Grommet Theme Designer

M3: The Design

Bryan Jacquot
Iowa State University

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Overview

The Grommet Theme Designer is a web-based application which enables designers, the primary stakeholders, to create themes for websites and web-based applications. Themes created with the Grommet Theme Designer will cover the spectrum of web design needs, including colors, fonts, element style (corner treatment and depth), and icon style (stroke width and line ends).

The theme designer will ensure the theme meets accessibility standards with notifications of inadequate contrast between colors for users with color deficiency (WCAG 2008). This is a significant capability because according to Dix (2004), approximately 8% of males and 1% of females suffer from colorblindness. These figures do not include users who rely on assistive technologies such as screen readers. The importance of this capability cannot be understated as *none* of the designers interviewed for this project had taken accessibility into account when designing their themes.

When the designer is satisfied with the theme, it can be imported into Sketch. A new Sketch plugin which is a component of this project will customize the Grommet Sticker Sheet with the theme's settings, which makes it easy for designers to being designing their website or application.

Finally, the theme designer streamlines the handoff to developers by providing developers with the customized theme for the Grommet (http://grommet.io) web development platform. This enables developers to efficiently implement the application as designed.

User Stories

The following user stories describe the capabilities which will be offered by the Grommet Theme Designer.

I. Foundation
   a. As a designer, I need to efficiently create a theme for a web application.
   b. As a designer, I need to preview a sample application using my theme.
   c. As a designer, I need to share my theme with stakeholders and developers.
   d. As a designer, I need to download my theme for use in Sketch.
   e. As a developer, I need to preview the theme and provide feedback to the designer.
   f. As a developer, I need to download the theme for use in the Grommet application development platform.

II. Color
   a. As a designer, I need a primary color to be suggested.
   b. As a designer, I need to specify a primary color based on my customer's brand.
   c. As a designer, I need to fine-tune suggested primary and secondary colors.
   d. As a designer, I want to be notified when colors lack differentiation by users with color deficient vision.

e. As a designer, I want to be notified when colors lack adequate contrast to meet accessibility standards when text is placed on top of colors in my palette (e.g. in buttons).

III. Fonts
   a. As a designer, I need to select a font family.
   b. As a designer, I need to browse fonts for use in my application.
   c. As a designer, I need to preview and fine tune the typographic scale.

IV. Element style
   a. As a designer, I need to adjust the corner radius of buttons and controls.
   b. As a designer, I need to adjust the depth of controls to provide either a flat or 3d appearance.
   c. As a designer, I need to set the line weight within icons.
   d. As a designer, I need to set the line-end style within icons.

V. Design tool
   a. As a designer, I need to import my theme into Sketch so I can design my application using my theme without manual entry of my theme settings.

Design Space

The foundation of the interaction design for the Grommet Theme Designer follows patterns established in the Grommet platform. However, there were a couple of significant design tradeoffs in the theme designer. The first was whether controls should be inline with elements or placed in an edit panel. The proposed design uses a hybrid approach. Color is editable inline since each color may be individually customized. The remaining settings are universal in nature. For these universal settings, the control mapping is more appropriate to place within an edit panel. If controls were placed inline on each button, for example, it would naturally leave the user with the impression that the setting applied only to the selected button. This is not the actual behavior. This would have been a violation of natural mapping and required special labels to convey the behavior. “Proper natural mapping requires no diagrams, no labels, and no instructions” (Norman, 2002, Kindle location 1515). Therefore, the controls for universal settings are presented in an edit panel. This design tradeoff will be closely evaluated to be sure the appropriate balance was found.

Another tradeoff that requires careful attention is the level and prominence of affordances for inline editable elements. As Norman states, “The characteristics of affordances and constraints can be applied to the design of everyday objects, much simplifying our encounters with them” (Norman, 2002, Kindle Location 1651). It is necessary to provide appropriate affordances so the user perceives which fields are editable, but typical affordances such as edit icons and text boxes can add visual clutter making the application appear more complex. This design tradeoff will also be closely evaluated to ensure adequate affordances are provided.

The Design

Users

The **primary stakeholders** of the Grommet Theme Designer are designers who create themes for websites and web-based applications. For the scope of this project, this user group will be further limited to designers who use the OS X operating system and the Sketch design tool. My initial survey indicated 60% of the primary stakeholders use OS X as their primary operating system. Primary stakeholders will generally have formal training in graphic design, web development, or related field. Those surveyed described their occupation as either “Software and web development” or “Arts, design, and user experience”

System Architecture

Designers will access the Grommet Theme Designer using two user interfaces. The first is a new web-based user interface and the second is the Sketch design tool as shown in Figure 1. The blocks shown with a white background are the focus of this project, while the gray blocks are existing technologies being leveraged to enhance the solution. This solution can be extended to other design tools beyond Sketch in the future, but is being limited to a single platform for the scope of this project.

The web-based user interface of the Grommet Theme Designer provides the ability to create themes. It is composed of two primary components.

- The user interface is the presentation layer for the theme designer.
- The backing services provide the ability for designers to create, clone, share, and save themes.

The backing services for the theme designer are a set of open source libraries that enrichen the user experience of the theme designer.

- The PleaseJS library creates a palette of colors that are in harmony based on a random starting point or a user-specified primary color.
- The Bootstrap Form Helper library provides the ability to interact with Google Fonts in a simple manner.
- The Contrast library calculates the contrast between colors. All colors will be compared against the white and dark to ensure colors in the palette offer adequate contrast when light or dark text is placed over them (e.g. in buttons with text labels).
- The Color-blind utility converts colors into the corresponding shade a person with each of 3 forms of color blindness would perceive.
- The Name That Color utility converts a color code in hexadecimal format used by web applications into a friendly name.

The Sketch user interface shown to the right of the figure provides the ability for plugins to extend the product's capabilities. The plugin will use the output of the Grommet Theme Designer web application to style the Grommet Sticker Sheet with the selected colors, fonts, and element styles.

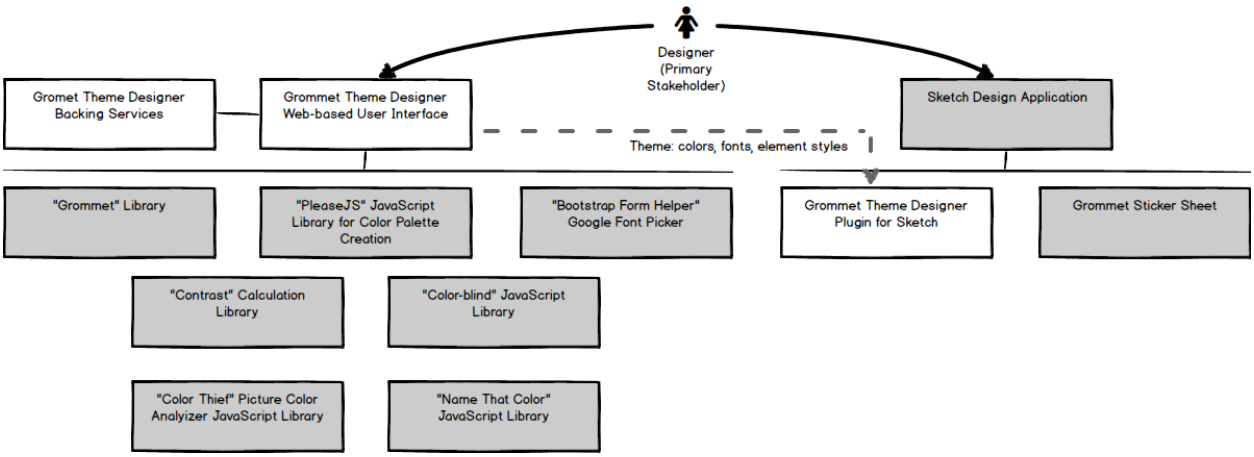

Figure 1. Grommet Theme Designer High Level Architecture

Usage Scenario

A mockup of the first screen of the Grommet Theme Designer is shown in Figure 2. The page is designed to be welcoming and simple. An intentional design element is the pre-populated settings as an observable starting point. "Observability allows the user to evaluate the internal state of the system by means of its perceivable representation at the interface" (Dix, 2004). Dix goes on to say defaults can be either static or dynamic. The Grommet Theme Designer will use dynamic default colors that are in harmony so the first page gives an observable and pleasing first impression. As Burchett (2002, p. 28) describes, "Colors seen together to produce a pleasing affective response are said to be in harmony."

