

# Code for IBM i

Jesse Gorzinski & Liam Barry Allan



IBM i

... Search

**employees.sqlrpgle 9+ X**

LIAMA > qrpglesrc > employees.sqlrpgle > ...

```

1  **free
2  Ctl-Opt DFTACTGRP(*no) BNDDIR('TOOLS');
3
4  Dcl-Pi EMPLOYEES;
5    DEPTNO Char(3);
6  End-Pi;
7
8  Dcl-c SQLSUCCESS '00000';
9
10 // -----
11
12 /INCLUDE grpgleref,constantssdfhbg
13
14 dcl-pr toUpper char(50) extproc('TOUPPER');
15   input char(50) const;
16 end-pr;
17
18 // -----
19
20
21 Dcl-F emps WORKSTN Sfile(SFLDta:Rrn) IndDS(WkStnInd) InfDS(fileinfo);
22
23 Dcl-S Exit Ind Inz(*Off);
24 // Hello world
25
26 Dcl-S Rrn      Zoned(4:0) Inz;
27 // Hello world

```

PROBLEMS 36 TERMINAL OUTPUT DEBUG CONSOLE IBM i

\*RNF7089 00 1 RPG provides Separate-Indicator area for file.  
 \*RNF7030 30 2 The name or indicator is not defined.  
 \*RNF7503 30 2 Expression contains an operand that is not defined.  
 \*RNF0273 40 1 Compiler not able to open the /COPY or /INCLUDE file;  
 directive ignored.

\* \* \* \* \* END OF MESSAGE SUMMARY \* \* \* \* \*

5770WDS V7R3M0 160422 RN IBM ILE RPG LIAMA/EMPLOYEES

Final Summary

Message Totals:

Information (00)	.....	:	65
Warning (10)	.....	:	0
Error (20)	.....	:	0
Severe Error (30+)	.....	:	5
<hr/>			
Total	.....	:	70

Source Totals:

Records	.....	:	333
Specifications	.....	:	244
Data records	.....	:	0

IBM i Output

Work with Objects

Type options, press Enter.

2=Edit authority 3=Copy 4=Delete 5=Display authority 7=Rename  
 8=Display description 13=Change description

Opt	Object	Type	Library	Attribute	Text
	ABCD	*PGM	LIAMA	RPGLE	
	DEPTS	*PGM	LIAMA	RPGLE	
	EMPLOYEES	*PGM	LIAMA	RPGLE	
	HANDLER	*PGM	LIAMA	CPPLE	
	IBMIUIDSP	*PGM	LIAMA	RPGLE	
	IBMIUIINT	*PGM	LIAMA	RPGLE	
	MYPGM	*PGM	LIAMA	RPGLE	
	OCEAN2021	*PGM	LIAMA	RPGLE	Hello ocean
	OCEAN2022	*PGM	LIAMA	RPGLE	Hello ocean
	P0	*PGM	LIAMA	RPGLE	
	P1	*PGM	LIAMA	RPGLE	

More...

Parameters for options 5, 7 and 13 or command  
 ==>  
 F3=Exit F4=Prompt F5=Refresh F9=Retrieve F11=Display names and types  
 F12=Cancel F16=Repeat position to F17=Position to

