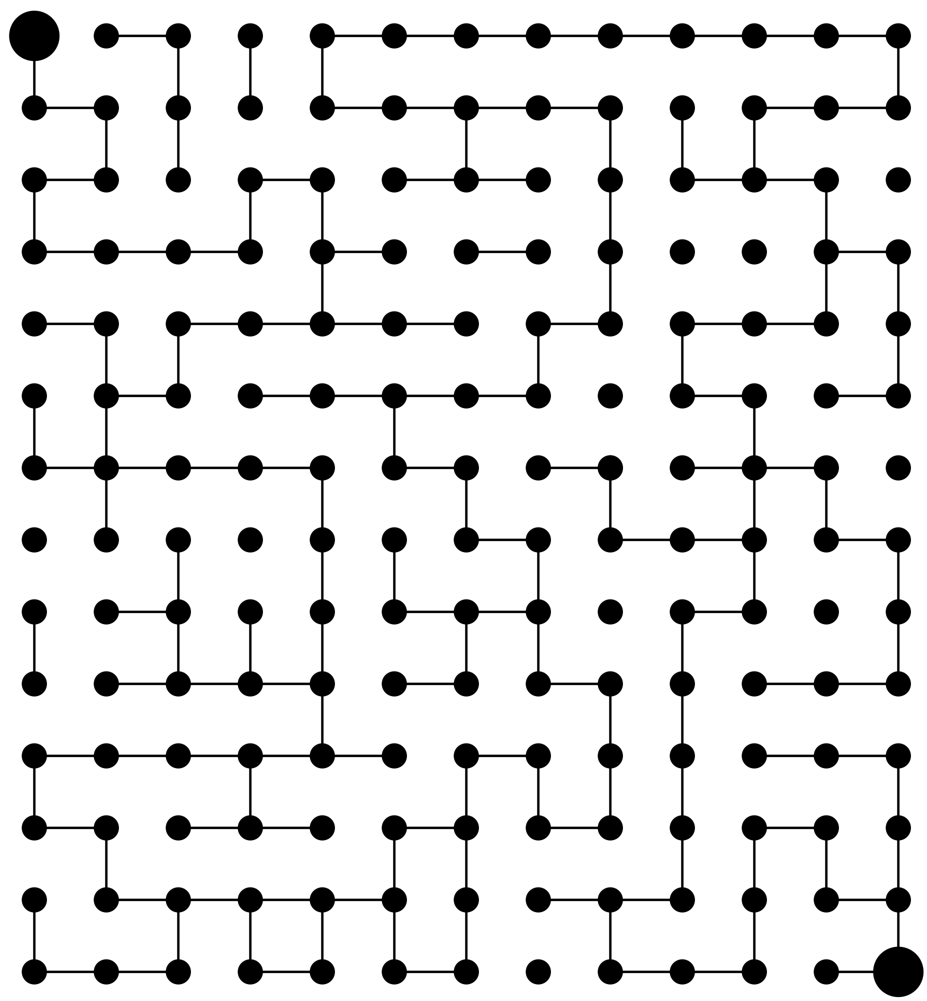
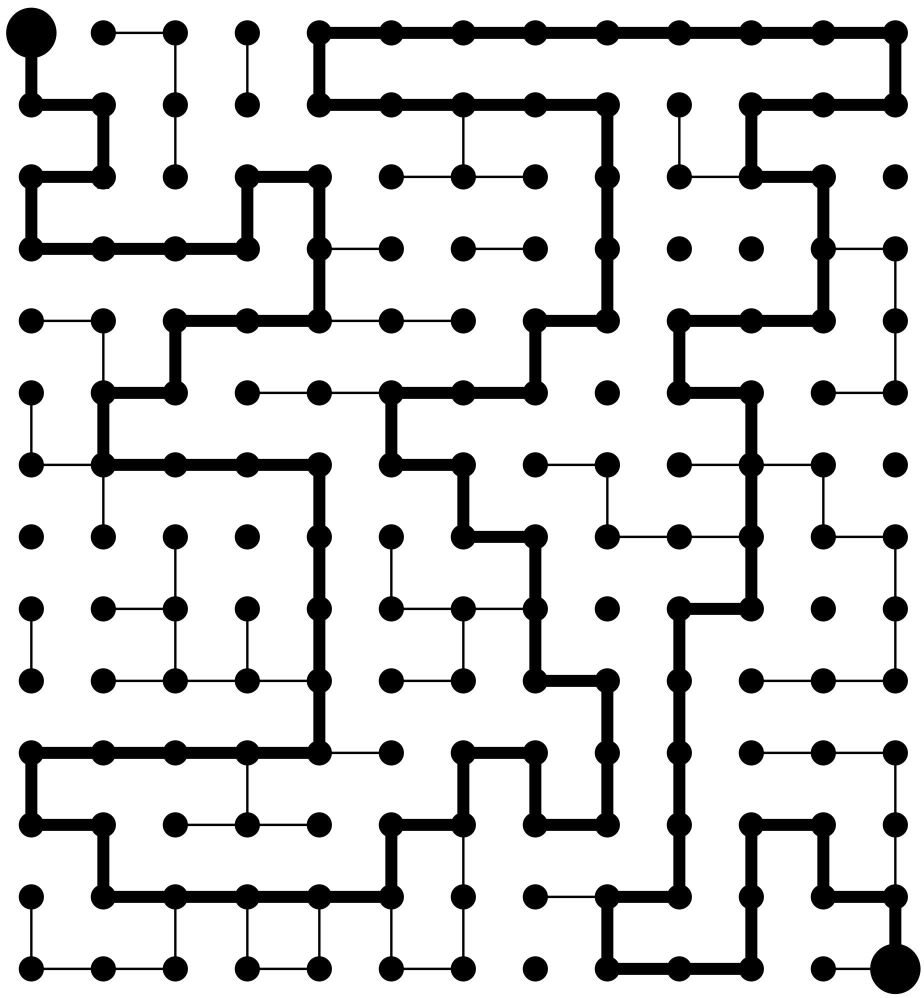
Input	Output	*Justification*
3-4	3-4	
4-9	4-9	
8-0	8-0	
2-3	2-3	
5-6	5-6	
2-9		2-3-4-9
5-9	5-9	
7-3	7-3	
4-8	4-8	
5-6		5-6
0-2		0-8-4-3-2
6-1	6-1	





```c
#include <stdio.h>
#define N 10000
main()
{
    int i, p, q, t, id[N];

    for (i=0; i<N; i++)
      id[i]=i;

    while (scanf("%d %d\n", &p, &q)==2)
      {
      if (id[p]==id[q])
        continue;

      for (t=id[p], i=0; i<N; i++)
        if (id[i]==t)
          id[i]=id[q];

      printf(" %d %d\n", p, q);
      }
}
```

