1 most char sort :

```
#include <iostream>
#include <string>
using namespace std;

int main() {
    string input;
    getline(cin, input);
    for (int i = 0; i < input.length(); i++) {
        char current = input[i];
        if(input[i]!=' '){
```

```
bool alreadyCounted = false;

for (int j = 0; j < i; j++) {

    if (input[j] == current) {

        alreadyCounted = true;

        break;

    }

}

if (alreadyCounted) continue;

int count = 0;

for (int j = 0; j < input.length(); j++) {

    if (input[j] == current) {
```

```
                count++;
            }
        }
        cout << current << ": " << count << endl;
        }
    }

    return 0;
}
```

2 snake game :

```
#include <iostream>

using namespace std;

int main() {

    int n;

    cin >> n;

    int matrix[n][n];

    int value = 1;

    int top = 0, bottom = n - 1;

    int left = 0, right = n - 1;
    while (value <= n * n) {
        for (int i = left; i <= right && value <= n * n; ++i) {
            matrix[top][i] = value++;
        }
        ++top;
        for (int i = top; i <= bottom && value <= n * n; ++i) {
            matrix[i][right] = value++;
        }
        --right;
        if (top <= bottom) {
            for (int i = right; i >= left && value <= n * n; --i) {

                matrix[bottom][i] = value++;

            }

            --bottom;

        }

        if (left <= right) {

            for (int i = bottom; i >= top && value <= n * n; --i) {

                matrix[i][left] = value++;

            }
            ++left;
        }
    }
    for (int i = 0; i < n; ++i) {
        for (int j = 0; j < n; ++j) {
            cout << matrix[i][j] << " ";
        }
        cout << endl;
    }
    return 0;
}
```

3 battleship :

```
#include <iostream>

using namespace std;


int main() {

    int rows, cols;

    cin >> rows;

    cin >> cols;


    for (int i = 1; i <= rows; ++i) {

        for (int j = 1; j <= cols; ++j) {

            if (i == 1 || i == rows || j == 1 || j ==
cols) {

                    if ((i==1 && j==1 )||(i==1 && j==cols )||(i==rows && j==1 )||(i==rows && j==cols ) ) {

                        cout << 'x' << " ";

                    } else {

                        cout << '-' << " ";

                    }

                } else {

                    if ((i + j) % 2 == 0) {

                        cout << 'x' << " ";

                    } else {
```

```
                    cout << '-' << " ";
                }
            }
        }
        cout << endl;
    }

    return 0;
}
```

4 chess :

```
#include <iostream>

using namespace std;


int main() {

    int x, y;

    cin >> x >> y;

    for (int i = 1; i <= 8; i++) {

        for (int j = 1; j <= 8; j++) {

            if (i == x && j == y) {

                cout << "H ";
            }
            else {
                bool canMove = false;
                if ((x + 2 == i && y + 1 == j) || (x + 2
== i && y - 1 == j) ||
                    (x - 2 == i && y + 1 == j) || (x - 2
== i && y - 1 == j) ||
                    (x + 1 == i && y + 2 == j) || (x + 1
== i && y - 2 == j) ||
                    (x - 1 == i && y + 2 == j) || (x - 1
== i && y - 2 == j)) {
                    canMove = true;
            }
            if (canMove) {
                cout << "X ";
            } else {
                cout << "O ";
            }
        }
    }
    cout << endl;
}
return 0;
```

```
}
```