5250 002/008

UT25BP18 01/23/23 16:33:58 Page 18

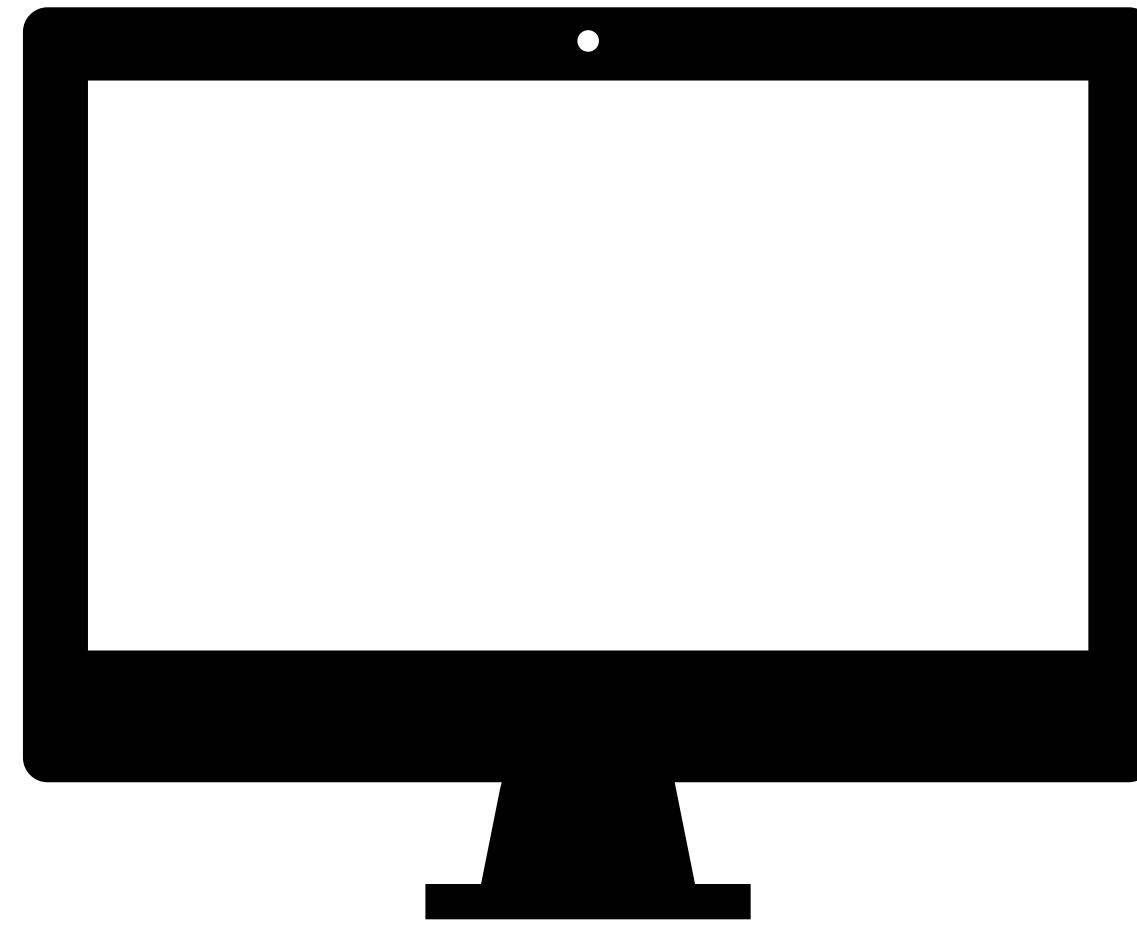
Ln 16, Col 8 Spaces: 2 CRLF RPGLE

**Free and  
open-source**

**30+ contributors**



**Mac**

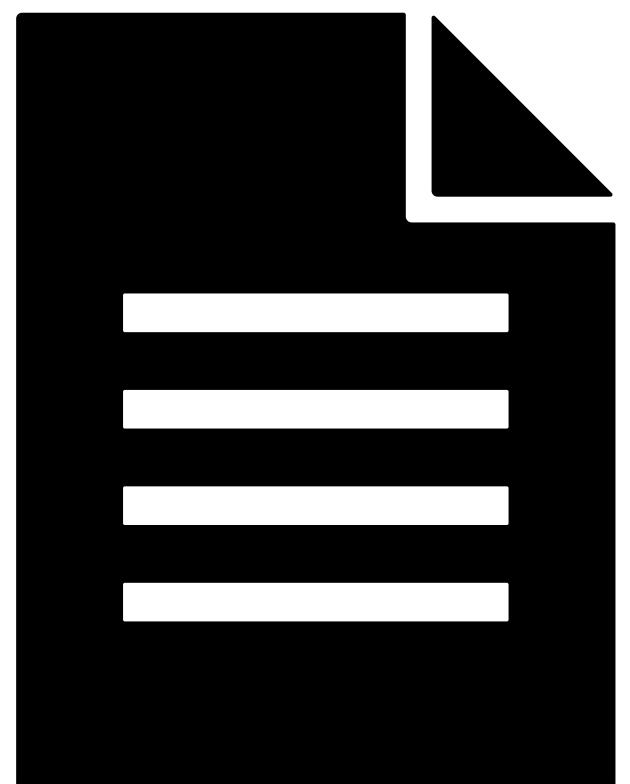
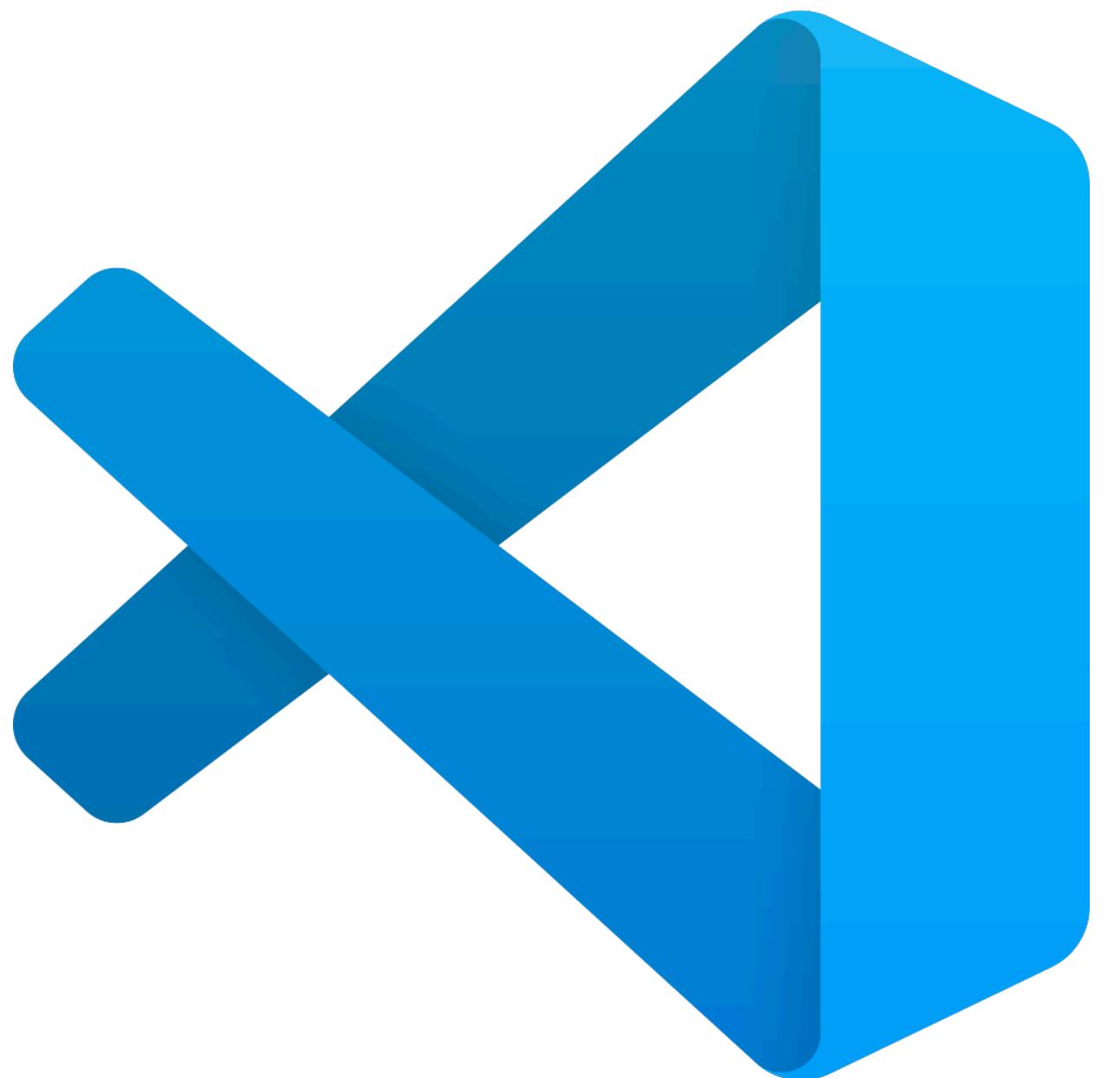


