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ASSIGNMENT 4 LAB PROGRAMMING

Problem 1.

Create a program to create full of the pyramid using * symbols (as shown in the screenshot) with the height of the pyramid determined by the user.

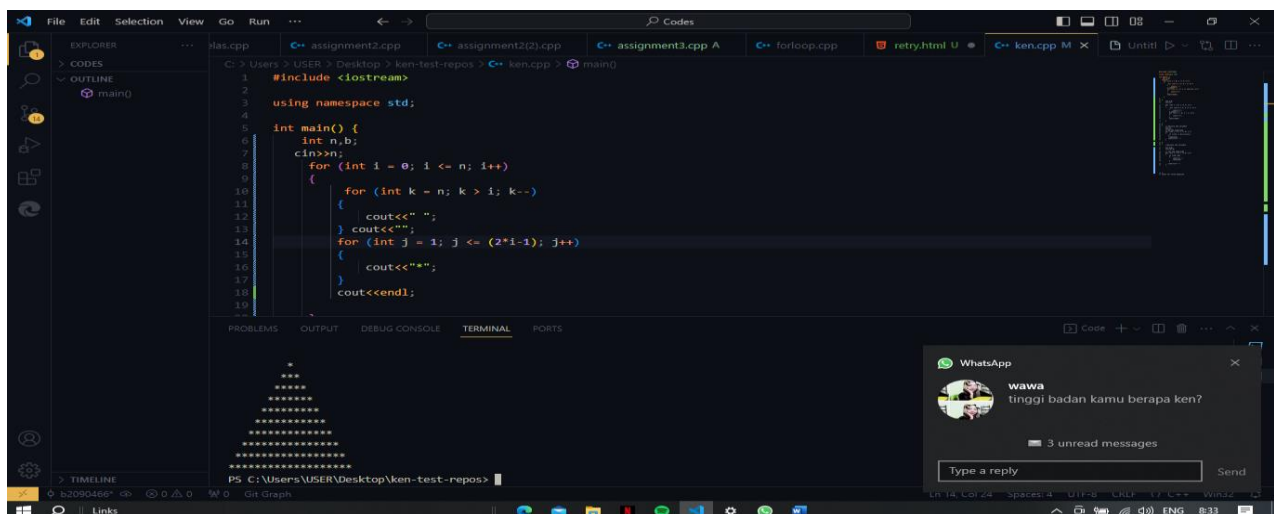
Answer =

```
#include <iostream>

using namespace std;

int main() {
    int n,b;
    cin>>n;
    for (int i = 0; i <= n; i++)
    {
        for (int k = n; k > i; k--)
        {
            cout<<" ";
        } cout<<" ";
        for (int j = 1; j <= (2*i-1); j++)
        {
            cout<<"*";
        }
        cout<<endl;
    }
```

Prove=



The screenshot shows a Visual Studio Code editor with a C++ file named 'ken.cpp'. The code is the same as the one provided in the 'Answer' block. The output window at the bottom shows the result of running the program, which is a pyramid of asterisks. The pyramid has 5 rows, with the first row having 1 asterisk and each subsequent row having 2 more asterisks than the previous one. The output is as follows:

```
*
***
*****
*****
*****
```

The terminal window also shows the input '5' and the output of the program. A WhatsApp chat window is also visible in the bottom right corner.

Problem 2.

Create a program to display the multiplication tables as shown in the screenshot

```
Insert the maximum number to calculate the multiplication table: 5
 0  1  2  3  4  5
0 - 0  0  0  0  0  0
1 - 0  1  2  3  4  5
2 - 0  2  4  6  8 10
3 - 0  3  6  9 12 15
4 - 0  4  8 12 16 20
5 - 0  5 10 15 20 25
Press Enter to continue...

Process returned 0 (0x0)   execution time : 342.626 s
Press any key to continue.
```