When we process the pair `p q`, we change all entries with value `id[p]` to have the value `id[q]`

p	q	0	1	2	3	4	5	6	7	8	9
3	4	0	1	2	$\boxed{4}$	4	5	6	7	8	9
4	9	0	1	2	$\boxed{9}$	$\boxed{9}$	5	6	7	8	9
8	0	0	1	2	9	9	5	6	7	$\boxed{0}$	9
2	3	0	1	$\boxed{9}$	9	9	5	6	7	0	9
5	6	0	1	9	9	9	$\boxed{6}$	6	7	0	9
2	9	0	1	9	9	9	6	6	7	0	9
5	9	0	1	9	9	9	$\boxed{9}$	$\boxed{9}$	7	0	9
7	3	0	1	9	9	9	9	9	$\boxed{9}$	0	9
4	8	0	1	$\boxed{0}$	$\boxed{0}$	$\boxed{0}$	$\boxed{0}$	$\boxed{0}$	$\boxed{0}$	0	$\boxed{0}$
5	6	0	1	0	0	0	0	0	0	0	0
0	2	0	1	0	0	0	0	0	0	0	0
6	1	$\boxed{1}$	1	$\boxed{1}$	$\boxed{1}$	$\boxed{1}$	$\boxed{1}$	$\boxed{1}$	$\boxed{1}$	$\boxed{1}$	$\boxed{1}$