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1 Graph

1.1 C129

```

1 #include <bits/stdc++.h>
2
3 using namespace std;
4 char oil[100][100] = {0};
5 int m, n;
6
7 void dfs( int i, int j )
8 {
9     oil[i][j] = '*';
10    if( oil[i-1][j-1] == '@' )
11    {
12        if( i-1 >= 0 && j-1 >= 0 )
13        {
14            oil[i-1][j-1] = '*';
15            dfs( i-1, j-1 );
16        }
17    }
18    else if( oil[i-1][j] == '@' )
19    {
20        if( i-1 >= 0 )
21        {
22            oil[i-1][j] = '*';
23            dfs( i-1, j );
24        }
25    }
26    else if( oil[i-1][j+1] == '@' )
27    {
28        if( i-1 >= 0 && j+1 <= n )
29        {
30            oil[i-1][j+1] = '*';
31            dfs( i-1, j+1 );
32        }
33    }
34    else if( oil[i][j-1] == '@' )
35    {
36        if( j-1 >= 0 )
37        {
38            oil[i][j-1] = '*';
39            dfs( i, j-1 );
40        }
41    }
42    else if( oil[i][j+1] == '@' )
43    {
44        if( j+1 <= n )
45        {
46            oil[i][j+1] = '*';
47            dfs( i, j+1 );
48        }
49    }
50    else if( oil[i+1][j-1] == '@' )
51    {
52        if( i+1 <= m && j-1 >= 0 )
53        {
54            oil[i+1][j-1] = '*';
55            dfs( i+1, j-1 );
56        }
57    }
58    else if( oil[i+1][j] == '@' )
59    {
60        if( i+1 <= m )
61        {
62            oil[i+1][j] = '*';
63            dfs( i+1, j );
64        }
65    }
66    else if( oil[i+1][j+1] == '@' )
67    {
68        if( i+1 <= m && j+1 <= n )
69        {
70            oil[i+1][j+1] = '*';
71            dfs( i+1, j+1 );
72        }
73    }
74 }
75
76 int main(void)
77 {
78     while( cin >> m >> n )
79     {
80         int ans = 0;
81         if( ( m == 0 ) && ( n == 0 ) )
82         {
83             break;
84         }
85         else
86         {
87             for( int i = 0 ; i < m ; i++ )
88             {
89                 for( int j = 0 ; j < n ; j++ )
90                 {
91                     cin >> oil[i][j];
92                 }
93             }
94             for( int i = 0 ; i < m ; i++ )
95             {
96                 for( int j = 0 ; j < n ; j++ )
97                 {
98                     if( oil[i][j] == '@' )
99                     {
100                         dfs( i, j );
101                         ans++;
102                     }
103                 }
104             }
105             cout << ans << endl;
106         }
107     }
108     return 0;
109 }
```

```

57 }
58 else if( oil[i+1][j] == '@' )
59 {
60     if( i+1 <= m )
61     {
62         oil[i+1][j] = '*';
63         dfs( i+1, j );
64     }
65 }
66 else if( oil[i+1][j+1] == '@' )
67 {
68     if( i+1 <= m && j+1 <= n )
69     {
70         oil[i+1][j+1] = '*';
71         dfs( i+1, j+1 );
72     }
73 }
74 }
75
76 int main(void)
77 {
78     while( cin >> m >> n )
79     {
80         int ans = 0;
81         if( ( m == 0 ) && ( n == 0 ) )
82         {
83             break;
84         }
85         else
86         {
87             for( int i = 0 ; i < m ; i++ )
88             {
89                 for( int j = 0 ; j < n ; j++ )
90                 {
91                     cin >> oil[i][j];
92                 }
93             }
94             for( int i = 0 ; i < m ; i++ )
95             {
96                 for( int j = 0 ; j < n ; j++ )
97                 {
98                     if( oil[i][j] == '@' )
99                     {
100                         dfs( i, j );
101                         ans++;
102                     }
103                 }
104             }
105             cout << ans << endl;
106         }
107     }
108     return 0;
109 }
```

1.2 11935

```

1 #include <bits/stdc++.h>
2
3 using namespace std;
4
5 int main()
6 {
7     int num, flag = 1;
8     cin >> num;
9     while( num > 0 )
10    {
11        int n, ans = 0;
12        char map[100][100] = {0};
13        cin >> n;
14        for( int i = 0 ; i < n ; i++ )
15        {
16            for( int j = 0 ; j < n ; j++ )
17            {
18                cin >> map[i][j];
19            }
20        }
21    }
```

```

21     for( int i = 0 ; i < n ; i++ )
22     {
23         for(int j = 0 ; j < n ; j++ )
24         {
25             if( map[i][j] == 'x' )
26             {
27                 ans++;
28             }
29         }
30     }
31     cout << "Case " << flag << ": " << ans << endl;
32     num--;
33     flag++;
34 }
35 return 0;
36 }

