED-REPORT.

```

25) At this point it would be wise to check the variable INP-ADOPTED-AMOUNT (JINGO) to see what is in it. To do this right click on the variable and click on Add To Watch

```

DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl - doggos-gie - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

RUN AND DEBUG DOGGOS ... DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl PROGRAM: DOGGOS PROCEDURE DIVISION UPDATE-ACCUMULATOR

VARIABLES
  BREED-INDEXES
    > BULDOG-INDEX
    > CHI-INDEX
    > HUSKY-INDEX
    > JINGO-INDEX
      > JINGO-BREED-NAME: JINGO
      > JINGO-INDEX-VALUE: 8
    > KORGI-INDEX
    > OTHER-INDEX
    > POMERANIAN-INDEX
    > POODLE-INDEX

WATCH
  INP-ADOPTED-AMOUNT: 6

CALL STACK Stop at breakpoint
DOGGOS:245 DOGGOS_23214_95521_CU...
  248 WRITE-ADOPTION-BREED REPORT
  249

PROBLEMS OUTPUT DEBUG CONSOLE
[ succeeded] ... //ds_alloc_CUST010...
[ succeeded] ... //ds_alloc_CUST010...
[ succeeded] ... //ds_copy_CUST010...
[ succeeded] ... //initPROTSYM (workspace)
[ succeeded] ... //COBOL:ds_alloc_C...
[ succeeded] ... //COBOL:binder#dog...
[ succeeded] ... //COBOL:copyLoad...
[ succeeded] ... //:all

STATEMENT TRACE
DOGGOS:245 ADD INP-ADOPTED-AMOUNT
DOGGOS:241 WHEN HUSKY-BREED-NAME
DOGGOS:238 WHEN JINGO-BREED-NAME
DOGGOS:235 WHEN BULDOG-BREED-NAME...
DOGGOS:232 WHEN POMERANIAN-BREE...
DOGGOS:229 WHEN POODLE-BREED-NAME
DOGGOS:226 WHEN KORGI-BREED-NAME
DOGGOS:223 WHEN CHI-BREED-NAME

BREAKPOINTS
  DOGGOS_23214_95521_CUST010.P...
  DOGGOS_23214_95521_CU...

STATEMENT TRACE
DOGGOS:245 ADD INP-ADOPTED-AMOUNT
DOGGOS:241 WHEN HUSKY-BREED-NAME
DOGGOS:238 WHEN JINGO-BREED-NAME
DOGGOS:235 WHEN BULDOG-BREED-NAME...
DOGGOS:232 WHEN POMERANIAN-BREE...
DOGGOS:229 WHEN POODLE-BREED-NAME
DOGGOS:226 WHEN KORGI-BREED-NAME
DOGGOS:223 WHEN CHI-BREED-NAME

Add to Watch
Run to Cursor
HJS Put
Command Palette...
Ctrl+Shift+P
Ln 239, Col 27 Spaces: 4 UTF-8 LF COBOL Layout: US

```

26) Notice that the field is not added to the left under WATCH.

```

DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl - doggos-gie - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

RUN AND DEBUG DOGGOS ... DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl PROGRAM: DOGGOS PROCEDURE DIVISION UPDATE-ACCUMULATOR

VARIABLES
  BREED-INDEXES
    > BULDOG-INDEX
    > CHI-INDEX
    > HUSKY-INDEX
    > JINGO-INDEX
      > JINGO-BREED-NAME: JINGO
      > JINGO-INDEX-VALUE: 8
    > KORGI-INDEX
    > OTHER-INDEX
    > POMERANIAN-INDEX
    > POODLE-INDEX

WATCH
  INP-ADOPTED-AMOUNT: 6

CALL STACK Stop at breakpoint
DOGGOS:245 DOGGOS_23214_95521_CU...
  248 WRITE-ADOPTION-BREED REPORT
  249
  250   WRITE-ADOPTION-REPORT-REC.
  251   WRITE-ADOPT-REPORT-FS IS NOT EQUAL TO 00
  252     DISPLAY "CANNOT WRITE RECORD PROPERLY: " ADOPT-REPORT-FS

