CL-1002
Programming Fundamentals - Lab
Lab # 10

Objectives:

- Conditional statements.
- Switch case
- Loops – Basics
- Nested Loops
- Practice tasks

Note: Carefully read the following instructions (*Each instruction contains a weightage*)

1. Use proper **font family** and **font size** of **heading**, **sub heading** and **normal text**.
2. First think about statement problem then write/draw your logic on copy.
3. Attach the screen shots of your code in word file with execution (cpp project).
4. File (Word) tittle should in proper format (**23F-1001-Lab2**)
5. You have to submit both (**word + Project in zip/archive**) files.
6. **Upload separate word file and archive/zip of your project.**
7. **50% marks would be deducted on wrong formatting.**
8. **No submission will be accepted after deadline.**
9. Do not copy from any source otherwise you will be penalized with negative marks.
10. Complete your lab **within given Time Slot**.

Sample Codes:

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

int main() {

for (int i = 1; i <= 5 ; ++i)
{
        for (int j = 1; j <= 5; ++j)
        cout << "*";
        cout << endl;
}

system("pause");
return 0;
}
```

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

int main() {

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

```
{
        for (int j = 1; j <= i; ++j)
        cout << "*";
        cout << endl;
}
system("pause");
return 0;
      }
```

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

int main() {


for (int i = 5; i >= 1 ; i--)
        {
                for (int j = 1; j <= i; ++j)
                        cout << "*";
                cout << endl;
        }
system("pause");
return 0;
}
```

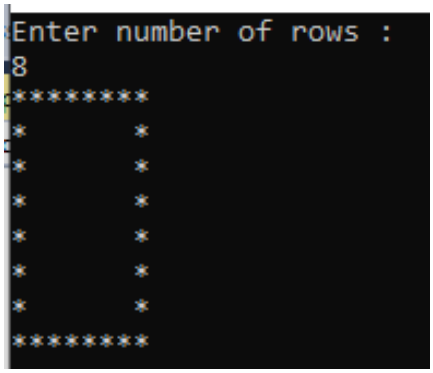
```
#include <iostream>
using namespace std;

int main()

for ( int i = 1; i <= 5; i++)
{
        for( int j = 1; j <= 10; j++)
                cout << setw(3) << i * j ;
        cout << endl ;
}
system("pause");
return 0;
}
```

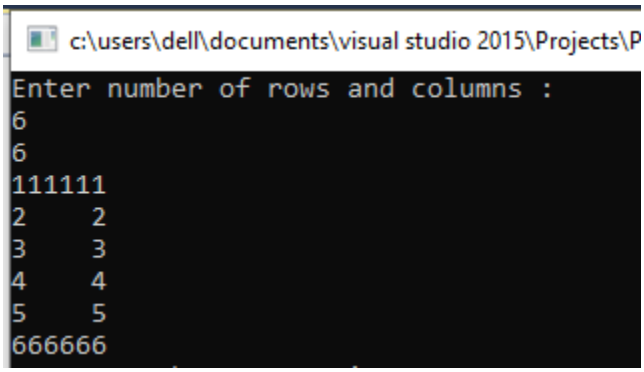
Problem: Write C++ code for the following statements

1. **Write a C++ code that displays that displays the Hollow Square using "*" symbol. Input number of rows from user:** **(Marks 05)**

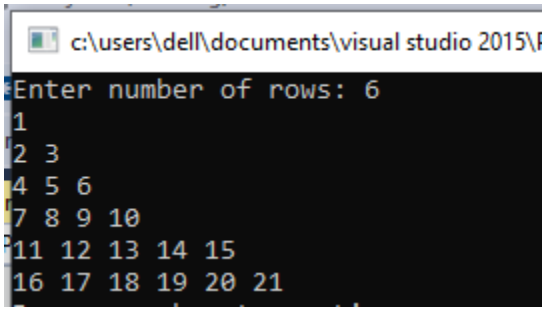


2. **Write a C++ code that displays that displays the Hollow Square using positive integers. Input**