**Windows**

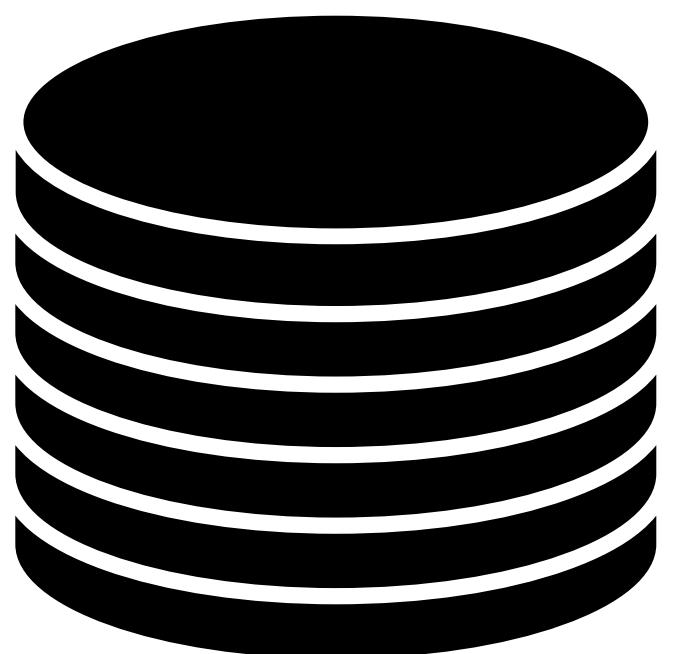


**Cloud**

**Any platform that Visual Studio Code can run - almost all.**

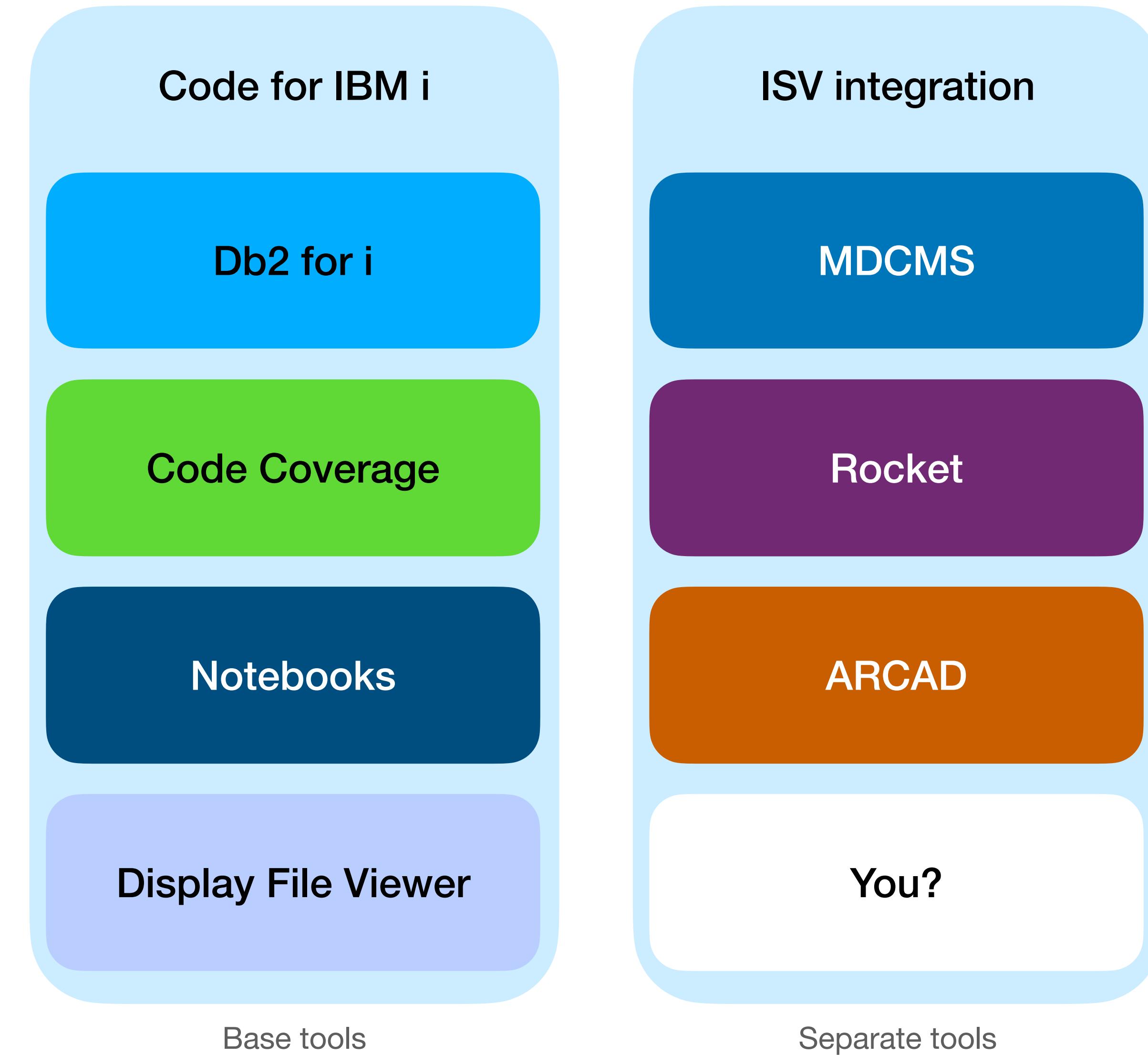


**Local system**



**Remote IBM i**

# Big ecosystem



# 2024 Roadmap

 Database extension

 Code for IBM i

 New

**Notebooks**

<https://github.com/codefori/vscode-db2i/pull/165>

**Visual Explain**

Released 

**Code for IBM i 3.0.0**

<https://github.com/codefori/vscode-ibmi/milestone/18>

**Code Coverage**

**Friendly index advice**



more Visual Explain



more Notebooks



Interactive index advice



more git integration

# Download

**"vscode ibmi"**

Google vscode

Images Videos Download Online GitHub Install Online compiler

About 200,000,000 results (0.53 seconds)

Visual Studio https://code.visualstudio.com ::

## Visual Studio Code - Code Editing. Redefined

Visual Studio Code is a code editor redefined and optimized for building and debugging modern web and cloud applications. Visual Studio Code is free and ...

You've visited this page many times. Last visit: 5/11/23

← → 🔍 vscode-ibmi-walkthroughs

EXTENSIONS: MARKETPLACE

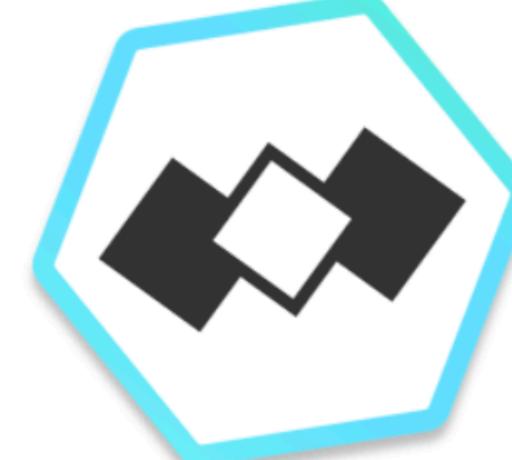
code ibmi

**Code for IBM i** ⏱ 84ms  
Maintain your RPGLE, CL, COBOL, C/C...  
Halcyon Tech

**Code for IBM i Walkthroughs** ⏱ 1ms  
Adds walkthroughs for IBM i developm...  
Halcyon Tech

**RPGLE Free**  
Visual Studio Code extension to conve...

Extension: Code for IBM i X



**Code for IBM i** v1.9.4

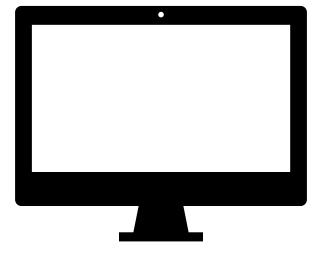
Halcyon Tech | ⏱ 18,364 | ★★★★★ (12)

Maintain your RPGLE, CL, COBOL, C/CPP on IBM i right from Visual Studio Code.

**Disable** | **Uninstall** | 

This extension is enabled globally.