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL HJS TERMINAL
[ succeeded] ... //ds_alloc_CUST010.DOGGOS_COPYBOOK (workspace)
[ succeeded] ... //ds_alloc_CUST010.PUBLIC_PROFIB (workspace)
[ succeeded] ... //ds_copy_CUST010.DOGGOS_COPYBOOK (workspace)
[ succeeded] ... //PROTSYM_ALL (workspace)
[ succeeded] ... //initPROTSYM (workspace)
[ succeeded] ... //COBOL:ds_alloc_CUST010_PUBLIC_LOADLIB
[ succeeded] ... //COBOL:copyLoad@#DOGGOS.CBL
[ succeeded] ... //COBOL:binder#doggos
[ succeeded] ... //:all

STATEMENT TRACE
DOGGOS:245 ADD INP-ADOPTED-AMOUNT
DOGGOS:241 WHEN HUSKY-BREED-NAME
DOGGOS:238 WHEN JINGO-BREED-NAME
DOGGOS:235 WHEN BULDOG-BREED-NAME...
DOGGOS:232 WHEN POMERANIAN-BREE...
DOGGOS:229 WHEN POODLE-BREED-NAME
DOGGOS:226 WHEN KORGI-BREED-NAME
DOGGOS:223 WHEN CHI-BREED-NAME

BREAKPOINTS
  DOGGOS_23214_95521_CUST010.P...
  DOGGOS_23214_95521_CU...

STATEMENT TRACE
DOGGOS:245 ADD INP-ADOPTED-AMOUNT
DOGGOS:241 WHEN HUSKY-BREED-NAME
DOGGOS:238 WHEN JINGO-BREED-NAME
DOGGOS:235 WHEN BULDOG-BREED-NAME...
DOGGOS:232 WHEN POMERANIAN-BREE...
DOGGOS:229 WHEN POODLE-BREED-NAME
DOGGOS:226 WHEN KORGI-BREED-NAME
DOGGOS:223 WHEN CHI-BREED-NAME

Add to Watch
Run to Cursor
HJS Put
Command Palette...
Ctrl+Shift+P
Ln 239, Col 28 Spaces: 4 UTF-8 LF COBOL Layout: US

```

27) That just tells the number of INP-ADOPTED-AMOUNT and more information is needed. At this point scroll up to the beginning of the WHEN clause which starts with EVALUATE. Add INP-DOG-BREED to the

WATCH window to see that breed is being checked. Now the values for the fields are displayed.

```

RUN AND DEBUG  DOGGOS  ...  DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

VARIABLES
  BREED-INDEXES
    > BULDOG-INDEX
    > CHI-INDEX
    > HUSKY-INDEX
    > JINGO-INDEX
      > JINGO-BREED-NAME: JINGO
      > JINGO-INDEX-VALUE: 8
    > KORGI-INDEX
    > OTHER-INDEX
    > POMERANIAN-INDEX
    > POODLE-INDEX

  WATCH
    INP-ADOPTED-AMOUNT: 6
    INP-DOG-BREED: JINGA

  CALL STACK
    Stop at breakpoint
    DOGGOS:245: DOGGOS_23214_95521_CU...
    DOGGOS:245: DOGGOS_23214_95521_CU...
    DOGGOS:245: DOGGOS_23214_95521_CU...

  BREAKPOINTS
    DOGGOS_23214_95521_CUST010.P... (2)
    DOGGOS_23214_95521_CU... (249)

  STATEMENT TRACE
    DOGGOS:245 ADD INP-ADOPTED-AMOUNT
    DOGGOS:241 WHEN HUSKY-BREED-NAME
    DOGGOS:238 WHEN JINGO-BREED-NAME
    DOGGOS:235 WHEN BULDOG-BREED-NAME...
    DOGGOS:232 WHEN POMERANIAN-BRE...
    DOGGOS:229 WHEN POODLE-BREED-NAME
    DOGGOS:226 WHEN KORGI-BREED-NAME
    DOGGOS:223 WHEN CHI-BREED-NAME