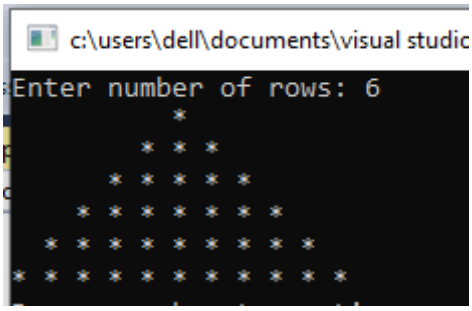
number of rows and columns from user: **(Marks 05)**



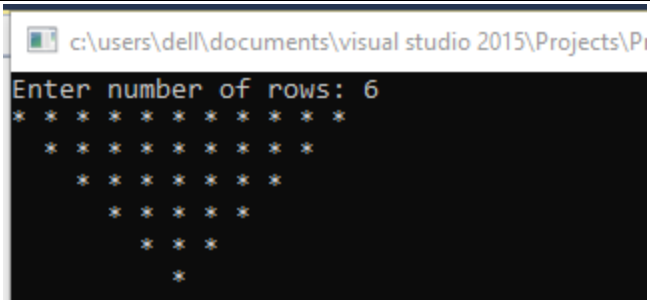
3. **Write a C++ code that displays the Floyds triangle. Input number of row from user:** **(Marks 05)**



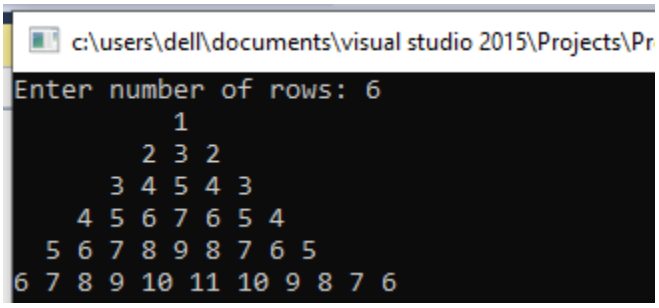
4. **Write a C++ code that takes row from user and display Full pyramid using "*" symbol. If user enters 6 as number of rows then output should look like:** **(Marks 05)**



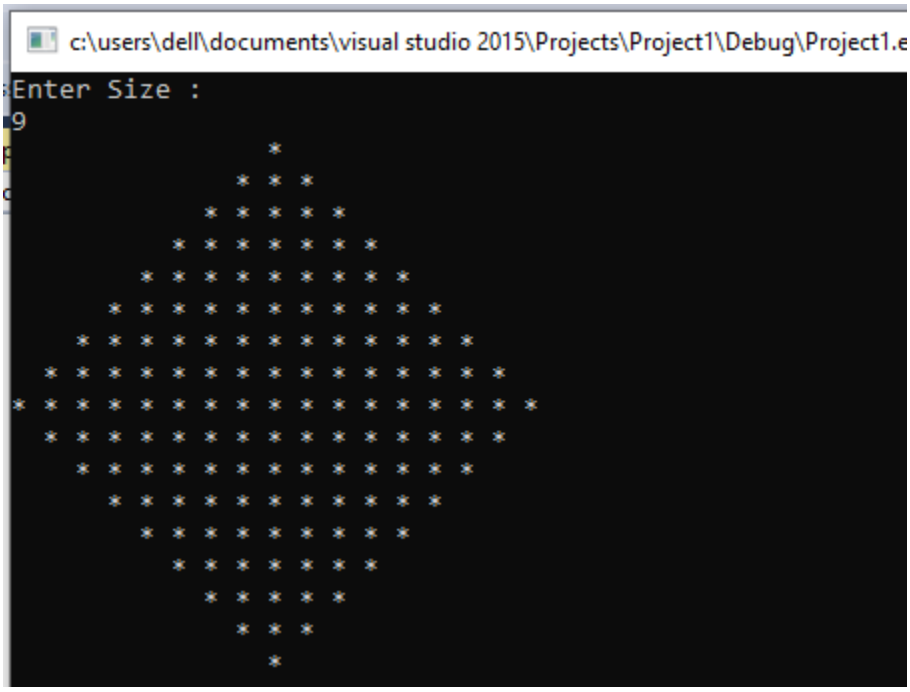
5. **Write a C++ code that takes row from user and display Inverted Full pyramid using "*" symbol. If user enters 6 as number of rows then output should look like:** **(Marks 05)**



