**C++ Assignment Solutions | | Pattern Printing - 2| Week 3**

Q1.Print the following pattern

Input: n = 5

Output:

1

1 2 3

1 2 3 4 5

1 2 3 4 5 6 7

Solution:

#include <iostream>

int main() {

int n;

cin >> n;

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

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

cout << " ";

}

for(int j = 0; j < 2 \* i + 1; ++j) {

cout << j+1 << " ";

}

cout << endl;

}

return 0;

}

Q2.Print the following pattern

Input: n = 4

Output:

A

A B C

A B C D E

A B C D E F G

Solution:

#include <bits/stdc++.h>

int main() {

int n;

cin >> n;

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

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

cout << " ";

}

for(int j = 0; j < 2 \* i + 1; ++j) {

cout << (char)('A' + j) << " ";

}

Acout << endl;

}

return 0;

}

Q3.Print the following pattern

Input: n = 4

Output:

A

B A B

C B A B C

D C B A B C D

Solution:

#include <iostream>

int main() {

int n;

cin >> n;

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

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

cout << " ";

}

for(int j = i-1; j >= 0; --j) {

cout << (char)('A'+j) << " ";

}

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

cout << (char)('A'+j) << " ";

}

cout << endl;

}

return 0;

}

Q4.Print the following pattern

Input: n = 4

Output:

A B C D E F G

A B C E F G

A B F G

A G

Solution:

#include <iostream>

int main() {

int n;

cin >> n;

for(int i = 0; i < 2 \* n - 1; ++i) {

cout << (char)('A' + i) << " ";

}

cout << endl;

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

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

cout << (char)('A'+j) << " ";

}

for(int j = 0; j < 2\*i-1; ++j) {

cout << " ";

}

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

cout << (char)('A'+n+i+j-1) << " ";

}

cout << endl;

Q5.Print the following pattern

Input: n = 4

Output:

1 2 3 4 3 2 1

1 2 3 3 2 1

1 2 2 1

1 1

Solution:

#include <bits/stdc++.h>

int main() {

int n;

cin >> n;

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

cout << i+1 << " ";

}

for(int i = n-1; i >= 1; --i) {

cout << i << " ";

}

cout << endl;

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

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

cout << j+1 << " ";

}

for(int j = 0; j < 2\*i-1; ++j) {

cout << " ";

}

for(int j = n-i; j >= 1; --j) {

Q6.Print the following pattern

Input : n = 5

Output:

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Solution:

#include <bits/stdc++.h>

int main() {

int n;

cin >> n;

// Printing entire pattern except the bottommost star

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

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

cout << " ";

}

cout << "\*";

int m = 2 \* (n - i - 1);

for(int j = 0; j < m-1; ++j) {

cout << " ";

}

cout << "\*" << endl;

}

//Printing last star

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

cout << " ";

}

Q7.Print the following pattern

Sample Input : m = 4, n = 6

Sample Output :

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Solution:

#include <bits/stdc++.h>

int main() {

int n;

cin >> n;

// Printing the topmost star: 0th row

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

cout << " ";

cout << "\*" << endl;

// Printing the rest of the upper triangle: [1...n] rows

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

// Printing initial spaces

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

cout << " ";

}

cout << "\*";

int m = 2 \* i - 1;

// Printing middle space

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

cout << " ";

Q8.Print the following pattern

Sample Input : n = 4

Output :

1

2 2

3 3

4 4

Solution:

#include <IOSTREAM>

int main() {

int n;

cin >> n;

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

cout << " ";

}

cout << 1 << endl;

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

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

cout << " ";

}

cout << i;

for(int j = 0; j < 2 \* i - 1; ++j) {

cout << " ";

}

cout << i << endl;

}

return 0;

}

Q9.Print the following pattern

Sample Input : n = 5

Output :

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Solution:

#include <bits/stdc++.h>

int main() {

int n;

cin >> n;

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

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

cout << "\* ";

}

for(int j = 0; j < 2 \* (n - i - 1); ++j) {

cout << " ";

}

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

cout << "\* ";

}

cout << endl;

}

for(int i = n-1; i >= 0; --i) {

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

cout << "\* ";

}

Q10.Print the following pattern

Input : n = 4

Output :

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Solution:

#include <bits/stdc++.h>

int main() {

int n;

cin >> n;

// Printing 0th row

for(int i = 0; i < 2 \* n - 1; ++i) {

cout <<"\* ";

}

cout << endl;

// Printing upper pattern

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

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

cout << "\* ";

}

for(int j = 0; j < 2 \* i - 1; ++j) {

cout << " ";

}

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

cout << "\* ";

}

cout << endl;

Q11.Print the following pattern

Input: n = 4

Output:

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Solution:

#include <bits/stdc++.h>

int main() {

int n;

cin >> n;

for(int i = 0; i < 2 \* n - 1; ++i) {

for(int j = 0; j < 2 \* n - 1; ++j) {

if(i == n-1 || j == n-1 || i+j == n-1 || j-i == n-1 || i - j == n-1 || i

+ j == 3 \* (n-1)) {

cout << "\* ";

} else {

cout << " ";

}

}

cout << endl;

}

return 0;

}

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