  TERMINAL
    [succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)
    [succeeded] ... //:ds_alloc_CUST010.PUBLIC.PROFLIB (workspace)
    [succeeded] ... //:ds_copy_CUST010.DOGGOS.COPYBOOK (workspace)
    [succeeded] ... //:PROTSYM_ALL (workspace)
    [succeeded] ... //:PROTSYM_ALL (workspace)
    [succeeded] ... //:COBOL:ds_alloc_CUST010.PUBLIC.LOADLIB
    [succeeded] ... //:COBOL:ds_alloc_CUST010.PUBLIC.LOADLIB#doggos,CBL
    [succeeded] ... //:COBOL:i2Scd2
    [succeeded] ... //:COBOL:bind#doggos
    [succeeded] ... //:COBOL:copyLoad
    [succeeded] ... //:all

  exit code: 0
  developer@nr-805520147629576-0:~/doggos-gse$ 
  
```

- 28) Another way to see the information in the field INP-DOG_BREED would be to have your mouse hover of the field name and the value will pop up.
- 29) Notice the strange dog breed JINGA this means the application encountered a wrong breed. Most likely this means that the input file is corrupted. This also means that the EVALUATE for the JINGO was never entered so that breed was never encounter while parsing.
- 30) A quick fix for this test would be to change the value of INP-DOG-BREED to JINGO and then continue with debugging. To do this in the program right click on the field INP-DOG-BREED on the EVELUATE line. Then select the Set Variable option.

DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

RUN AND DEBUG DOGGOS ... DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl PROGRAM: DOGGOS PROCEDURE DIVISION UPDATE-ACCUMULATOR

VARIABLES

- BREED-INDEXES
 - > BULDOG-INDEX
 - > CHI-INDEX
 - > HUSKY-INDEX
 - > JINGO-INDEX
 - > JINGO-BREED-NAME: JINGO
 - > JINGO-INDEX-VALUE: 8
 - > KORG1-INDEX
 - > OTHER-INDEX
 - > POMERANIAN-INDEX
 - > POODLE-INDEX
- WATCH

INP-ADOPTED-AMOUNT: 6
INP-DOG-BREED: JINGA

CALL STACK Stop at breakpoint DOGGOS:245 DOGGOS_23214_95521_CU...

214 UPDATE-ACCUMULATOR.

215 * WHEN PARTICULAR DOG BREED COMES - UPDATE THE ACCUMULATOR FOR IT

216 EVALUATE INP-DOG-BREED

217 WHEN SHIBA-BR Go to Definition Ctrl+F12

218 ADD INP-ADOPT Go to References Shift+F12

219 TO BREED- Peek

220 WHEN SHNAUTZIE Find All References Shift+Alt+F12

221 ADD INP-ADOPT Change All Occurrences Ctrl+F2

222 TO BREED- Format Document Shift+Alt+F

223 WHEN CHI-BREE Refactor... Ctrl+Shift+R

224 ADD INP-ADOPT Generate COBOL Control Flow

225 TO BREED- Share

226 WHEN KORG1-BR Cut

227 ADD INP-ADOPT Copy

228 TO BREED- Paste

229 WHEN POODLE-BR Evaluate in Debug Console

230 ADD INP-ADOPT Set Variable

231 TO BREED- Add Inline Breakpoint Shift+F9

232 WHEN POMERANIE Add to Watch

233 ADD INP-ADOPT Run to Cursor

234 TO BREED- Command Palette... Ctrl+Shift+P

235 WHEN BULDOG-BR

236 ADD INP-ADOPT

PROBLEMS OUTPUT DEBUG CONSOLE

[succeeded] ... //ds_alloc_CUS

[succeeded] ... //ds_alloc_CUS

[succeeded] ... //ds_copy_CUS