```

2 Numbers

2.1 CongruenceEquation

```

1 #include <bits/stdc++.h>
2
3 using namespace std;
4
5 long long Mode(long long a, long long n, long long m)
6 {
7     long long sum = 1;
8     for( ; n ; n >= 1 )
9     {
10         if( n & 1 )
11         {
12             sum = ( sum * a ) % m;
13         }
14         a = ( a * a ) % m;
15     }
16     return sum;
17 }
18
19 int main(void)
20 {
21     int a, b, p, x, ans = 0;
22     cin >> a >> b >> p >> x;
23     for( int i = 1 ; i < x + 1 ; i++ )
24     {
25         int n;
26         n = i % p;
27         n = n * Mode( a, i, p);
28         if( n % p == b % p )
29         {
30             ans++;
31         }
32     }
33     cout << ans << endl;
34     return 0;
35 }

```

3 PD practice

3.1 practice1

```

1 package com.company;
2 import java.util.Scanner;
3 public class Main {
4
5     public static void main(String[] args) {
6         Scanner scanner = new Scanner(System.in);
7         int n = scanner.nextInt();
8         int m = n-1;
9         for( int i = 1 ; i <= 2*n-1 ; i=i+2 ) {
10             for( int j = m ; j > 0 ; j-- ) {

```

```

11                 System.out.print( " ");
12             }
13             m--;
14             for (int t = 0; t < i; t++) {
15                 System.out.print( "*" );
16             }
17             System.out.println();
18         }
19     }
20 }
21 }

```

3.2 practice2

```

1 package com.company;
2
3 public class Main {
4
5     public static void main(String[] args) {
6         for( int i = 1 ; i < 10 ; i++ ) {
7             for( int j = 1 ; j < 10 ; j++ ) {
8                 System.out.print( i+ " * "+ j+ " =");
9                 if( i * j < 10 ){
10                     System.out.print( " ");
11                 }
12                 else{
13                     System.out.print( " ");
14                 }
15                 int ans = i * j;
16                 if( j == 9 )
17                 {
18                     System.out.print(ans);
19                 }
20                 else
21                 {
22                     System.out.print( ans+ " " );
23                 }
24             }
25             System.out.println();
26         }
27     }
28 }
29 }

```

3.3 practice3

```

1 package com.company;
2 import java.util.Scanner;
3 public class Main {
4
5     public static void main(String[] args) {
6         Scanner scanner = new Scanner(System.in);
7         int n = scanner.nextInt();
8         if( n >= 2 ){
9             System.out.print(2);
10         }
11         for (int j = 3; j < n ; j++)
12         {
13             boolean answer = true;
14             for (int i = 2; i <= Math.sqrt(j) ; i++)
15             {
16                 if (j % i == 0)
17                 {
18                     answer = false;
19                     break;
20                 }
21             }
22             if (answer)
23             {
24                 System.out.print( " "+ j );
25             }
26         }
27     }

```

```
28     System.out.println();
29 }
30 }
```

3.4 practice4

```
1 package com.company;
2 import java.util.Scanner;
3 public class Main {
4
5     public static void main(String[] args) {
6         Scanner scanner = new Scanner(System.in);
7         while( true ) {
8             String str = scanner.next();
9             if( str == "0"){
10                 break;
11             }
12             int tot1 = 0, tot2 = 0;
13             for (int i = 0; i <= str.length(); i +=
14                 2) {
15                 tot1 = tot1 + str.charAt(i) - '0';
16             }
17             for (int i = 1; i <= str.length(); i +=
18                 2) {
19                 tot2 = tot2 + str.charAt(i) - '0';
20             }
21             if( tot1 > tot2 ){
22                 judgment( tot1, tot2 );
23             }
24             else{
25                 judgment( tot2, tot1 );
26             }
27         }
28     }
29
30     public static void judgment( int a, int b ){
31         int judge = a - b;
32         if( judge % 11 == 0 ){
33             System.out.println( " is a multiple of
34                 11." );
35         }
36         else{
37             System.out.println( " is not a multiple
38                 of 11." );
39         }
40     }
41 }
```