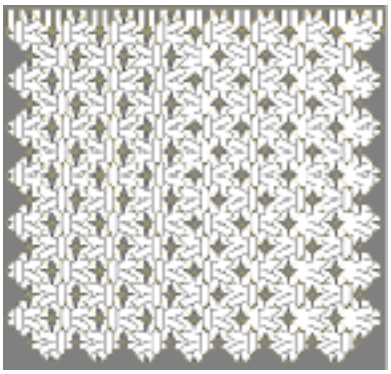
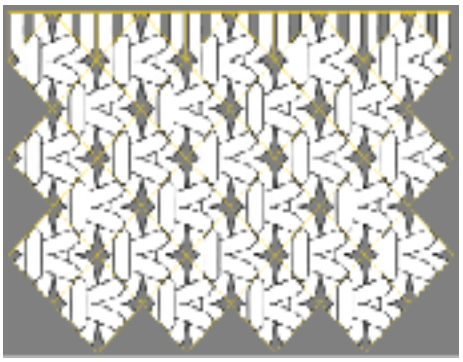
Knotshot – Project Zero

Value Proposition: Knotshot is the only app that lets you visualize your macramé projects in color.

Visuals:			
	Tiles:	These diagrams are representations of knots made of strings. Each of the nine colored areas, A through I, have colors determined by strings A, B, C, and D (which will match colors coming from tiles above) which: see “Color schemes below), and changes made by the user to the outgoing strings labeled b and c (a and d are the other outgoing strings). Note that the white areas at the corners are empty and should be filled in with a neutral background color (see examples in “Display Area” below).	
		LF (Left Facing)	
			Color scheme within LF: A = G B = F = H C = I D = E
		LFX (LF Cross)	

			Color scheme within LFX: A = G B = F = I C = H D = E
		RF (Right Facing)	
			Color scheme within RF: A = G B = H C = F = I D = E
		RFX (RF Cross)	

			Color scheme within RFX: A = G B = I C = F = H D = E
		TOP – at the top, the beginning: These will be set side-by-side to determine the width of the project. The white strips are empty and should be filled in with the background color.	
			Color scheme within Top
	Screen Areas:		
		Display Area: The working space is measured in knots – would like to have 8 wide	
		8X14 knot grid:	5X6 knot grid:

			
		Color Widget: Limited number of colors (8?) for selection if it makes a difference	
		Knot Widget: The Top knot will initially be a fixture based on the top grid number. The 4 other knots, LF, LFX, RF, RFX, will be offered for selection.	
Information Pages:			
	Instructions		
	Macramé Replacement Knots: These knots show that the replacement which is allowed in the program can be replicated with the physical.		
		Double Replacement: the red string loops around the vertical white ones, and the lower overhand knot of the square knot is tied in front of the vertical strings and around the red ones.	When the knot is tightened, the red strings are included in the project while the replaced strings are hanging behind.
			

		Single Replacement: The string to be replaced is passed behind the lower overhand knot which is tied to include the remaining vertical on its original side and the red string.	The stopper knot acts to prevent the red string from falling out when tightened. The replaced strings falls behind the work.
			

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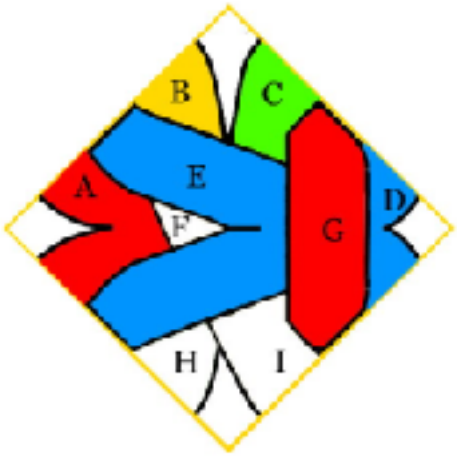
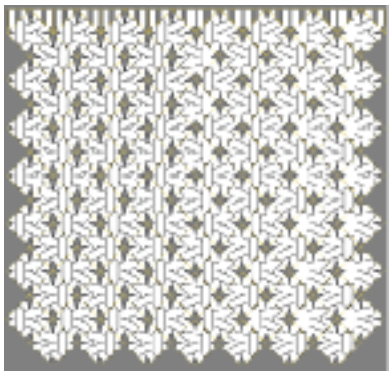
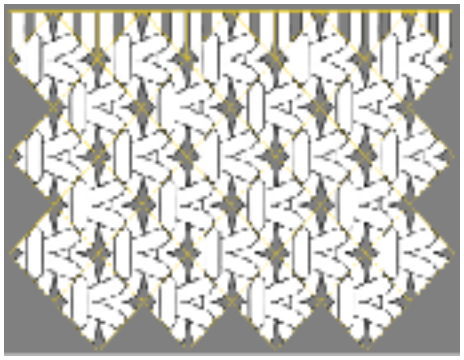
		TOP – at the top, the beginning: These will be set side-by-side to determine the width of the project. The white strips are empty and should be filled in with the background color.	
			Color scheme within Top
		LF (Left Facing)	
			Color scheme within LF: A = G B = C = D = E
		LFX (LF Cross)	