[succeeded] ... //initPROTSYM

[succeeded] ... //COBOL:ds_allc

[succeeded] ... //COBOL:cobol_t

[succeeded] ... //COBOL:i25Cob

[succeeded] ... //COBOL:binder#doggos

[succeeded] ... //COBOL:copyLoad

[succeeded] ... //i:all

| ... build succeeded ... executed 11, up-to-date 0, succeeded 11, failed 0 |

exit code: 0 developer@ws-805520147629576-0:~/doggos-gse\$

Ln 216, Col 30 Spaces: 4 UTF-8 LF COBOL Layout: US

31) Type in JINGO and press enter.

DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

RUN AND DEBUG DOGGOS ... DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl JINGO

VARIABLES

- BREED-INDEXES
 - > BULDOG-INDEX
 - > CHI-INDEX
 - > HUSKY-INDEX
 - > JINGO-INDEX
 - > JINGO-BREED-NAME: JINGO
 - > JINGO-INDEX-VALUE: 8
 - > KORG1-INDEX
 - > OTHER-INDEX
 - > POMERANIAN-INDEX
 - > POODLE-INDEX
- WATCH

INP-ADOPTED-AMOUNT: 6
INP-DOG-BREED: JINGA

CALL STACK Stop at breakpoint DOGGOS:245 DOGGOS_23214_95521_CU...

214 UPDATE-ACCUMULATOR.

215 * WHEN PARTICULAR DOG BREED COMES - UPDATE THE ACCUMULATOR FOR IT

216 EVALUATE INP-DOG-BREED

217 WHEN SHIBA-BREED-NAME ADD INP-ADOPTED-AMOUNT

218 TO BREED-ADoptions(SHIBA-INDEX-VALUE)

219 WHEN SHNAUTZIE-BREED-NAME ADD INP-ADOPTED-AMOUNT

220 TO BREED-ADoptions(SHNAUTZIE-INDEX-VALUE)

221 WHEN CHI-BREED-NAME ADD INP-ADOPTED-AMOUNT

222 TO BREED-ADoptions(CHI-INDEX-VALUE)

223 WHEN KORG1-BREED-NAME ADD INP-ADOPTED-AMOUNT

224 TO BREED-ADoptions(KORG1-INDEX-VALUE)

225 WHEN POODLE-BREED-NAME ADD INP-ADOPTED-AMOUNT

226 TO BREED-ADoptions(POODLE-INDEX-VALUE)

227 WHEN BULDOG-BREED-NAME ADD INP-ADOPTED-AMOUNT

228 TO BREED-ADoptions(BULDOD-INDEX-VALUE)

229 WHEN POMERANIAH-BREED-NAME ADD INP-ADOPTED-AMOUNT

230 TO BREED-ADoptions(POMERANIAH-INDEX-VALUE)

231 WHEN CHI-BREED-NAME ADD INP-ADOPTED-AMOUNT

232 WHEN JINGO-BREED-NAME ADD INP-ADOPTED-AMOUNT

233 WHEN KORG1-BREED-NAME ADD INP-ADOPTED-AMOUNT

234 WHEN POODLE-BREED-NAME ADD INP-ADOPTED-AMOUNT

235 WHEN BULDOD-BREED-NAME ADD INP-ADOPTED-AMOUNT

236 ADD INP-ADOPTED-AMOUNT

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL HBJS TERMINAL

[succeeded] ... //ds_alloc_CUST010.DOGGOS_COPYBOOK (workspace)

[succeeded] ... //ds_alloc_CUST010.PUBLIC.PROFLIB (workspace)

[succeeded] ... //ds_copy_CUST010.DOGGOS_COPYBOOK (workspace)

[succeeded] ... //PROTSYM_ALLC (workspace)

[succeeded] ... //initPROTSYM (workspace)

[succeeded] ... //COBOL:ds_allc_CUST010.COBOL_LOADLIB

[succeeded] ... //COBOL:cobol_t#doggos

[succeeded] ... //COBOL:i25Cob

[succeeded] ... //COBOL:binder#doggos

[succeeded] ... //i:all

| ... build succeeded ... executed 11, up-to-date 0, succeeded 11, failed 0 |

exit code: 0 developer@ws-805520147629576-0:~/doggos-gse\$

Ln 216, Col 29 Spaces: 4 UTF-8 LF COBOL Layout: US

32) Notice in the WATCH section INP-DOG-BREED is now JINGO.