DETAILS FEATURE CONTRIBUTIONS DEPENDENCIES RUNTIME STATUS



31k+ installs



2000+ daily users

Amalgamated  
Banks of South Africa

Vermont  
Information Processing

CMA Technology Solutions

Wright Service Corp

FNZ Group

KS3 Solutions

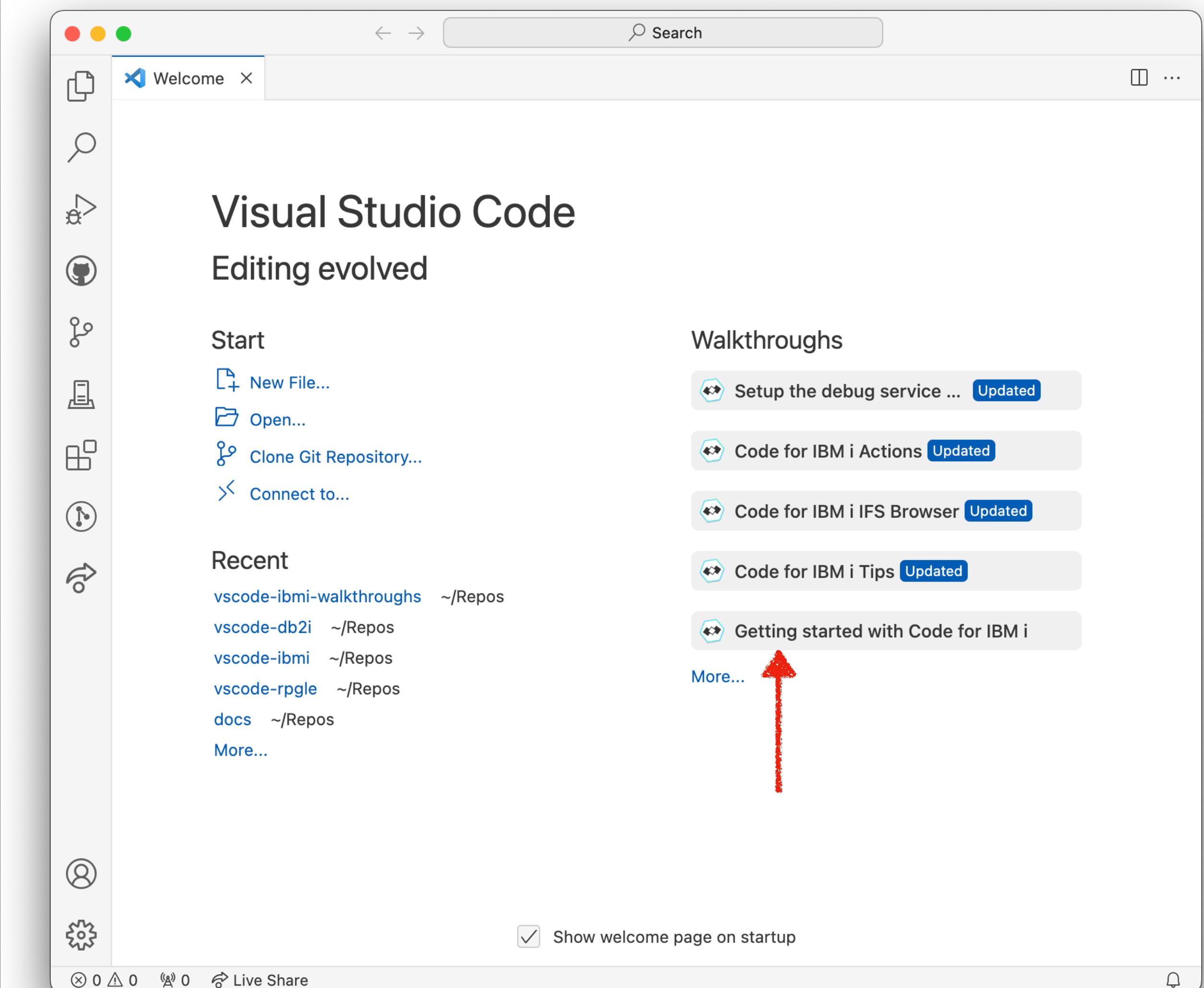
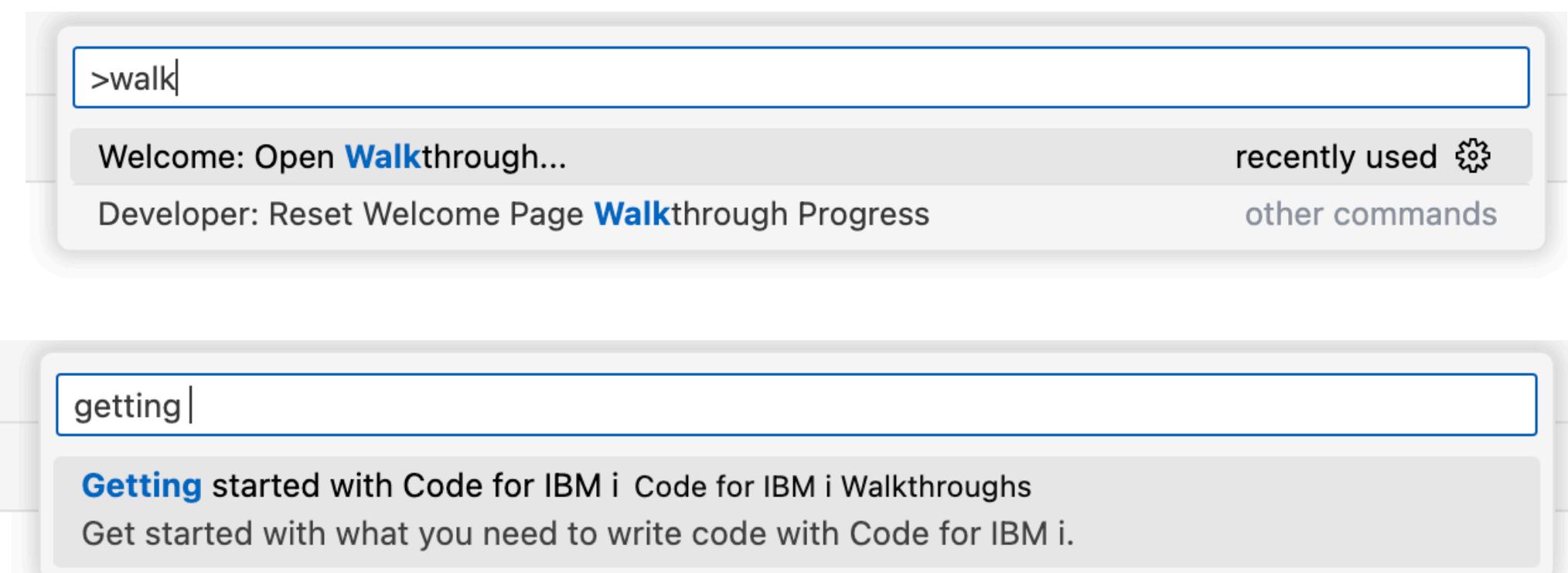
Directa SIM

Polar Beverages

CPB Software

# Walkthroughs

F1 -> 'Open Walkthrough'



# Coolness

IBM i

... Search

**employees.sqlrpgle 9+ X**

LIAMA > qrpglesrc > employees.sqlrpgle > ...

```

1  **free
2  Ctl-Opt DFTACTGRP(*no) BNDDIR('TOOLS');
3
4  Dcl-Pi EMPLOYEES;
5    DEPTNO Char(3);
6  End-Pi;
7
8  Dcl-c SQLSUCCESS '00000';
9
10 // -----
11
12 /INCLUDE grpgleref,constantssdfhbg
13
14 dcl-pr toUpper char(50) extproc('TOUPPER');
15   input char(50) const;
16 end-pr;
17
18 // -----
19
20
21 Dcl-F emps WORKSTN Sfile(SFLDta:Rrn) IndDS(WkStnInd) InfDS(fileinfo);
22
23 Dcl-S Exit Ind Inz(*Off);
24 // Hello world
25
26 Dcl-S Rrn      Zoned(4:0) Inz;
27 // Hello world

```

PROBLEMS 36 TERMINAL OUTPUT DEBUG CONSOLE IBM i

\*RNF7089 00 1 RPG provides Separate-Indicator area for file.  
 \*RNF7030 30 2 The name or indicator is not defined.  
 \*RNF7503 30 2 Expression contains an operand that is not defined.  
 \*RNF0273 40 1 Compiler not able to open the /COPY or /INCLUDE file;  
 directive ignored.

\* \* \* \* \* END OF MESSAGE SUMMARY \* \* \* \* \*

5770WDS V7R3M0 160422 RN IBM ILE RPG LIAMA/EMPLOYEES

Final Summary

Message Totals:

Information (00)	.....	:	65
Warning (10)	.....	:	0
Error (20)	.....	:	0
Severe Error (30+)	.....	:	5
<hr/>			
Total	.....	:	70

Source Totals:

Records	.....	:	333
Specifications	.....	:	244
Data records	.....	:	0

IBM i Output

Work with Objects

Type options, press Enter.

2=Edit authority 3=Copy 4=Delete 5=Display authority 7=Rename  
 8=Display description 13=Change description

Opt	Object	Type	Library	Attribute	Text
	ABCD	*PGM	LIAMA	RPGLE	
	DEPTS	*PGM	LIAMA	RPGLE	
	EMPLOYEES	*PGM	LIAMA	RPGLE	
	HANDLER	*PGM	LIAMA	CPPLE	
	IBMIUIDSP	*PGM	LIAMA	RPGLE	
	IBMIUIINT	*PGM	LIAMA	RPGLE	
	MYPGM	*PGM	LIAMA	RPGLE	
	OCEAN2021	*PGM	LIAMA	RPGLE	Hello ocean
	OCEAN2022	*PGM	LIAMA	RPGLE	Hello ocean
	P0	*PGM	LIAMA	RPGLE	
	P1	*PGM	LIAMA	RPGLE	

More...

Parameters for options 5, 7 and 13 or command  
 ==>  
 F3=Exit F4=Prompt F5=Refresh F9=Retrieve F11=Display names and types  
 F12=Cancel F16=Repeat position to F17=Position to

5250 002/008

SUMP3.SQLRPGLE

SUMP3.SQLRPGLE 2 X

BARRY > SLIDES > SUMP3.SQLRPGLE > ...

```
1  **free
2
3  dcl-pi sump3;
4      numa int(10) const;
5      numb int(10) const;
6  end-pi;

7
8  resultSet : QUALIFIED DIM(1)
9
10 Variable name casing does not match definition.
11 View Problem Quick Fix... (%.)
12 ResultSet(1).result = numa + numb;      Variable name casing does not match definition.
13
14 exec sql set result sets array :ResultSet for 1 rows;      Variable name casing does not match definition.
15
16 return;
```

PROBLEMS 2 DEBUG CONSOLE TERMINAL ... Filter (e.g. text, \*\*/\*.ts, !\*\*/node\_modules/\*\*)

SUMP3.SQLRPGLE /BARRY/SLIDES 2

- 💡 Variable name casing does not match definition. [Ln 12, Col 1]
- ⚠️ Variable name casing does not match definition. [Ln 14, Col 33]

0 ▲ 2 ✎ Settings: sg ↻ Actions ⌂ Output ⌂ Terminals Typewriter ON Ln 15, Col 1 Spaces: 2 UTF-8 LF RPGLE ⌂ ⌂ ⌂

IBM I ...

