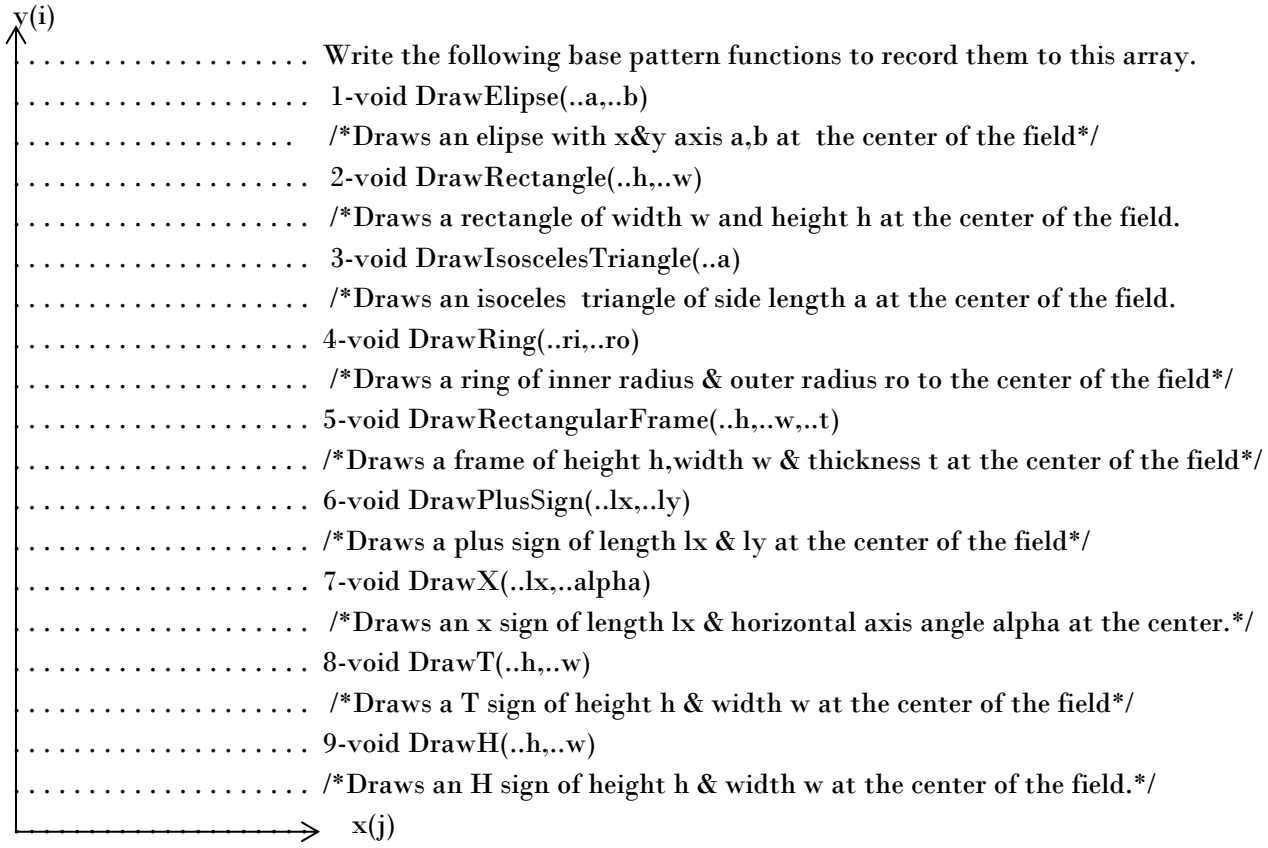
Project : Pattern Generator

The goal of this project is to generate different patterns using base patterns. The final patterns generated can be displayed either as an image or from a txt file using printf library function.

Level 1:

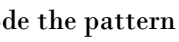
Initially sssume that you have a 20x20 coordinate system having 400 points whose coordinates are integers in the range from 0 to 20, as shown below.Allocate a memory space for a 20x20 integer array to represent these points and initialize it to all zeros.



To draw a pattern you should set the corresponding pattern points on the 2D array that represents the coordinate system to 1.After you record the pattern to the array you should record it to a text file in a directory called pattern directory.The example below shows how to create a directory, how to start a programme and how to change directory from a C programme.Go over the system calls in C to determine how to open files,how to write data to a file and how to close a file.

To display the array you can use the printf function or you can record the txt files to binary image files(e.g png format) and use octave(matlab's free version) to display them as binary images.

Level 2

At this level you will generate more complex patterns using the base patterns that you have stored in the text files in your pattern library.The user may request a sequence of patterns 7,8,9 that is XTH on every row of the gloabl pattern matrix as many as n times. If n is 3, for example, the pattern will be printed 3 times and every row pattern of the final complex pattern will be XTHXTHXTH. If the user specifies 2,0,4 as the pattern code the pattern to be repeated will be  . If n is 2, this pattern will be repeated twice.  .

Level 3

The user may desire a different pattern sequence on every row of the comlex pattern and may specify the overall pattern as

Rows:1,3,5 Patterns:2,7.8,9

Rows:2,4,6 Patterns:1,3,5,6

Or more generally assuming that i_pattern shows the horizontal location of repeating pattern such as XTH.

And j_pattern the vertical location of repeating pattern such as  , she may specify a matrix of pattern codes to be repeated such as $\begin{vmatrix} 7 & 8 & 9 \\ 1 & 0 & 2 \\ 4 & 5 & 6 \end{vmatrix}$.This matrix is then to be repeated as many times as the user wishes along horizontal and vertical directions.