```

DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

RUN AND DEBUG DOGGOS ... DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl PROGRAM: DOGGOS PROCEDURE DIVISION > UPDATE-ACCUMULATOR

VARIABLES
  BREED-INDEXES
    BULDOG-INDEX
    CHI-INDEX
    HUSKY-INDEX
    JINGO-INDEX
      JINGO-BREED-NAME: JINGO
      JINGO-INDEX-VALUE: 8
    KORG1-INDEX
    OTHER-INDEX
    POMERANIAN-INDEX
    POODLE-INDEX

WATCH
  INP-ADOPTED-AMOUNT: 6
  INP-DOG-BREED: JINGO

CALL STACK
  Stop at breakpoint
  DOGGOS:245 DOGGOS_23214_95521_CU...
  DOGGOS:245 DOGGOS_23214_95521_CU...
  DOGGOS:245 ADD INP-ADOPTED-AMOUNT
  DOGGOS:241 WHEN HUSKY-BREED-NAME
  DOGGOS:238 WHEN JINGO-BREED-NAME
  DOGGOS:235 WHEN BULDOG-BREED-NAME
  DOGGOS:232 WHEN POMERANIAN-BREED-NAME
  DOGGOS:229 WHEN POODLE-BREED-NAME
  DOGGOS:226 WHEN KORG1-BREED-NAME
  DOGGOS:223 WHEN CHI-BREED-NAME

BREAKPOINTS
  DOGGOS_23214_95521_CUST010.P... (239)
  DOGGOS_23214_95521_CU... (245)

STATEMENT TRACE
  DOGGOS:245 ADD INP-ADOPTED-AMOUNT
  DOGGOS:241 WHEN HUSKY-BREED-NAME
  DOGGOS:238 WHEN JINGO-BREED-NAME
  DOGGOS:235 WHEN BULDOG-BREED-NAME
  DOGGOS:232 WHEN POMERANIAN-BREED-NAME
  DOGGOS:229 WHEN POODLE-BREED-NAME
  DOGGOS:226 WHEN KORG1-BREED-NAME
  DOGGOS:223 WHEN CHI-BREED-NAME

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL HBJS TERMINAL
[succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:ds_alloc_CUST010.PUBLIC.PROFLIB (workspace)
[succeeded] ... //:ds_copy_CUST010.DOGGOS.COPYBOOK (workspace)
[executed] ... //:PROTSYM_ALL... (workspace)
[executed] ... //:initPROTSYM (workspace)
[executed] ... //:COBOL:ds_alloc_CUST010.PUBLIC.LOADLIB
[executed] ... //:COBOL:cobol_compile#DOGGOS.CBL
[executed] ... //:COBOL:i2Sc02
[executed] ... //:COBOL:binder#doggos
[executed] ... //:COBOL:copyLoad
[executed] ... //:all1

exit code: 0
developer@nra-805520147629576-0:~/doggos-gse$
```

Ln 216, Col 29 Spaces: 4 UTF-8 LF COBOL Layout: US

33) Now the application can resume running by clicking the play button.

```

DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl - doggos-gse - strong-ide - Google Chrome
ws-805520147629576.proxy.sr.ws.broadcom.com

RUN AND DEBUG DOGGOS ... DOGGOS_23214_95521_CUST010.PUBLIC.PROTSYM.cbl PROGRAM: DOGGOS PROCEDURE DIVISION > UPDATE-ACCUMULATOR

VARIABLES
  BREED-INDEXES
    BULDOG-INDEX
    CHI-INDEX
    HUSKY-INDEX
    JINGO-INDEX
      JINGO-BREED-NAME: JINGO
      JINGO-INDEX-VALUE: 8
    KORG1-INDEX
    OTHER-INDEX
    POMERANIAN-INDEX
    POODLE-INDEX