> HELP AND SUPPORT

> USER LIBRARY LIST

✓ OBJECT BROWSER

- > big
- > ccsidtest
- > evfempf01
- > german
- > qclsr
- > qddssrc
- > qrpgleref
- > qrpglesrc
- > slides
  - dept.ssqlrpgle departm...
  - deptsp.sql
  - salsum.rpgle
  - salsumf.sql
  - salsumf2.sql
  - stmts.sql
  - sump1.rpgle
  - sump2.rpgle
  - sump3.ssqlrpgle 2
  - sums1.sql
  - sums2.sql
- > vscode
  - rpglint.json
- > NOXDB NOXDB/\*/\* (\*SRCPF)
- > TTT filter TTT/\*/\* (\*ALL)

> IFS BROWSER

> DATABASE BROWSER

The screenshot shows the Red Hat Developer Studio interface with several windows open:

- SUMP1.RPGLE**: A code editor window containing RPGLE code for a procedure named `sump2`. The code includes declarations for `numa` and `numb`, and a return statement.
- SUMP2.RPGLE**: A code editor window containing RPGLE code for a function named `barry.sums2`. It defines parameters `numa` and `numb` as `INT` types and specifies the external name as `BARRY.SUMP2(SUMP2)`.
- values (barry.sums2(5, 5)) Untitled-1**: A code editor window showing a single line of code: `values (barry.sums2(5, 5))`.
- DATABASE RESULT**: A window displaying the output of the function call, showing two rows:

00001
10

On the left, there is a vertical toolbar with various icons corresponding to different developer tools and features.



The screenshot shows the 'employees.sqlrpgle' file open in the 'company\_system' repository within the Visual Studio Code interface. The left sidebar displays the 'SOURCE CONTROL' section, showing a commit message 'Message (#Enter to commit on 'master')' and staged changes for 'employees.sqlrpgle'. The main editor area shows the SQL RPGLE code for reading employee data from a cursor. The code includes logic for reading data, updating SFLDTA, and handling EOF. A diff view highlights differences between the local file and the remote repository. The bottom status bar indicates the file is on 'master\*' branch, has 14 changes, and is in 'Typewriter ON' mode.

```
employees.sqlrpgle — company_system

employees.sqlrpgle (Index) ✘ X

Users > barry > Downloads > company_system > qrpglesrc > employees.sqlrpgle

95           FETCH NEXT FROM empCur
96             INTO :Employee.EMPNO,
97               :Employee.FIRSTNAME,
98                 :Employee.LASTNAME,
99                   :Employee.JOB;
100
101          if (sqlstate = '00000');
102            XID = Employee.EMPNO;
103            XNAME = %TrimR(Employee.LASTNAME) + ', '
104              + %TrimR(Employee.FIRSTNAME)
105            XJOB = Employee.JOB;
106
107          rrn += 1;
108          Write SFLDTA;
109          endif;
110          enddo;
111
112        endif;
113
114        EXEC SQL CLOSE empCur;
115
116        If (rrn > 0);
117          SflDsp = *On;
118          SFLRRN = 1;
119          Endif;
120        End-Proc;
121
122        Dcl-Proc HandleInputs;
123          Dcl-S SelVal Char(1);
124
125          Dou (%EOF(emps));
126            ReadC SFLDTA;
127            If (%EOF(emps));
128              Iter;
129            Endif;
130
131            SelVal = %Trim(XSEL);
132
133            Select;
134              When (SelVal = '5');
135                DSPLY XTD;
136
137            Endif;
138
139          End-Proc;
140
141        Dcl-S MyTS Timestamp;
142
143        Dou (%EOF(emps));
144          ReadC SFLDTA;
145          If (%EOF(emps));
146            Iter;
147          Endif;
148
149          SelVal = %Trim(XSEL);
150
151          MyTS = %timestamp;
152
153          Select;
154            When (SelVal = '5');
155              DSPLY XTD;
156
157            Endif;
158
159          End-Proc;
160
161        Dcl-S MyTS Timestamp;
162
163        Dou (%EOF(emps));
164          ReadC SFLDTA;
165          If (%EOF(emps));
166            Iter;
167          Endif;
168
169          SelVal = %Trim(XSEL);
170
171          MyTS = %timestamp;
172
173          Select;
174            When (SelVal = '5');
175              DSPLY XTD;
176
177            Endif;
178
179          End-Proc;
180
181        Dcl-S MyTS Timestamp;
182
183        Dou (%EOF(emps));
184          ReadC SFLDTA;
185          If (%EOF(emps));
186            Iter;
187          Endif;
188
189          SelVal = %Trim(XSEL);
190
191          MyTS = %timestamp;
192
193          Select;
194            When (SelVal = '5');
195              DSPLY XTD;
196
197            Endif;
198
199          End-Proc;
200
201        Dcl-S MyTS Timestamp;
202
203        Dou (%EOF(emps));
204          ReadC SFLDTA;
205          If (%EOF(emps));
206            Iter;
207          Endif;
208
209          SelVal = %Trim(XSEL);
210
211          MyTS = %timestamp;
212
213          Select;
214            When (SelVal = '5');
215              DSPLY XTD;
216
217            Endif;
218
219          End-Proc;
220
221        Dcl-S MyTS Timestamp;
222
223        Dou (%EOF(emps));
224          ReadC SFLDTA;
225          If (%EOF(emps));
226            Iter;
227          Endif;
228
229          SelVal = %Trim(XSEL);
230
231          MyTS = %timestamp;
232
233          Select;
234            When (SelVal = '5');
235              DSPLY XTD;
236
237            Endif;
238
239          End-Proc;
240
241        Dcl-S MyTS Timestamp;
242
243        Dou (%EOF(emps));
244          ReadC SFLDTA;
245          If (%EOF(emps));
246            Iter;
247          Endif;
248
249          SelVal = %Trim(XSEL);
250
251          MyTS = %timestamp;
252
253          Select;
254            When (SelVal = '5');
255              DSPLY XTD;
256
257            Endif;
258
259          End-Proc;
260
261        Dcl-S MyTS Timestamp;
262
263        Dou (%EOF(emps));
264          ReadC SFLDTA;
265          If (%EOF(emps));
266            Iter;
267          Endif;
268
269          SelVal = %Trim(XSEL);
270
271          MyTS = %timestamp;
272
273          Select;
274            When (SelVal = '5');
275              DSPLY XTD;
276
277            Endif;
278
279          End-Proc;
280
281        Dcl-S MyTS Timestamp;
282
283        Dou (%EOF(emps));
284          ReadC SFLDTA;
285          If (%EOF(emps));
286            Iter;
287          Endif;
288
289          SelVal = %Trim(XSEL);
290
291          MyTS = %timestamp;
292
293          Select;
294            When (SelVal = '5');
295              DSPLY XTD;
296
297            Endif;
298
299          End-Proc;
300
301        Dcl-S MyTS Timestamp;
302
303        Dou (%EOF(emps));
304          ReadC SFLDTA;
305          If (%EOF(emps));
306            Iter;
307          Endif;
308
309          SelVal = %Trim(XSEL);
310
311          MyTS = %timestamp;
312
313          Select;
314            When (SelVal = '5');
315              DSPLY XTD;
316
317            Endif;
318
319          End-Proc;
320
321        Dcl-S MyTS Timestamp;
322
323        Dou (%EOF(emps));
324          ReadC SFLDTA;
325          If (%EOF(emps));
326            Iter;
327          Endif;
328
329          SelVal = %Trim(XSEL);
330
331          MyTS = %timestamp;
332
333          Select;
334            When (SelVal = '5');
335              DSPLY XTD;
336
337            Endif;
338
339          End-Proc;
340
341        Dcl-S MyTS Timestamp;
342
343        Dou (%EOF(emps));
344          ReadC SFLDTA;
345          If (%EOF(emps));
346            Iter;
347          Endif;
348
349          SelVal = %Trim(XSEL);
350
351          MyTS = %timestamp;
352
353          Select;
354            When (SelVal = '5');
355              DSPLY XTD;
356
357            Endif;
358
359          End-Proc;
360
361        Dcl-S MyTS Timestamp;
362
363        Dou (%EOF(emps));
364          ReadC SFLDTA;
365          If (%EOF(emps));
366            Iter;
367          Endif;
368
369          SelVal = %Trim(XSEL);
370
371          MyTS = %timestamp;
372
373          Select;
374            When (SelVal = '5');
375              DSPLY XTD;
376
377            Endif;
378
379          End-Proc;
380
381        Dcl-S MyTS Timestamp;
382
383        Dou (%EOF(emps));
384          ReadC SFLDTA;
385          If (%EOF(emps));
386            Iter;
387          Endif;
388
389          SelVal = %Trim(XSEL);
390
391          MyTS = %timestamp;
392
393          Select;
394            When (SelVal = '5');
395              DSPLY XTD;
396
397            Endif;
398
399          End-Proc;
400
401        Dcl-S MyTS Timestamp;
402
403        Dou (%EOF(emps));
404          ReadC SFLDTA;
405          If (%EOF(emps));
406            Iter;
407          Endif;
408
409          SelVal = %Trim(XSEL);
410
411          MyTS = %timestamp;
412
413          Select;
414            When (SelVal = '5');
415              DSPLY XTD;
416
417            Endif;
418
419          End-Proc;
420
421        Dcl-S MyTS Timestamp;
422
423        Dou (%EOF(emps));
424          ReadC SFLDTA;
425          If (%EOF(emps));
426            Iter;
427          Endif;
428
429          SelVal = %Trim(XSEL);
430
431          MyTS = %timestamp;
432
433          Select;
434            When (SelVal = '5');
435              DSPLY XTD;
436
437            Endif;
438
439          End-Proc;
440
441        Dcl-S MyTS Timestamp;
442
443        Dou (%EOF(emps));
444          ReadC SFLDTA;
445          If (%EOF(emps));
446            Iter;
447          Endif;
448
449          SelVal = %Trim(XSEL);
450
451          MyTS = %timestamp;
452
453          Select;
454            When (SelVal = '5');
455              DSPLY XTD;
456
457            Endif;
458
459          End-Proc;
460
461        Dcl-S MyTS Timestamp;
462
463        Dou (%EOF(emps));
464          ReadC SFLDTA;
465          If (%EOF(emps));
466            Iter;
467          Endif;
468
469          SelVal = %Trim(XSEL);
470
471          MyTS = %timestamp;
472
473          Select;
474            When (SelVal = '5');
475              DSPLY XTD;
476
477            Endif;
478
479          End-Proc;
480
481        Dcl-S MyTS Timestamp;
482
483        Dou (%EOF(emps));
484          ReadC SFLDTA;
485          If (%EOF(emps));
486            Iter;
487          Endif;
488
489          SelVal = %Trim(XSEL);
490
491          MyTS = %timestamp;
492
493          Select;
494            When (SelVal = '5');
495              DSPLY XTD;
496
497            Endif;
498
499          End-Proc;
500
501        Dcl-S MyTS Timestamp;
502
503        Dou (%EOF(emps));
504          ReadC SFLDTA;
505          If (%EOF(emps));
506            Iter;
507          Endif;
508
509          SelVal = %Trim(XSEL);
510
511          MyTS = %timestamp;
512
513          Select;
514            When (SelVal = '5');
515              DSPLY XTD;
516
517            Endif;
518
519          End-Proc;
520
521        Dcl-S MyTS Timestamp;
522
523        Dou (%EOF(emps));
524          ReadC SFLDTA;
525          If (%EOF(emps));
526            Iter;
527          Endif;
528
529          SelVal = %Trim(XSEL);
530
531          MyTS = %timestamp;
532
533          Select;
534            When (SelVal = '5');
535              DSPLY XTD;
536
537            Endif;
538
539          End-Proc;
540
541        Dcl-S MyTS Timestamp;
542
543        Dou (%EOF(emps));
544          ReadC SFLDTA;
545          If (%EOF(emps));
546            Iter;
547          Endif;
548
549          SelVal = %Trim(XSEL);
550
551          MyTS = %timestamp;
552
553          Select;
554            When (SelVal = '5');
555              DSPLY XTD;
556
557            Endif;
558
559          End-Proc;
560
561        Dcl-S MyTS Timestamp;
562
563        Dou (%EOF(emps));
564          ReadC SFLDTA;
565          If (%EOF(emps));
566            Iter;
567          Endif;
568
569          SelVal = %Trim(XSEL);
570
571          MyTS = %timestamp;
572
573          Select;
574            When (SelVal = '5');
575              DSPLY XTD;
576
577            Endif;
578
579          End-Proc;
580
581        Dcl-S MyTS Timestamp;
582
583        Dou (%EOF(emps));
584          ReadC SFLDTA;
585          If (%EOF(emps));
586            Iter;
587          Endif;
588
589          SelVal = %Trim(XSEL);
590
591          MyTS = %timestamp;
592
593          Select;
594            When (SelVal = '5');
595              DSPLY XTD;
596
597            Endif;
598
599          End-Proc;
599
600        Dcl-S MyTS Timestamp;
```