			Color scheme within LFX: A = G B = C = D = E
		RF (Right Facing)	
			Color scheme within RF: A = G B = C = D = E
		RFX (RF Cross)	
			Color scheme within RFX: A = G B = C = D = E

	Screen Areas:		
		Display Area: The working space is measured in knots on a single row/column	
		8X7 knot grid:	5X3 knot grid:
			
		Color Widget:	
		Knot Widget: The Top knot will be fixed at the top with their number equal to the top grid number. The 4 other knots, LF, LFX, RF, RFX, will be offered for selection.	
Information Pages:			
	Instructions		
	Macramé Replacement Knots: These knots show that the replacement which is allowed in the program can be replicated with the physical.		
		Double Replacement: the red string loops around the vertical white ones, and the lower overhand knot of the square knot is tied in front of the vertical strings and around the red ones.	When the knot is tightened, the red strings are included in the project while the replaced strings are hanging behind.

			
		Single Replacement: The string to be replaced is passed behind the lower overhand knot which is tied to include the remaining vertical on its original side and the red string.	The stopper knot acts to prevent the red string from falling out when tightened. The replaced strings falls behind the work.
			

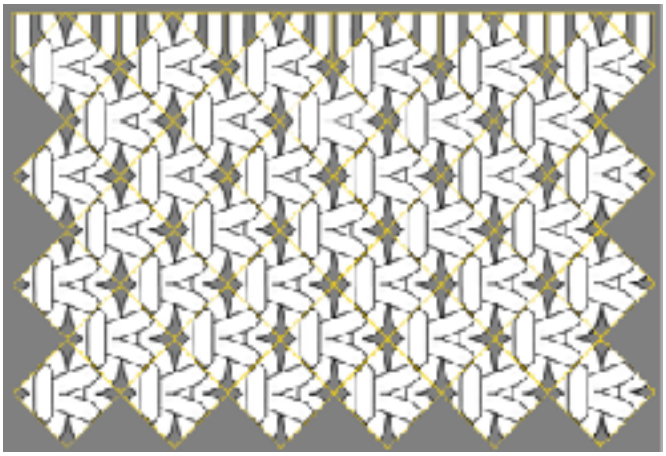
This is for the website – a lot of detail.

Welcome to Knotshot.

We appreciate the help in propelling Macramé into a new dimension of color sparked by a digital **Knotshot Visualization** that you create. This "**KV**" is a knot-by-knot roadmap for the physical work to follow.

Knotshot is limited by the characteristics of string. What you can produce on the app, you will be able to tie using four basic macramé knots plus the Macramé Replacement Knots described in the “Stringing It Up” section below.

Working the app is quick and easy. It opens with a grid based on connected macramé knots:



This is your canvas.

The grid can be modified as shown below, and you can build your own grids and save them.

(Red italics indicate we are waiting to find out how the programmers are handling this feature.)

Changing the knot to a different form

Knotshot uses only 4 macramé knot representations in its grid:

			
LF	**LFX**	**RF**	**RFX**
Left Facing	Left Facing Cross	Right Facing	Right Facing Cross

"LF" means the vertical segment of the knot is on the Left. RF means it is on the Right. "Cross" means the two inside strings are crossed.

The actual knots are shown below in "Stringing It Up". Please take a minute to look them up.

Macramé knots are created by four strings entering the knot from above which are bent into the knots whose diagrams you see above. These entering strings are represented from left to right as Red, Yellow, Green, and Blue. The colors indicate the course of these strings through the knots, and when you can not see them, the "actual strings" are not visible from this view. They are underneath.

Note that changing the knot changes the coloration of the knot in one of two ways.

1. Changing which of the outside strings moves horizontally across the top of the knot makes a big difference in the dominant color of the knot, in this case from red, LF, to blue, RF.
2. Crossing the two inside strings shifts the sides where they exit the knot. These two strings become outside strings in their subsequent knots and will present their colors in a different place.