WATCH
  INP-ADOPTED-AMOUNT: not available
  INP-DOG-BREED: not available

CALL STACK
  DOGGOS:245 DOGGOS_23214_95521_CU...
  DOGGOS:245 DOGGOS_23214_95521_CU...
  DOGGOS:245 ADD INP-ADOPTED-AMOUNT
  DOGGOS:241 WHEN HUSKY-BREED-NAME
  DOGGOS:238 WHEN JINGO-BREED-NAME
  DOGGOS:235 WHEN BULDOG-BREED-NAME
  DOGGOS:232 WHEN POMERANIAN-BREED-NAME
  DOGGOS:229 WHEN POODLE-BREED-NAME
  DOGGOS:226 WHEN KORG1-BREED-NAME
  DOGGOS:223 WHEN CHI-BREED-NAME

BREAKPOINTS
  DOGGOS_23214_95521_CUST010.P... (239)
  DOGGOS_23214_95521_CU... (245)

STATEMENT TRACE
  DOGGOS:245 ADD INP-ADOPTED-AMOUNT
  DOGGOS:241 WHEN HUSKY-BREED-NAME
  DOGGOS:238 WHEN JINGO-BREED-NAME
  DOGGOS:235 WHEN BULDOG-BREED-NAME
  DOGGOS:232 WHEN POMERANIAN-BREED-NAME
  DOGGOS:229 WHEN POODLE-BREED-NAME
  DOGGOS:226 WHEN KORG1-BREED-NAME
  DOGGOS:223 WHEN CHI-BREED-NAME

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL HBJS TERMINAL
[succeeded] ... //:ds_alloc_CUST010.DOGGOS.COPYBOOK (workspace)
[succeeded] ... //:ds_alloc_CUST010.PUBLIC.PROFLIB (workspace)
[succeeded] ... //:ds_copy_CUST010.DOGGOS.COPYBOOK (workspace)
[executed] ... //:PROTSYM_ALL... (workspace)
[executed] ... //:initPROTSYM (workspace)
[executed] ... //:COBOL:ds_alloc_CUST010.PUBLIC.LOADLIB
[executed] ... //:COBOL:cobol_compile#DOGGOS.CBL
[executed] ... //:COBOL:i2Sc02
[executed] ... //:COBOL:binder#doggos
[executed] ... //:COBOL:copyLoad
[executed] ... //:all1

exit code: 0
developer@nra-805520147629576-0:~/doggos-gse$
```

Ln 216, Col 29 Spaces: 4 UTF-8 LF COBOL Layout: US

Congratulations you have completed the basic workshop.

I stopped here for today!!!!!!

Side scenarios

Build COBOL source on your PC with just 4 lines of code!!

1. Navigate to the following folder:
2. Expand the src/ folder and you will see two COBOL source files, which we will build as a part of this scenario
3. Locate the BUILDZ.js file in the /root and double click to edit it
4. Uncomment the first two lines, that initialize the *compile* and *binder* variables.
5. Uncomment the third line to compile the source code in the /src folder which creates an object module (syncz.yml file automatically downloads the object modules to the /build-out folder
6. Run the “syncz -a “src::bldz” command to run the compilation enabled by uncommenting the line in the previous step
7. Uncomment the fourth line to bind the object modules created in the previous steps, which automatically creates a load module and downloads it to the /build-out folder
8. Run the “syncz -a “src::bldz” command to run the bind enabled by uncommenting the line in the previous step

Automation with Zowe

GSE NodeJS

This project demonstrates how to build and test a primitive Node.js server and then deploy and run it on the mainframe using Zowe CLI.

To use this scenario switch to ``gse-nodejs`` folder by clicking menu button in top left corner and picking “File” > “Open Folder...” > ``/home/developer/gse-nodejs`` You can continue with reading the same text in ``gse-nodejs/README.MD``

To open the terminal window use the menu in the top left corner > “Terminal” > “New Terminal”

Prerequisites

Before getting started, ensure you have the following prerequisites:

- Zowe CLI is installed and the profile is configured. This part should be done already, if not, we will need to manually [install Zowe CLI](<https://docs.zowe.org/stable/user-guide/cli-installcli>) and run `scripts/configure-zowe-cli.sh <user-id>` to configure the local profile.

- Node.js is installed on zDNT and is accessible in PATH, at the moment it is not included in the PATH, so we should create a basic `~/.profile` for the user by running `scripts/configure-remote-profile.sh <your-user-id>`

Installation

This demo describes the automation case, so all the tasks could be done by running one command:

```
```bash
npm run start
````
```

Automation in detail is represented by a set of scripts under `scripts/*`

For testing purposes or to try the Node JS server locally, use these commands:

```
```bash
npm install
npm run test
npm run start-dev
````
```

Deployment and Execution on Mainframe

After the server files are built locally the automation script packs server source code with dependencies to the server.tar and then sends it to the user's home directory on the mainframe using Zowe CLI.

```
<details>
<summary>Script</summary>

#!/bin/bash

echo ">>>>> upload.sh: update server location in run script"
sed "s|TARGET_DIR|$TARGET_DIR|g" "$LOCAL_DIR/scripts/templates/run-template.sh" >
"$LOCAL_DIR/src/run.sh"

echo ">>>>> upload.sh: create a tar archive"
tar -cf server.tar src node_modules public package.json package-lock.json

echo ">>>>> upload.sh: upload the archive to ${TARGET_DIR}/server.tar"
```

```

zowe uss iss ssh "rm -r ${TARGET_DIR} 2>/dev/null"
zowe uss iss ssh "mkdir ${TARGET_DIR}"
zowe files ul ftu -b "server.tar" "${TARGET_DIR}/server.tar"

echo ">>>>> upload.sh: extract and remove ${TARGET_DIR}/server.tar"
zowe uss iss ssh "tar -xf server.tar 2>/dev/null" --cwd ${TARGET_DIR}
zowe uss iss ssh "rm server.tar 2>/dev/null" --cwd ${TARGET_DIR}

echo ">>>>> upload.sh: update files permissions"
zowe uss iss ssh "chown -R $USER_ID ./ 2>/dev/null" --cwd ${TARGET_DIR}
zowe uss iss ssh "ctag -tRc ISO8859-1 ./ 2>/dev/null" --cwd ${TARGET_DIR}
zowe uss iss ssh "chmod +x ./src/run.sh 2>/dev/null" --cwd ${TARGET_DIR}

</details><br>

```

As a result ```/u/users/<user-id>/server``` folder is created in USS.

Then we define a job to start the server, upload it to the dataset, submit, and wait for the output.

```

<details>
  <summary>Script</summary>

  echo ">>>>> start-server.sh: create sequential data set for job"
  zowe zos-files create data-set-sequential $HLQ.NJSERVER
  sed "s|${TARGET_DIR}|${TARGET_DIR}|g" "${LOCAL_DIR}/scripts/templates/job-template.txt" >
"${LOCAL_DIR}/scripts/job.txt"

  echo ">>>>> start-server.sh: upload job to the data set"
  zowe files upload file-to-data-set "${LOCAL_DIR}/scripts/job.txt" "$HLQ.NJSERVER"

  echo ">>>>> start-server.sh: submit job to run the server"
  zowe jobs submit data-set "$HLQ.NJSERVER" --vasc > ./output.txt
  zowe files delete data-set "$HLQ.NJSERVER" -f

</details><br>

```

In this step, we create ```<user-id>.NJSERVER``` data set containing job to start the server and submit it.

For the demo purposes server will run for 60 seconds and stop automatically, then delete the dataset.

While the server is running, we can check it is up by running the cURL command
```curl --head 10.1.2.73:60111````

#### #### Conclusion

This demo scenario shows how to use a combination of NodeJS, bash, and Zowe CLI commands to provision the lifecycle of a simple Node JS server and can be used as a startup or reference point for creating a development pipeline.

For more information on Zowe CLI and its capabilities, refer to the official Zowe documentation: [Zowe CLI Documentation](<https://docs.zowe.org/stable/user-guide/cli-using-usingcli>)