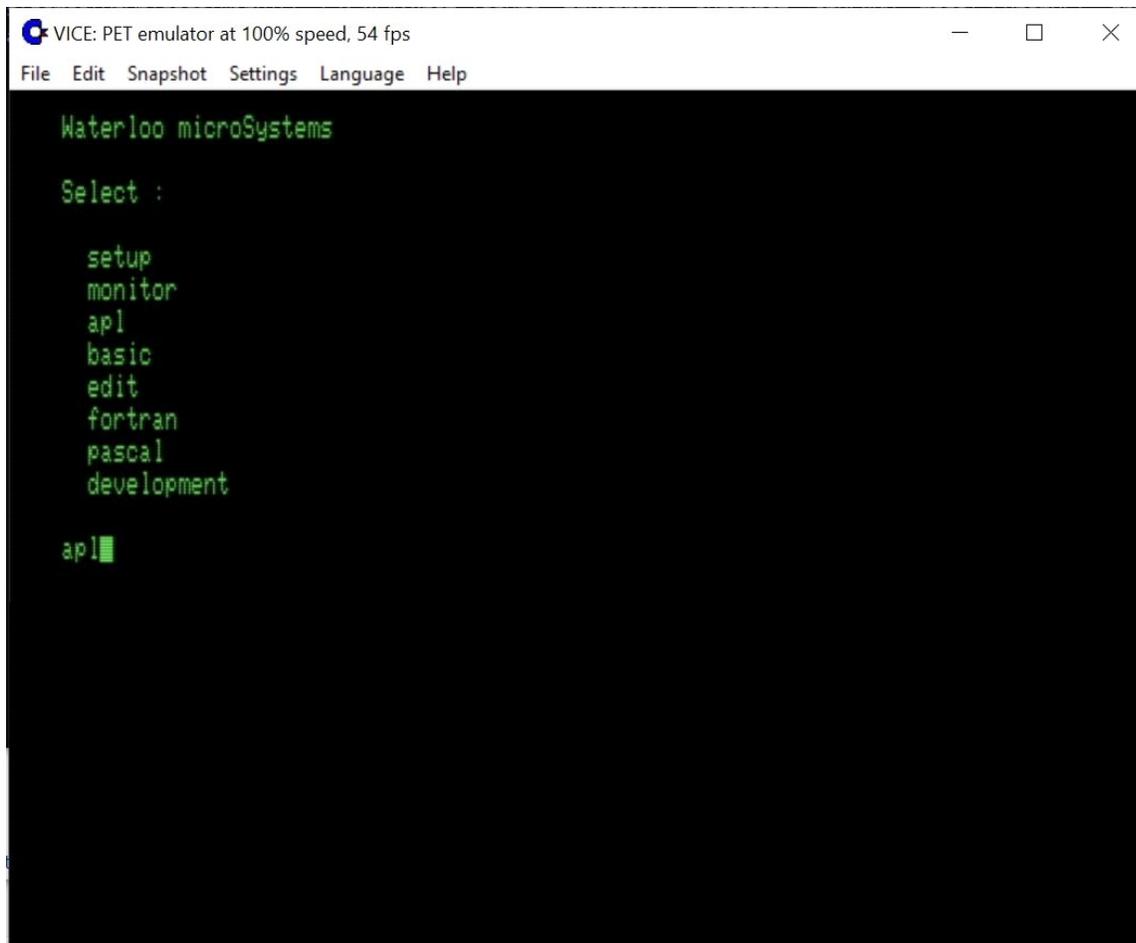


Solving the VC3 2022 Christmas Coding Challenge in APL

microAPL on the SuperPET solution set up:

```
VICE: PET emulator at 100% speed, 31 fps
File Edit Snapshot Settings Language Help
WATERLOO MICRO APL VERSION 1.0 81/09/01
COPYRIGHT 1981 BY WATERLOO COMPUTING SYSTEMS LIMITED
CLEAR WS
A←' * ** *** **** *****
C←9 9pA, '***** ***** *****'
D←C,0C
F←9 0↓(D,[1]⊕D)
G←8 18↑(D,[1]⊕D)
H←G,[1]F
(17 9↑H),0 10↓H
```