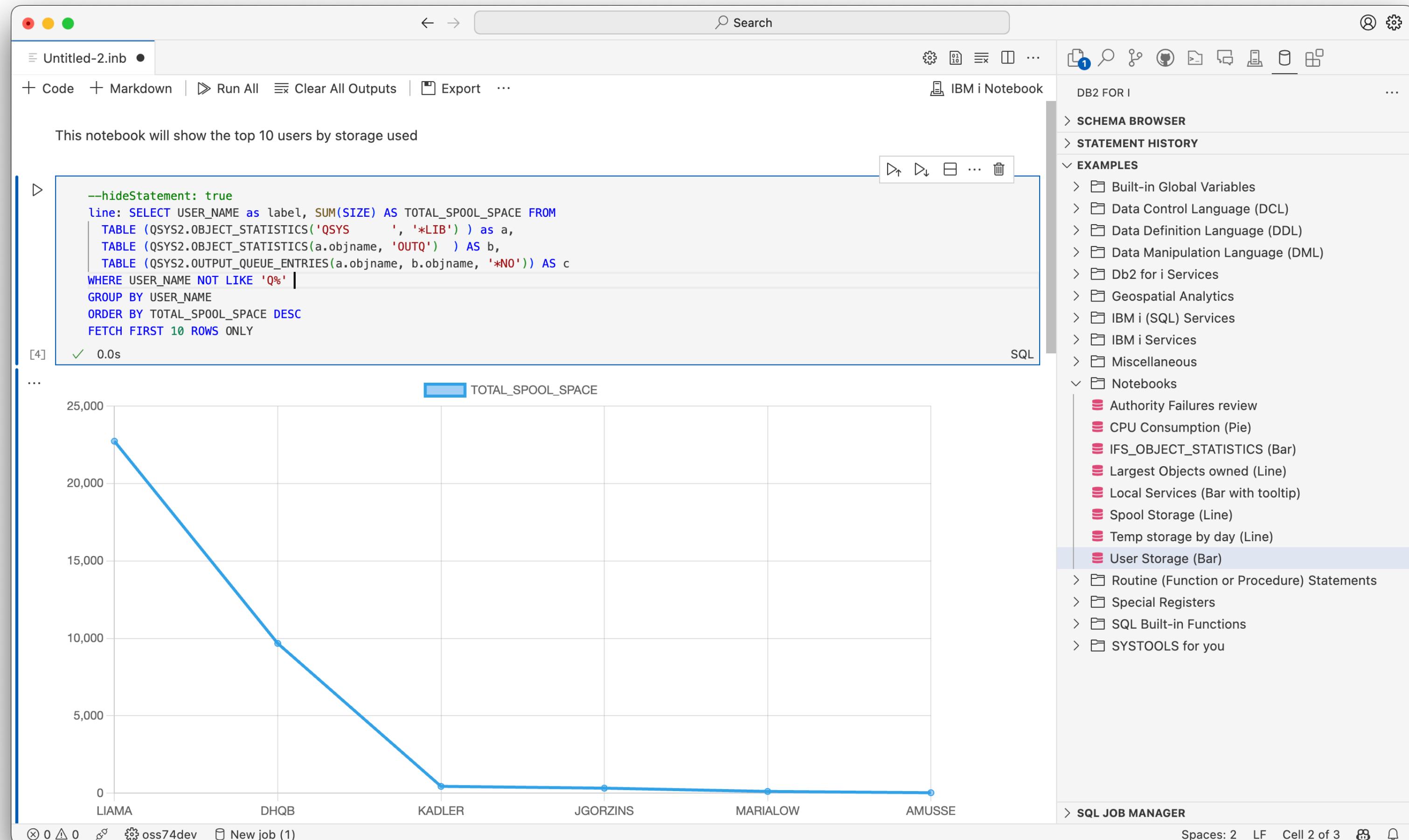
ibmi-company\_system

The screenshot shows the Visual Studio Code (VS Code) interface with the following components:

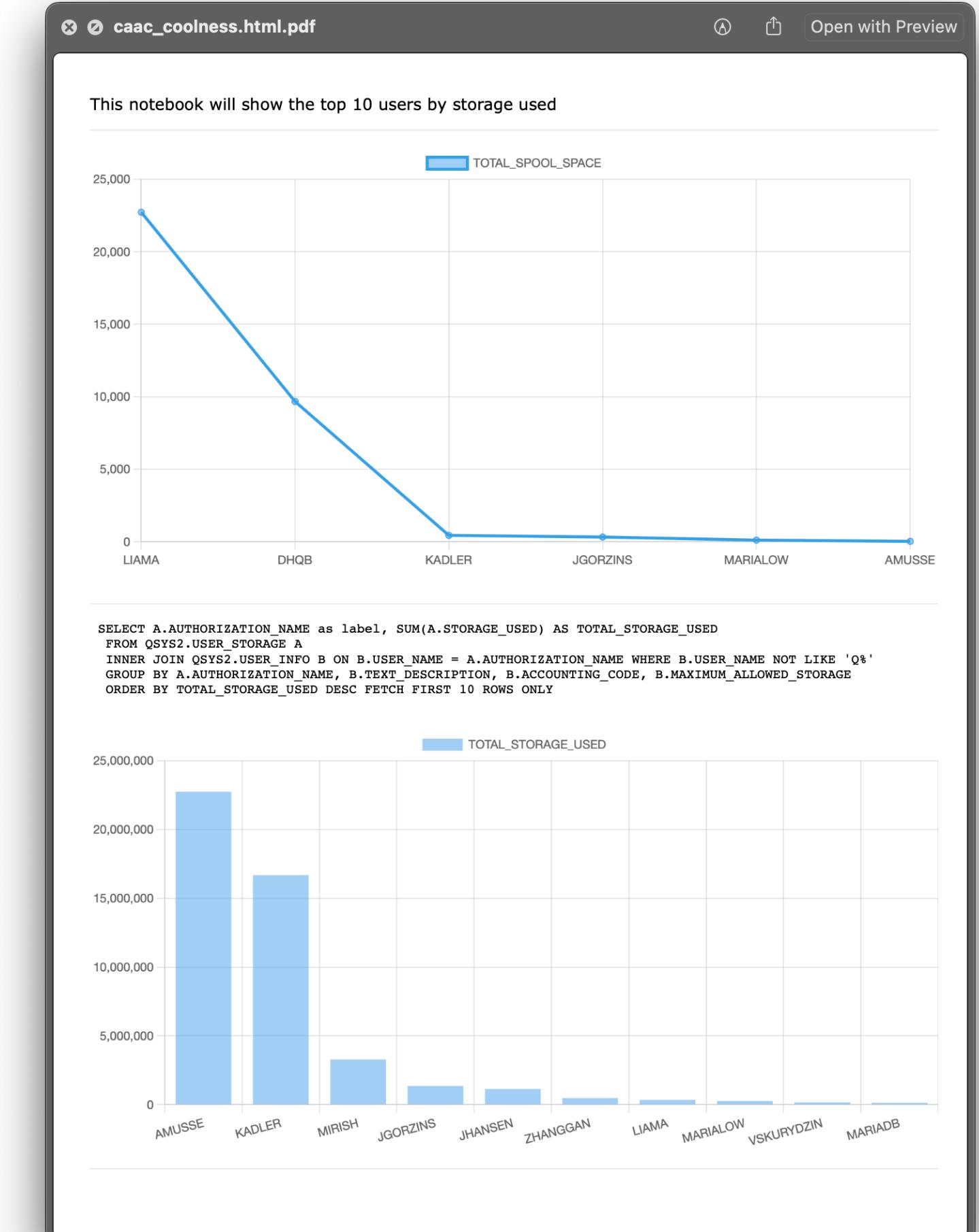
- EXPLORER** sidebar: Shows the project structure under "IBMI-COMPANY\_SYSTEM". The file "empfind.sqlcblle" is currently selected.
- Editor**: Displays the COBOL source code for "empfind.sqlcblle". The code includes sections like IDENTIFICATION DIVISION, DATA DIVISION, WORKING-STORAGE SECTION, LINKAGE SECTION, and PROCEDURE DIVISION.
- COMMAND PALETTE**: Opened, showing options for working with objects (e.g., Edit authority, Copy, Delete, Display authority, Rename, Display description, Change description).
- Table**: "Work with Objects" table showing a list of objects with their details:
 

Opt	Object	Type	Library	Attribute	Text
	EMP	*FILE	SAMPLE	DDMF	
	EMP_ACT	*FILE	SAMPLE	DDMF	
	EMP_PHOTO	*FILE	SAMPLE	PF	
	EMP_P00001	*FILE	SAMPLE	LF	
	EMP_RESUME	*FILE	SAMPLE	PF	
	EMPACT	*FILE	SAMPLE	DDMF	
	EMPLOYEE	*FILE	SAMPLE	PF	
	EMPPROJECT	*FILE	SAMPLE	PF	
	EMPFIND	*PGM	LIAMA	CBLLE	
	EMPLOYEES	*PGM	LIAMA	RPGLE	
- Bottom Status Bar**: Shows various icons and status messages, including "PROBLEMS 105", "TERMINAL", "OUTPUT", "DEBUG CONSOLE", "COMMENTS", "IBM I", and error messages like "LNC0810: Module name 'EMPFIND' does not match outermost PROGRAM-ID name 'BADNAME'. Accepted. (10) [Ln 2, Col 22]".

