WEB TOOLS FOR THE YARN CRAFT COMMUNITY

by
LAURA DAVIS
Advisor
DANIEL PLANTE

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ABSTRACT

Yarn crafts such as crochet and knitting can best be described as coloring in 3D. Working with patterns for these projects can be both challenging and relaxing. The base of this project is an easy to use website for reading and sharing these patterns. The unique parts of this website will be a chart maker and pattern generator. The chart maker will take user input on a pattern’s stitches and produce a chart using a standardized set of symbols. The pattern generator will take a user provided image and produce an easy to read pattern that pin-points color changes and can be used to either knit or crochet the image.
1. INTRODUCTION

Crochet and Knitting are two widely popular do-it-yourself skills. These crafts can produce a variety of stunning clothing options, intriguing blanket designs, and decorative odds and ends. The online community is a vast array of helpful hints and free and paid patterns. This project will to add to this community a simple website and two tools that are difficult to find elsewhere. All three components will be based in PHP.

The website will basically serve as a back drop for the tools being developed. There will be tutorial information available as well as written patterns that can be read. Users of the website will have the option to log in to view saved and privately collected patterns and to save the results of tools.

The first tool to be developed for this project is a crochet chart maker. Crochet charts are ideal for flat projects such as blankets, shawls, and doilies. Users will be able to input their pattern details and then see the results represented graphically. The program will also output the text based instructions for the pattern that can be saved with the chart should the user need it.

The second tool for this project is an image based pattern generator. This tool will take a user provided image and turn it into a general text based pattern. The pattern will emphasize stitch counts and color changes. It will also be left in the general term of stitch so users can follow the pattern with either knitting or crochet.
2. Related Work

There are two basic website formats in the yarn crafts community: blogs and e-stores. Blogs often feature free to read patterns of varying quality while the stores feature paid patterns and central locations for purchasing supplies. Blogs such as Cre8tion Crochet also feature helpful tutorial information [1]. It is also common to find tutorials and inspiration for new projects on YouTube [2] and Pinterest [3], respectively.

It is possible to find crochet related tools on GitHub [4], although these tools do not quite do what this project is suggesting. Tools similar in nature to this project’s tool for pattern generation from an image like the Knitpro tool [5] are also available for general use. The results of these tools are typically difficult to use taking the form of just colored grids. The tools at Stitch Fiddle inspired this project’s chart maker, but were also difficult to use because the symbols could only be placed by hand [6]. All abbreviations and chart symbols used in the project come from the Craft Yarn Council website [7].
3. **Background on the Crafts**

Knitting and Crochet are widely popular crafts with well-defined standards when it comes to communicating project details. Although they are different crafts this project takes advantage of their similarity when designing the website portion and image conversion tool. The crochet chart tool however relies on the specific details that distinguish crochet from knitting.

The most common method of recording a pattern is with an abbreviation laden text pattern. The basic structure of these types of patterns is the same between knitting and crochet. Well defined patterns will include a materials section defining the size and type of needles or hooks used and the amounts and colors of yarn needed. User friendly patterns will also include an explanation of any special abbreviations used by the main body of the pattern.

The main body of the pattern is where the differences between knitting and crochet matter the most. Each craft has its own set of standard abbreviations for the stitches common to that craft. Since knitting has two basic stitches this part of the pattern can sometimes look far simpler in knitting projects than crochet projects. The following two patterns are a good example of this point:
Front Side:
Starting from the bottom, with Cream, CO 20.
Row 1: K
Row 2: Sl1, P
Row 3: Sl1, K6, add Brown K6, K7
Row 4: Sl1, P6, P6, P7
Row 5: Sl1, K6, add Orange K6, K7
Row 6: Sl1, P6, P6, P7
Row 7: Repeat Row 3
Row 8: Repeat Row 4
Row 9: Repeat Row 5
Row 10: Repeat Row 6
Row 11: add Apple Green K1, K6, K6, K6, K1

Figure 1: Knitting Pattern Screen shot [8]

Instructions:

1. Make a slip knot and then chain 6 to 8 chain stitches (ch) together. Remember to keep the tension pretty tight. Basically you want to have the chain be the same width of your phone when the chain is stretched firmly. If you want the case to have a snug fit, (ch) 6 but if you want it a little more loose and roomy then (ch) 7 or 8 stitches.

2. Round 2. Not turning your work, (sc) in the second chain from the end (the same end you’re hook is) and continue this in every stitch back across the entire row. 2 (sc) in the last stitch.

3. Round 3. With your work still facing you, turn around the corner so that you’re now working into your original chain and still working right to left, 2 (sc) in first stitch then (sc) the rest of the stitches in the row except 2(sc) in the last stitch. Repeat this for as many rows you need until you have you have achieved the correct width to fit the bottom of you phone (probably about 3-5 rows total depending on how snug or roomy you want your cover). Keep your phone handy to test and make sure the fit is good.

4. Round 4, 5 or 6 onward. 1 (sc) in each stitch for each row until you’re near the top of your phone.

Figure 2: Crochet Pattern Screen Shot [9]
The two patterns are each for a phone case and were both found on personal blogs. The knitting pattern appears simpler at first glance because the steps are straightforward and cleanly presented while the crochet pattern appears wordy with the extra notes on how to hold the work and where to place the stitches. Based entirely on the respective mechanics of the crafts however the patterns would be closer to the same difficulty if the knitting one did not call for color changes. It is worth noting that not all pattern writers will write simple or complex looking patterns just because they are writing for knitting or crochet. Some pattern writers add in any information they believe will be useful later and it possible to find crochet patterns that appear just as simple as the presented knitting pattern.

Since this project has components that will be writing patterns it can take advantage of the similarities between knitting and crochet to write a general pattern. A general pattern would be written in the described schema, but in terms of generic stitches of varying color. This gives the reader of the pattern the free choice of yarn craft and stitch. The general pattern schema will be used by the image based pattern generator.

This project will also feature a tool that is tailor made for a unique way of representing patterns in crochet, the crochet chart. A crochet chart is a graphical representation of the placement of stitches in a pattern. Each stitch has its own shape and when presented together in a chart show the general shape of the finished piece. The following is the set of symbols and their equivalent stitches:
The first five stitches in the diagram (the slip stich, the chain, the single crochet, the half double crochet, and the double crochet) are the five most common stitches in crochet patterns and will be the focus of this project.
4. The Website

The website for this project is intended to be simple. Its purpose is to provide an easy to use base for the pattern generating and chart making tools.

There will be two types of content available on the website: content that does and does not require a user to log in to view. All tutorial information such as abbreviation listings or how to diagrams will be freely available to any site visitor. A collection of public patterns will also be available to the general user as well as one time results from the website’s tools.

Once logged in users will have access to more personalized content. They will be able to view all their saved patterns, upload new patterns, and save the results of the website’s tools. They will also be able to set view privileges on patterns they upload to either private or public. The public patterns will become available for saving to other logged in users and can be viewed by users who choose not to log in.

To accommodate the widest range of users the website will not police user generated content for adherence to any specific set of standards. There are some differences in notation between UK and American standards that the users will be responsible for denoting or ignoring as they see fit. The website’s tutorial information and the results of the pattern creating tools will use the more prevalent American standards.
5. The Crochet Chart Maker

The crochet chart maker will produce a graphical representation of a pattern from user inputs. These charts can represent patterns worked in rows or in the round like the following:

![Sample Crochet Chart](image)

**Figure 4: Sample Crochet Chart [10]**

For simplicity, the first iteration of this tool will only be able to handle patterns worked in rows. The first and any future iterations of this tool will utilize the GD library of PHP functions to output correctly formed charts.

Users of this tool will be able to enter into the program the count for the foundation chain as well as the stitch combinations for each row. This input will come from selections made from a side menu with the resulting chart updating with each selection. This will allow the user to check the accuracy of their inputs as they go.

The finished chart may be saved by logged in users. When choosing to save the chart users may also choose to save a text based pattern using the site’s standard abbreviations. The combination of the chart with the text based pattern will make the pattern friendlier to the site’s community should the user decide to share this pattern publicly.
6. The Image Based Pattern Generator

The image based pattern generator will read and possibly manipulate a user provided image. The result will be a text based pattern written in terms of generic stitches. Once saved it will be up to the user to decide whether they wish to knit or crochet this pattern and in which stitch. The only thing specified in the pattern will be the count of stitches and where in the count the color changes will occur.

From the basic premise of this tool several options may be developed for users. Resizing the image: while it is assumed that this tool would be used to create a pattern for a blanket, users may be given the option to define the blanket’s finished dimensions in terms of stitch and row counts. Limiting colors: changing color while working can be a difficult task for beginners and is generally harder to achieve when knitting than when crocheting, therefore an option to limit the number of colors or even convert a color image to a black and white image may be provided. Should either of these options be developed they will display the altered image for the user’s approval and when saving the image will always be saved with the out-putted pattern for future reference.
7. Conclusion

The yarn craft community is a diverse collection spanning between eager beginners and possibly computer shy experts. The ultimate goal of this project is to develop a site that can be used by the entire community. From a simple site design to the tools’ interfaces and outputs each piece will be designed to be user friendly and familiar to the average crafter.
References