Solution expression is evaluated:

The image shows a screenshot of a VICE PET emulator window. The title bar reads "VICE: PET emulator at 100% speed, 54 fps". The menu bar includes "File", "Edit", "Snapshot", "Settings", "Language", and "Help". The main window area is black with green text. At the top, it says "Waterloo microSystems". Below that, it says "Select :". A list of options is displayed: "setup", "monitor", "apl", "basic", "edit", "fortran", "pascal", and "development". The option "apl" is currently selected, indicated by a vertical bar to its right.

To load and run the saved workspace and verify the solution:

```
)LOAD DISK/1.VCCC22
```

All of the variables are loaded in. For convenience the final expression has been saved into K so you may type K and hit return

```
VICE: PET emulator at 99% speed, 44 fps
File Edit Snapshot Settings Language Help
WATERLOO MICRO APL VERSION 1.0 81/09/01
COPYRIGHT 1981 BY WATERLOO COMPUTING SYSTEMS LIMITED
CLEAR WS
)LOAD DISK/1.VCCC22
SAVED 81/01/01 00:31:56
)VARS
A B C D E F H G J I K
A
 *      **      ***      **** *****
D
 *      *
 **     **
 ***    ***
 ****   ****
*****
*****
*****
*****
*****

```

Easier in an APL that supports drop with axis, but in Waterloo microAPL it is not implemented.

VICE: PET emulator at 99% speed, 45 fps

File Edit Snapshot Settings Language Help

```
WATERLOO MICRO APL VERSION 1.0 81/09/81
COPYRIGHT 1981 BY WATERLOO COMPUTING SYSTEMS LIMITED
CLEAR WS
A←' *      **      ***      **** *****'
B←'***** ***** *****' A DATA FOR UPPER LEFT SIDE OF SNOWFLAKE
C←9 9P A,B A CONCATENATE A WITH B AND THEN RESHAPE INTO A 9X9 ARRAY
C A THIS GIVES US ONE QUARTER IF THE SNOWFLAKE

*
**
***
****
*****
*****
*****
*****
*****
*****
█
```

VICE: PET emulator at 99% speed, 43 fps

File Edit Snapshot Settings Language Help

```
B←'*****' *****' a DATA FOR UPPER LEFT SIDE OF SNOWFLAKE  
C←9 9P A,B a CONCATENATE A WITH B AND THEN RESHAPE INTO A 9X9 ARRAY  
C a THIS GIVES US ONE QUARTER IF THE SNOWFLAKE
```

```
*  
**  
***  
****  
*****  
*****  
*****  
*****  
*****  
*****
```

```
D←C,0C a CAT C WITH ITS VERTICAL ROTATION  
D a TO COMPLETE THE UPPER HALF OF THE SNOWFLAKE
```

```
* *  
** **  
*** **  
**** **  
*****  
*****  
*****  
*****  
*****  
*****
```



F+9 04E
F

▣ DROP THE TOP 9 ROWS, KEEPING THE LOWER 9 ROWS

**** *
*** *
** *
* *

G+8 181E
G

▣ TAKE THE UPPER 8 ROWS, TO GET RID OF THE EXTRA MIDDLE

* *
** **
*** **
**** **



VICE: PET emulator at 98% speed, 44 fps

File Edit Snapshot Settings Language Help

**

*

J+0 10↓H

▣ DROP THE FIRST 10 COLUMNS, KEEPING THE LAST 8

J

*

**

**

*

█

VICE: PET emulator at 99% speed, 45 fps



File Edit Snapshot Settings Language Help

```

K←I,J  a THE SNOWFLAKE IS COMPLETE
K
*      *
**     **
***    ***
****   ****
*****
*****
*****
*****
*****
*****
*****
*****
*****
*****
*****
****  ****
***   ***
**    **
*     *

)WSID DISK/1.VCCC22
WAS CLEAR WS
)SAVE
SAVED 81/01/01 00:31:56 DISK/1.VCCC22
█
```