Technical Test

Graphical editors allow users to edit images in the same way text editors let us modify documents. Images are represented as an *M x N* array of pixels with each pixel given colour.

Produce a program that simulates a simple interactive graphical editor.

Input

The input consists of a line containing a sequence of commands. Each command is represented by asingle capital letter at the start of the line. Arguments to the command are separated by spaces and follow the command character.

Pixel co-ordinates are represented by a pair of integers: 1) a column number between 1 and *M*, and 2) a row number between 1 and *N*. Where 1 <= *M, N* <= 250. The origin sits in the upper-left of the table. Colours are specified by capital letters.

Commands

The editor supports 7 commands:

1. **I M N.** Create a new *M x N* image with all pixels coloured white (O).

2. **C.** Clears the table, setting all pixels to white (O).

3. **L X Y C.** Colours the pixel (X,Y) with colour *C*.

4. **V X Y1 Y2 C.** Draw a vertical segment of colour *C* in column *X* between rows *Y1* and *Y2* (inclusive).

5. **H X1 X2 Y C.** Draw a horizontal segment of colour *C* in row *Y* between columns *X1* and *X2* (inclusive).

6. **F X Y C.** Fill the region *R* with the colour *C*. *R* is defined as: Pixel (X,Y) belongs to *R*. Any other pixel which is the same colour as (X,Y) and shares a common side with any pixel in *R* also belongs to this region.

7. **S.** Show the contents of the current image

8. **X.** Terminate the session

Example

In the example below, > denotes input, => denotes program output.

```
> I 5 6

> L 2 3 A

> S

=>
00000
00000
0A000
00000
00000
00000

> F 3 3 J

> V 2 3 4 W

> H 3 4 2 Z

> S

=>
JJJJJ
JJZZJ
JWJJJ
JWJJJ
JJJJJ
JJJJJ
```

Submission

We prefer submissions in Python although if this is a problem please contact us. It is not compulsory to submit a fully completed answer within the time allowed.

Please provide an executable solution with any source files in a common archive format (ZIP, RAR, TAR etc.).