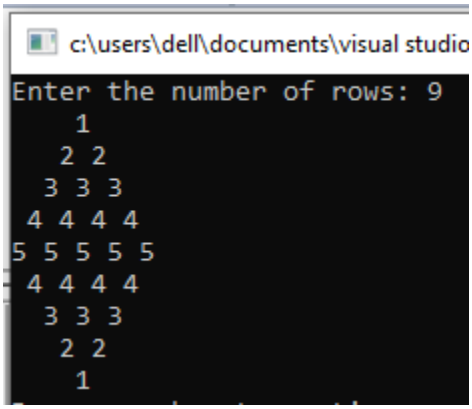
6. **Write a C++ code that takes row from user and display Full pyramid using positive integers. If user enters 6 as number of rows then output should look like:** **(Marks 05)**



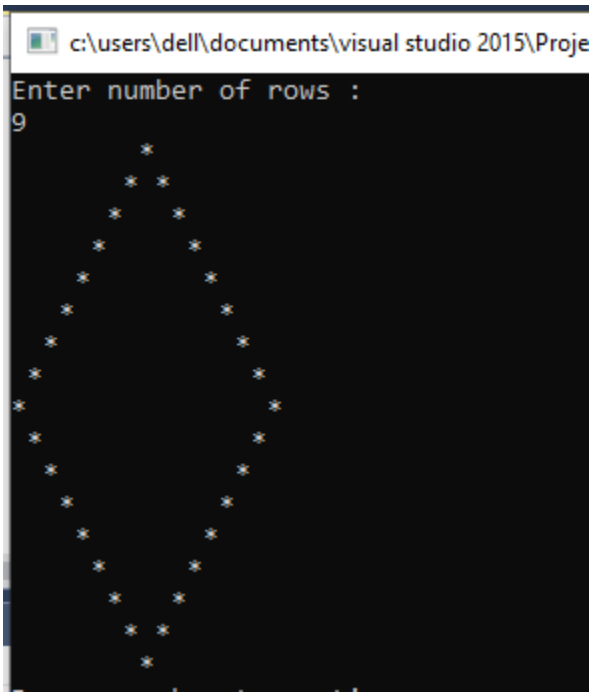
7. **Create a diamond pattern using "*" symbol. Input size from user. If user enters 9 as SIZE then output should look like:** **(Marks 10)**



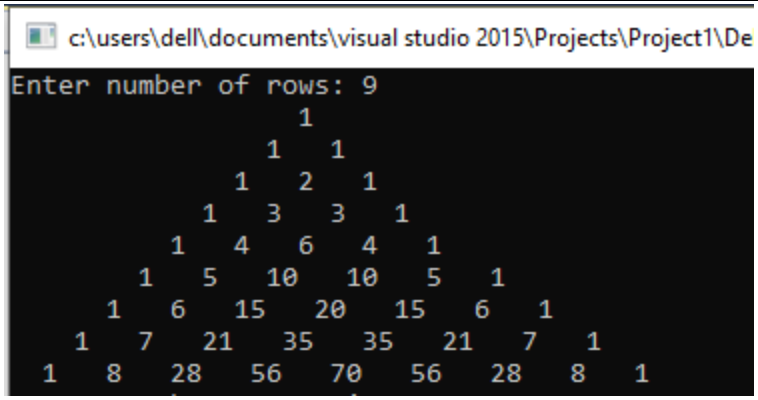
8. **Create a diamond pattern using positive integers. Input size from user. If user enters 9 as SIZE then output should look like:** **(Marks 10)**



