CPP Problem Design

Subject: Simple Drawing Program

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Main testing concept: 2-Dimension Array

Basics	Functions
☐ C++ BASICS	☐ SEPARATE COMPILATION AND NAMESPACES
☐ FLOW OF CONTROL	☐ STREAMS AND FILE I/O
☐ FUNCTION BASICS	☐ RECURSION
☐ PARAMETERS AND OVERLOADING	☐ INHERITANCE
■ ARRAYS	☐ POLYMORPHISM AND VIRTUAL FUNCTIONS
☐ STRUCTURES AND CLASSES	☐ TEMPLATES
☐ CONSTRUCTORS AND OTHER TOOLS	☐ LINKED DATA STRUCTURES
☐ OPERATOR OVERLOADING, FRIENDS, AND REFERENCES	☐ EXCEPTION HANDLING
☐ STRINGS	☐ STANDARD TEMPLATE LIBRARY
☐ POINTERS AND DYNAMIC ARRAYS	☐ PATTERNS AND UML

Description:

Please design a simple drawing program (fill the background with *), allow users to draw square, Isosceles right triangle and lines on the console (for figure, fill with Upper X)

Input:

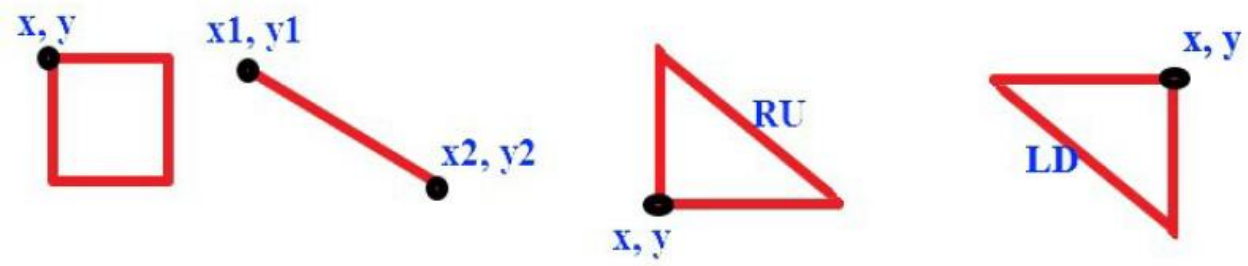
At the beginning, allow users to enter the size of the drawing board(m*n).After that, enter the corresponding drawing code. S indicates square, T indicates Isosceles right triangle, L indicates lines. According to different figures, there follows various input information:

S: input integer width(the width of the square). And coord x,y, drawing will start from x,y(calculates from the left-up corner of the square).

T: input integer width(the side-length of the triangle). And coord x,y and the side the triangle faces. Which are respectively LU(Left Up),LD(Left Down),RU(Right Up),RD(Right Down).While drawing, the x,y indicates the position of right angle.

L: input two pairs of coord x1,y1 & x2,y2.Drawing from x1,y1 to x2,y2 (Except straight line, it would possible be tilted lines with +-45 Angle).

Enter EXIT,end the program.



※Please notice the coordinate, the left-up corner is 0,0 while right-down corner is m-1,n-1.

※If the following figure violates the border of drawing board,please output "Out of range.".And there no need to modify the board.

※Notice that for any figure,if the given width is 1 you'll need to draw a point.

※You need to output a result every draw,separates each with a line of space.

※Expect the test data testing border violation, we ensure all input data is drawable.

※Any operation about string,please implements with std::string,or not points will be given.

Output:

After drawing a figure or an error message,output a newline.

Sample Input / Output：

Sample Input	Sample Output
5 6 S 2 0 0 S 2 100 100 L 0 4 4 4 T 2 1 3 LU EXIT	XX*** XX*** ***** ***** ***** ***** Out of range. XX*** XX*** ***** ***** XXXXX ***** XX*** XX*** *X*** XX*** XXXXX *****

☐ Eazy,Only basic programming syntax and structure are required.

■ Medium,Multiple programming grammars and structures are required.

☐ Hard,Need to use multiple program structures or more complex data types.

Expected solving time:

30 minutes

Other notes: