1. Intro. After a SAT solver has solved a problem set up with the SAT-TOMOGRAPHY programs, we want to see the answer in a convenient form. This program accepts the result (one line per solution) and converts the literals of the form *d*x*d* into the rectangular "`dots`" format of periods and asterisks.

Input and output go from *stdin* to *stdout*.

```
#include <stdio.h>
#include <stdlib.h>
  char pix[101][101];
  ⟨ Subroutine 2 ⟩;
  main( )
  {
    register int c, i, j, bit, maxi = 0, maxj = 0;
    while (1) {
      if (feof(stdin)) break;
      ⟨ Process the next line of input 3 ⟩;
    }
  }
```

2. ⟨ Subroutine 2 ⟩ ≡

```
  int nextchar(void)
  {
    register int c = fgetc(stdin);
    if (c ≠ EOF) return c;
    exit(−1);
  }
```

This code is used in section 1.

3. ⟨ Process the next line of input 3 ⟩ ≡

```
  for (c = nextchar( ); c ≡ '␣'; ) {
    ⟨ Process a literal 4 ⟩;
  }
  ⟨ Output the pixels found 6 ⟩;
```

This code is used in section 1.

4. ⟨ Process a literal 4 ⟩ ≡

```
c = nextchar( );
if (c ≠ '~') bit = 1;
else {
  bit = 0;
  c = nextchar( );
}
for (i = 0; c ≥ '0' ∧ c ≤ '9'; c = nextchar( )) i = 10 * i + c − '0';
if (i ≥ 100) {
  fprintf(stderr, "Eh? I found a number of more than two digits!\n");
  exit(−2);
}
if (c ≠ 'x') goto litdone;
c = nextchar( );
for (j = 0; c ≥ '0' ∧ c ≤ '9'; c = nextchar( )) j = 10 * j + c − '0';
if (j ≥ 100) {
  fprintf(stderr, "Eh? I found a number of more than two digits!\n");
  exit(−2);
}
if (c ≠ ' ' ∧ c ≠ '\n') goto litdone;
⟨ Record the pixel value (i, j) 5 ⟩;
litdone: while (c ≠ ' ' ∧ c ≠ '\n') c = nextchar( );
```

This code is used in section 3.

5. ⟨ Record the pixel value (i, j) 5 ⟩ ≡

```
if (i > maxi) maxi = i;
if (j > maxj) maxj = j;
pix[i][j] = bit;
```

This code is used in section 4.

6. ⟨ Output the pixels found 6 ⟩ ≡

```
for (i = 1; i ≤ maxi; i++) {
  for (j = 1; j ≤ maxj; j++) putchar(pix[i][j] ? '*' : '.');
  putchar('\n');
}
putchar('\n');
```

This code is used in section 3.

7. Index.

bit: 1, 4, 5.
c: 1, 2.
`EOF`: 2.
exit: 2, 4.
feof: 1.
fgetc: 2.
fprintf: 4.
i: 1.
j: 1.
litdone: 4.
main: 1.
maxi: 1, 5, 6.
maxj: 1, 5, 6.
nextchar: 2, 3, 4.
pix: 1, 5, 6.
putchar: 6.
stderr: 4.
stdin: 1, 2.
stdout: 1.

⟨ Output the pixels found 6 ⟩ Used in section 3.
⟨ Process a literal 4 ⟩ Used in section 3.
⟨ Process the next line of input 3 ⟩ Used in section 1.
⟨ Record the pixel value (i, j) 5 ⟩ Used in section 4.
⟨ Subroutine 2 ⟩ Used in section 1.

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