Answer =

```
#include <iostream>

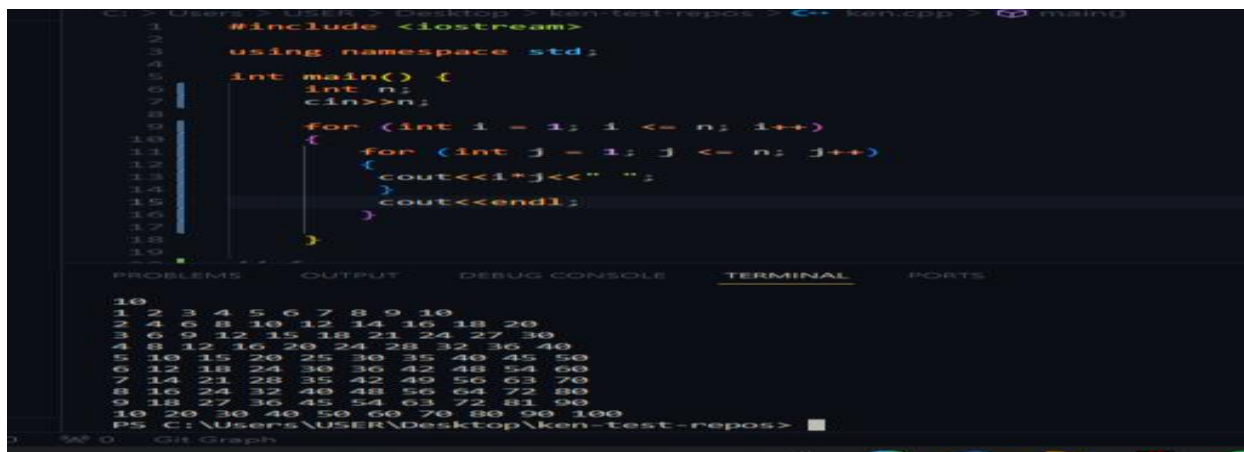
using namespace std;

int main() {
    int n;
    cin>>n;

    for (int i = 1; i <= n; i++)
    {
        for (int j = 1; j <= n; j++)
        {
            cout<<i*j<<" ";
        }
        cout<<endl;
    }

}
```

Prove =



The screenshot shows a C++ IDE with the following code in the editor:

```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     int n;
6     cin>>n;
7
8     for (int i = 1; i <= n; i++)
9     {
10         for (int j = 1; j <= n; j++)
11         {
12             cout<<i*j<<" ";
13         }
14         cout<<endl;
15     }
16 }
17
18
19
```

The output window displays the multiplication table for n=10:

```
10
1 2 3 4 5 6 7 8 9 10
2 4 6 8 10 12 14 16 18 20
3 6 9 12 15 18 21 24 27 30
4 8 12 16 20 24 28 32 36 40
5 10 15 20 25 30 35 40 45 50
6 12 18 24 30 36 42 48 54 60
7 14 21 28 35 42 49 56 63 70
8 16 24 32 40 48 56 64 72 80
9 18 27 36 45 54 63 72 81 90
10 20 30 40 50 60 70 80 90 100
```

The terminal window shows the command prompt:

```
PS C:\Users\USER\Desktop\ken-test-repos>
```

Problem 3.

Create a program to display even numbers whose value is less than or equal to the input number. Then display it from the largest value to zero.

Example:

Input: 7 -> Output: 6 4 2 0

Input: 4 -> output: 4 2 0

Answer =

```
#include <iostream>

using namespace std;

int main() {
    // declare the variable
    int n;
    cin>>n;
    // do the algorithm
    for (int i = n; i >= 0; i--)
    {
        if ((i%2 != 0) || (i==n))
        {
            continue;
        }
        cout<<i<<" ";
    }
}
```

Problem 4.

Create a program to generate a pattern according to the following example.

```
enter 2 integers: 8 2
output:
1 * 3 * 5 * 7 *
```

```
enter 2 integers: 15 4
output:
1 2 3 * 5 6 7 * 9 10 11 * 13 14 15
```

Input: N K

With : $1 \leq N \leq 100$; $1 \leq K \leq N$

Answer :

```

#include <iostream>

using namespace std;

int main() {
    //declare the variable

    int K,N;
    cout<<"enter two integers :";
    cin>>K>>N;

    // set the algorithm
    for (int i = 1; i <= K; i++)
    {
        if (i%N ==0)
        {
            cout<<"* ";
            continue;
        }

        cout<<i<<" ";
    }
}

```

Prove=

```

C:\Users\USER\Desktop\ken-test-repos> cd "C:\Users\USER\Desktop\ken-test-repos\" ; if ($?) {
9 2
1 * 3 * 5 * 7 * 9
}

```