#include <iostream>

#include <ctime>

using namespace std;

class Array

{

int n, a, b;

int \*arr;

public:

Array()

{

n = 0;

a = 0;

b = 0;

}

Array(int n, int a, int b)

{

this->n = n;

this->a = a;

this->b = b;

arr = new int[n];

}

~Array()

{

delete[] arr;

}

void setArray()

{

for (int i = 0; i < n; i++)

arr[i] = randomNumber();

}

int randomNumber()

{

int r = (rand() % (b - a)) + a;

return r;

}

void display()

{

for (int i = 0; i < n; i++)

cout << arr[i] << " ";

cout << endl;

}

int bubbleSort()

{

int comparisons = 0;

for (int i = 0; i < n; i++)

{

for (int j = 0; j < n - i - 1; j++)

{

if (arr[j] > arr[j + 1])

{

swap(arr[j], arr[j + 1]);

comparisons++;

}

}

}

return comparisons;

}

};

int main()

{

srand((unsigned)time(NULL));

int n, a, b;

n = 10;

a = 1;

b = 20;

Array arr;

int comparisons;

for (int i = 1; i <= 250; i += 5)

{

arr = Array(i, a, b);

arr.setArray();

comparisons = arr.bubbleSort();

cout << "n : " << i << " Comparisons : " << comparisons << endl;

}

return 0;

}