PROBLEM SET 3: INTRODUCTION TO COMPUTER PROGRAMMING

LAB ASSIGNMENT – 3B – Inverted Pyramid Using Loops and Repetition

Overview:

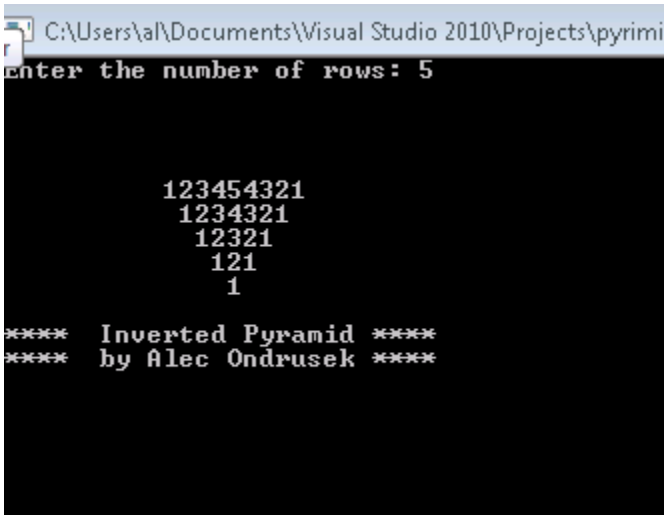
The purpose of this exercise is to challenge your knowledge of repetition statements and apply some basic looping and formatting techniques to generate a numerical pyramid based on the input of the user.

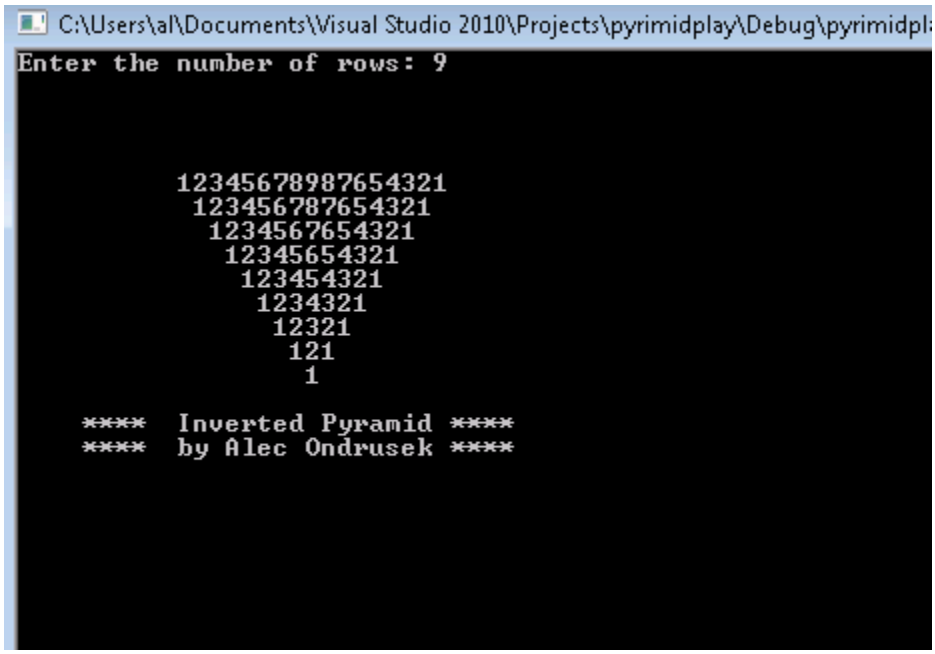
Objective:

Using your textbook, notes and personal research material, write a program using the C Programming language that will display an inverted numerical pyramid based on the input of the user and the specification provided. **NOTE:** Your source code/program should be well documented as outlined in Handout #2. It **MUST** contain a LOOPING/REPETITION in addition to a looping mechanism for input error checking.

Specifications:

1. User Input:
    a. Size of the pyramid is based on how many rows **not** to exceed 9.
    b. Provide a looping structure such that if an invalid input is entered, an error message stating Invalid Input and prompts for correct input until a correct input is supplied.
    c. Following the input, the display screen renders the output.
2. Output:
    a. An easy to read inverted pyramid with each rows number sequence starting at 1 and increasing to row number (ascending) then descending from the row number back to 1. Each row is decremented by 1 until 1
    b. The also needs to be a title on the display that will adjust as to appear in the centered below the pyramid, compensating for the various sizes. (See examples)


C:\Users\al\Documents\Visual Studio 2010\Projects\pyrimi
Enter the number of rows: 5
123454321
1234321
12321
121
1
**** Inverted Pyramid ****
**** by Alec Ondrusek ****


C:\Users\al\Documents\Visual Studio 2010\Projects\pyrimidplay\Debug\pyrimidpl
Enter the number of rows: 9
12345678987654321
123456787654321
1234567654321
12345654321
123454321
1234321
12321
121
1
**** Inverted Pyramid ****
**** by Alec Ondrusek ****

Instructions

1. Develop and test the program such that it:
    a. Generates the desired output screen and can only use valid inputs between 1 & 9 inclusive.
    b. **HINT:** The margin between the largest row and the left edge is 10 places.

REPORTING: Submit your executable file, documented source code and screen shots (at least 3 showing various sizes) of your output and submit in a ZIP file for proper consideration.