Knots in the grid can be changed by touching the knot and selecting from the knot menu.

Changing knots is one of the ways to "paint" your canvas. The other is Changing the String Colors.

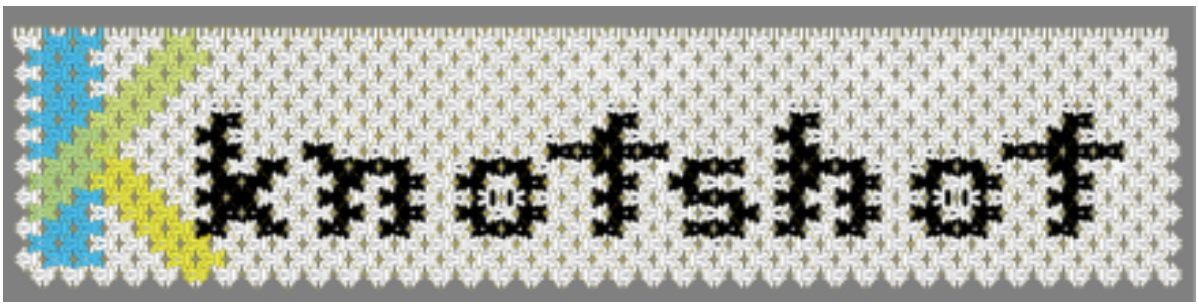
Changing the String Colors

Because Knotshot is bound by the laws of string, there is only one place in each knot in the grid that a string color can be changed because that is the only place in the physical knot that a string can be replaced. The actual knots are shown below in "Stringing It Up" as "**Macramé Replacement Knots**" (**MRK**).

On the app, however, you can replace a color with a tap on the screen! *Simply touch the knot, select "Color"*

Programming steps:

My own use of the (cut & paste) app is as a palette using an initial grid as a canvas on which to paint.



This Logo is what I want the output of the Knotshot app to be.

Given:

1. a grid size (default TBD) (The logo above is, counting only knots on one row or column, 39x8.)
2. knot tiles
3. color source and palette

Initialize:

1. Populate the top row with side-by-side TOP tiles to the desired grid width
2. Populate the rest of the grid with RF knot tiles (There are other patterns which could be offered.)
3. Prompt for a grid background color, default to white

Change a knot tile:

1. Select a knot tile (LF, LFX, RF, RFX) from the Knot Widget
2. Place the selected tile
    a. on any existing tile, or
    b. at any "port" where
        i. the top half of the tile matches its own A, B, C, and D into I, D, A, and H; or,

ii. one of the top sides of a tile aligns either A and B with I and D or C and D with A and H - **I don't think this is necessary for v1**

3. The new tile will replace the existing tile in that port or, if there is no tile, add to the grid
4. Allow the selected knot tile to be used more than once (i.e., by holding down the shift key)
5. The colors in the one or two adjacent higher tiles will replace the colors of the newly-placed tile as follows:
    a. the color from higher A will replace those of C.
    b. the color from H will replace those of D & E.
    c. the color from I will replace those of A & G.
    d. the color from D, will replace those of B.

    NOTE: The segments F, H and I will not be filled automatically. They are left at the background color until User selects a color.

Change a string color:

Note: Other than the Top knot tiles, the only string segment colors that can be changed are H and I in the knot tiles with F taking the same color as H for Tiles LF & RFX and the color of I for Tiles RF & LFX.

1. Select a color from the Color Palette and retain this color until a new one is selected or until it is deselected (i.e., using "ESC")
2. Click on the segment where the new color is desired.
3. Changes in the H segment will cause a corresponding change to the D & E segments in the adjacent tile and the B segment in the next. The F segment in its own knot in either LF or RFX will also match it.
4. Changes in the I segment will cause a corresponding change to the A & G segments in the adjacent tile and the C segment in the next. The F segment in its own knot in either RF or LFX will also match it.

Marking tiles where color changes were made:

Note: When using the resulting visualization as a plan for the project, it is helpful to mark tiles where color changes were made. These tiles can be identified if the two colors of B&C are not the same two colors as H&I (i.e., red and blue = blue and red & red and blue). Some method of identifying the tiles like a semi-transparent marker or a by highlighting the tile boundary would work. I used a red marker to dot those tiles on the logo. **This is for later.**

Printing the results:

Note: The resulting Knotshot visualization must be emailable and printable.