#include <stdio.h>

#include <termios.h>

#include <unistd.h>

int mygetch() {

struct termios oldt, newt;

int c;

tcgetattr(STDIN\_FILENO, &oldt);

newt = oldt;

newt.c\_lflag &= ~(ICANON | ECHO);

tcsetattr(STDIN\_FILENO, TCSANOW, &newt);

c = getchar();

tcsetattr(STDIN\_FILENO, TCSANOW, &oldt);

return c;

}

int main() {

int state = 0; // состояние конечного автомата

char c; // вводимый символ

int flag = 0;

printf("Введите число (для завершения ввода нажмите end):\n");

while ((c = mygetch()) != EOF && c != '\n' && c != 'd') {

printf("%c", c);

switch (state) {

case 0:

if (c >= '0' && c <= '9') {

state = 1;

flag = 1;

} else if (c == '+' || c == '-') {

state = 2;

} else if (c == '.') {

state = 3;

} else {

printf("\nError\n");

return 0;

}

break;

case 1:

if (c >= '0' && c <= '9') {

state = 1;

} else if (c == '.') {

state = 4;

} else if (c == 'e' || c == 'E') {

state = 5;

} else {

printf("\nError\n");

return 0;

}

break;

case 2:

if (c >= '0' && c <= '9') {

state = 1;

} else if (c == '.') {

state = 3;

} else {

printf("\nError\n");

return 0;

}

break;

case 3:

if (c >= '0' && c <= '9') {

state = 4;

} else {

printf("\nError\n");

return 0;

}

break;

case 4:

if (c >= '0' && c <= '9') {

state = 4;

} else if (c == 'e' || c == 'E') {

state = 5;

} else {

printf("\nValid\n");

return 0;

}

break;

case 5:

if (c >= '0' && c <= '9') {

state = 7;

} else if (c == '+' || c == '-') {

state = 6;

} else {

printf("\nError\n");

return 0;

}

break;

case 6:

if (c >= '0' && c <= '9') {

state = 7;

} else {

printf("\nError\n");

return 0;

}

break;

case 7:

if (c >= '0' && c <= '9') {

state = 7;

} else {

printf("\nValid\n");

return 0;

}

break;

default:

break;

}

}

if (flag == 1) {

printf("\nValid\n");

} else {

printf("\nError\n");

}

return 0;

}