# Notebooks

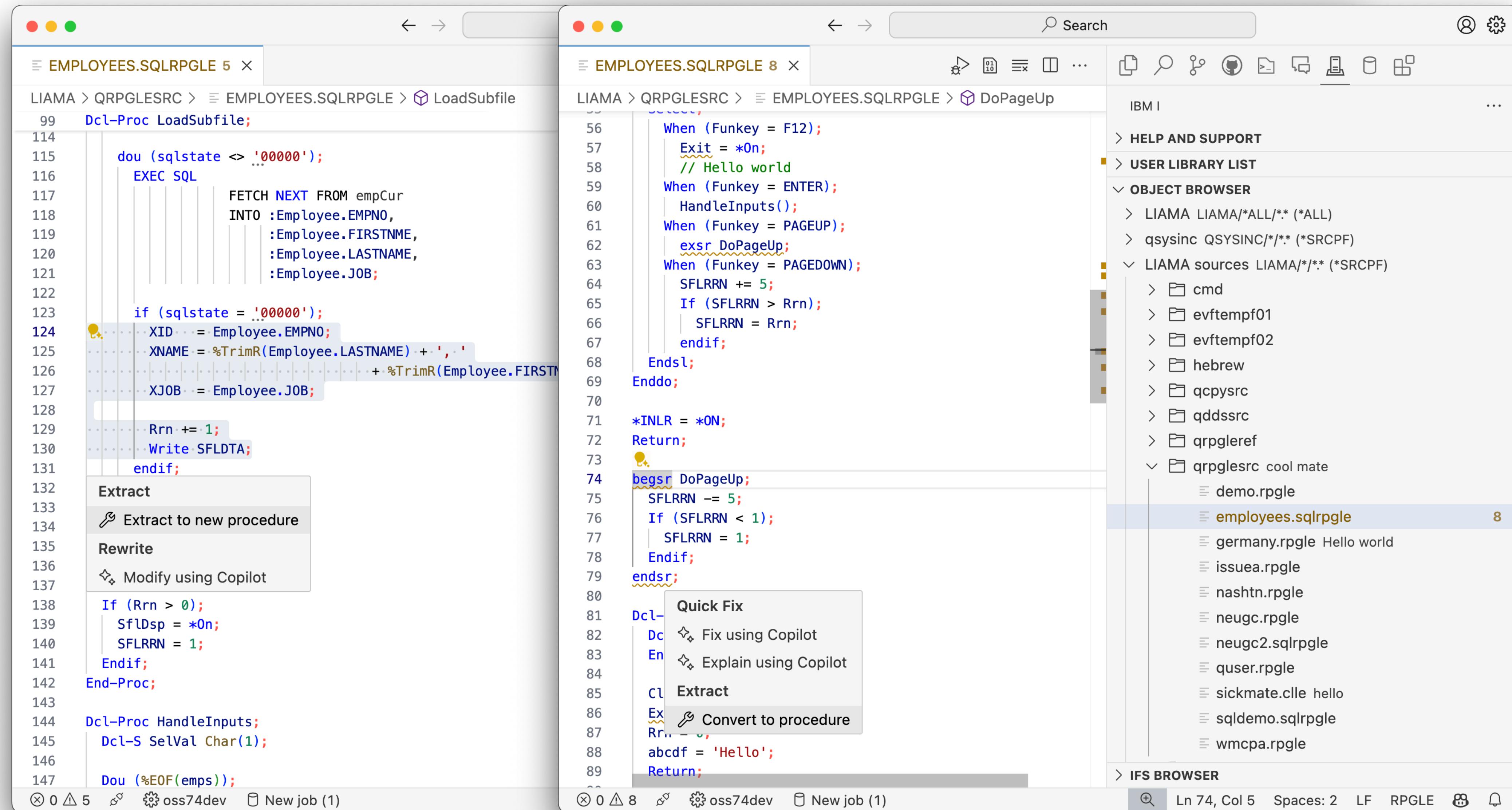


Edit, run, save and share within VS Code



Export as HTML, to PDF

# Extract



The image shows two side-by-side code editors from the IBM i Access interface, demonstrating the 'Extract' feature.

**Left Editor (Window 5):**

- File: EMPLOYEES.SQLRPGLE
- Line 124: Shows code for handling a cursor and writing data to a file.
- Context menu (Extract): Options include "Extract", "Extract to new procedure", "Rewrite", and "Modify using Copilot".

```

99  Dcl-Proc LoadSubfile;
114
115    dou (sqlstate <> '00000');
116      EXEC SQL
117        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
118        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
119        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
120        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
121        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
122        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
123        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
124        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
125        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
126        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
127        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
128        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
129        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
130        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
131        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
132        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
133        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
134        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
135        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
136        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
137        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
138        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
139        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
140        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
141        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
142        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
143        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
144        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
145        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
146        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
147        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

```

**Right Editor (Window 8):**

- File: EMPLOYEES.SQLRPGLE
- Line 74: Shows a cursor loop and a quick fix menu.
- Context menu (Quick Fix): Options include "Fix using Copilot" and "Explain using Copilot".
- Context menu (Extract): Options include "Convert to procedure".

```

56  When (Funkey = F12);
57    Exit = *On;
58    // Hello world
59    When (Funkey = ENTER);
60      HandleInputs();
61      When (Funkey = PAGEUP);
62        exsr DoPageUp;
63        When (Funkey = PAGEDOWN);
64          SFLRRN += 5;
65          If (SFLRRN > Rrn);
66            SFLRRN = Rrn;
67            endif;
68          Endsl;
69        Enddo;
70
71  *INLR = *ON;
72  Return;
73
74  begsr DoPageUp;
75    SFLRRN == 5;
76    If (SFLRRN < 1);
77      SFLRRN = 1;
78    Endif;
79  endsr;
80
81  Dcl-
82  En
83  Cl
84  Ex
85  Cn
86  Rr
87  abcdf = 'Hello';
88
89  Return;

```

**Right Panel:**

- IBM I interface with various navigation and search tools.
- Object Browser tree view showing source files like cmd, evftempf01, and employees.sqlrpgle.
- IFS BROWSER panel showing a list of files including demo.rpgle, employees.sqlrpgle, germany.rpgle, issuea.rpgle, nashtn.rpgle, neugc.rpgle, neugc2.sqlrpgle, quser.rpgle, sickmate.clle hello, sqldemo.sqlrpgle, and wmcpa.rpgle.

runner.pgm.rpgle db.sqlrpgle workload

```
rpgle > db.sqlrpgle > updateAddress
103 dcl-proc updateAddress export;
104   dcl-pi *n;
105   type char(1) const;
106   cusno int(10) const;
107 end-pi;
108
109 You, 24 minutes ago | 1 author (You)
110 dcl-f customer qualified usropn keyed usage(*update);
111 dcl-ds cust likerec(customer.custfmt);
112
113 select;
114   when (type = RLA); //RLA
115     OPEN customer;
116     chain (cusno) customer.CUSTFMT cust;
117
118       cust.ADDR1 = %char(random(1:9999)) + ... + %trimr(getSurname()) + ... + getStreetType();
119       cust.CITY = getCity(); You, 22 hours ago * random customer and address ...
120       cust.STATE = getState();
121       cust.ZIP = %char(random(10000:9999));
122
123       update customer.CUSTFMT cust;
124       CLOSE customer;
125
126 when (type = SQL); //SQL
127   cust.ADDR1 = %char(random(1:9999)) + ... + %trimr(getSurname()) + ... + getStreetType();
128   cust.CITY = getCity();
129   cust.STATE = getState();
130   cust.ZIP = %char(random(10000:9999));
131
132 EXEC SQL
```

PROBLEMS OUTPUT RUN AND DEBUG DEBUG CONSOLE GITLENS IBM I COMMENTS

**TERMINAL**

```
MAIN IBM i Main Menu System: UT201P18
Select one of the following:
  1. User tasks
  2. Office tasks
  3. General system tasks
  4. Files, libraries, and folders
  5. Programming
  6. Communications
  7. Define or change the system
  8. Problem handling
  9. Display a menu
 10. Information Assistant options
 11. IBM i Access tasks
 90. Sign off

Selection or command
==> F3=Exit F4=Prompt F9=Retrieve F12=Cancel F13=Information Assistant F23=Set initial menu
5250 007/020
```

**RESULTS**

CUSNO	FIRSTNME	LASTNAME	CARDLONG
19	TERESA	CLARK	0000000000000000
20	KATHERINE	LEE	7813781378137813
21	PAMELA	HARRIS	2226222622262226
20	KATHERINE	LEE	8968395379372921
20	KATHERINE	LEE	8968395379372921
20	KATHERINE	LEE	8968395379372921
21	PAMELA	HARRIS	8968395379372921
20	KATHERINE	LEE	4479447944794479
21	PAMELA	HARRIS	9213921392139213
20	KATHERINE	LEE	8898580889858049
21	PAMELA	HARRIS	2851673285167349
20	KATHERINE	LEE	4634802463480224
21	PAMELA	HARRIS	7587896758789624
25	RUTH	MOORE	9925432992543230
2	DEBRA	MILLER	6221417622141759
28	KATHERINE	LEWIS	3306412729077629

SCHEMA BROWSER

- LIAMA
  - Aliases
  - Functions
  - Global Variables
  - Indexes
  - Procedures
- Tables
  - customer
  - cards
  - transaction
- trid INTEGER, Identity
- tdesc VARCHAR(50)
- tcus INTEGER
- tamt NUMERIC, 0 def.
- twhen TIMESTAMP, CURRENT\_TI...
- means
- Triggers
- Types
- Views
- QSYS2
- SAMPLE
- SYSTOOLS

RESULTS

EXAMPLES

SQL JOB MANAGER

main Live Share Deploy New job (1) F3=Exit F4=Prompt F9=Retrieve F12=Cancel F13=Information Assistant F23=Set initial menu 5250 007/020 Ln 118, Col 29 Spaces: 2 LF RPGLE