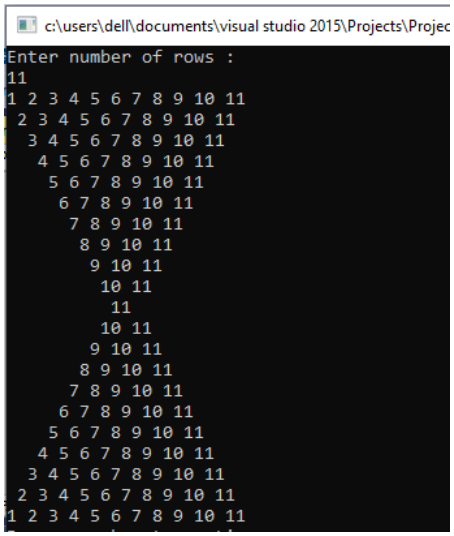
9. **Create a hollow diamond pattern using "*" symbol. Input size from user. If user enters 9 as SIZE then output should look like:** **(Marks 10)**



10. **Write a C++ code that displays the Pascal's triangle. Input rows from user. If user enters 9 as row then output should look like:** **(Marks 10)**



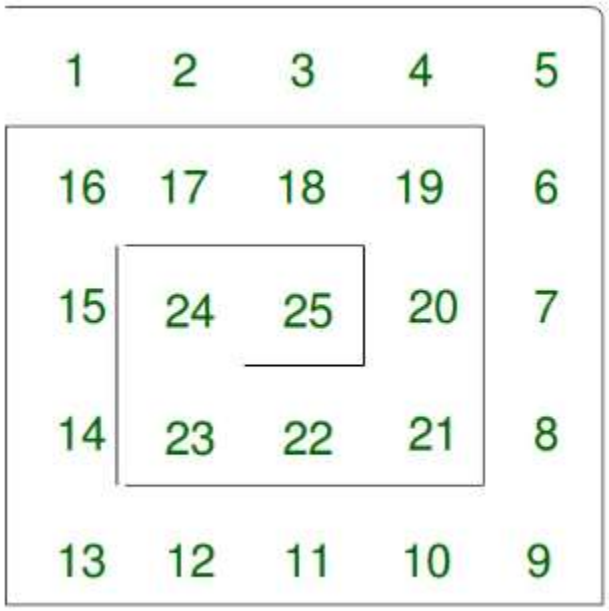
11. Write a C++ code that displays that displays the following pattern: **(Marks 10)**



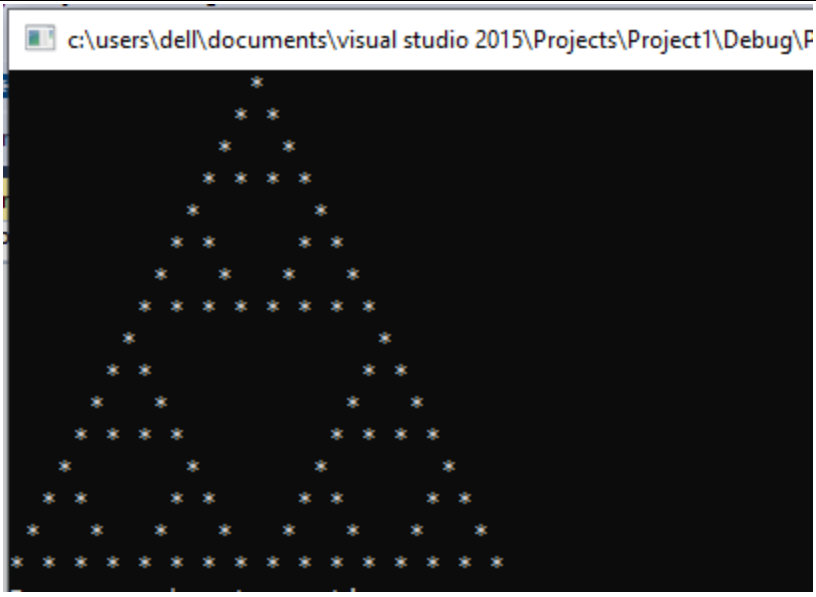
12. Design a program that checks if a given number is a palindrome. The user inputs a number, and the program should determine whether it is the same number when its digits are reversed. Use nested loops to reverse the number. **(Marks 05)**

Future Work

13. Try to create the following shape (2D array):



14. Try to create the following shape (Recursion):



Best of Luck ☺

! false – ***It's funny because it's true.***