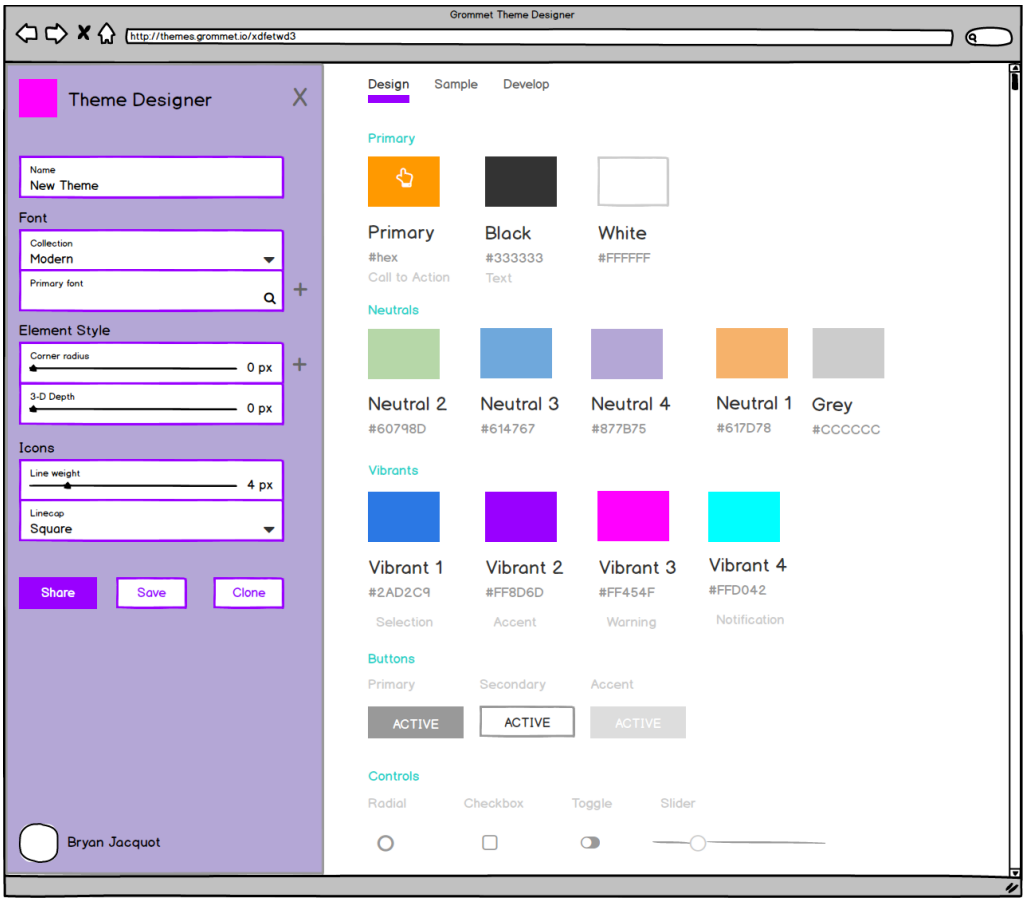

Figure 2. Grommet Theme Designer Initial Page

Color Selection

Color palette selection is a critical task in the theme design process. During interviews with primary stakeholders, this was viewed as a pivotal step in the theme design process. In some cases, clients specify their primary color when they have an established brand. As a result of this research, designers will be able to click or tap on the primary color or the hex value and specify the desired primary color. This change will cascade through the secondary colors in the palette as harmonious colors generated.

Figure 3 shows the primary color picker allowing designers to select a new color from a familiar color palette. This picker was selected specifically because it is used in the most popular design tools based on the initial user survey.

In other cases, designers are not given an initial color by the client and have freedom to select colors. Designers start this task using input from their research. Some clients request a "warmer" or "colder" color palette (PS1, 2016). To address this input, an option is being considered with controls that allow designers to adjust the color palette as a whole to be more "warm" or "cool". Other options for generating a theme could be the ability to select "moods" from a set of mood boards (http://vhue.co/Moodboards/Crafts), or using an uploaded

photograph as the basis for selecting colors. These capabilities have not been included in the mockups, but will be considered in the future.

One designer reported clients sometimes request a specific vibe they want to portray, such as “dark and edgy” (PS2, 2016). For these cases, designers will be able to select a color from the lower, darker portion of the picker. Upon doing so, harmonious colors that compliment the selected color will be selected for secondary colors. These secondary colors are generated using a tetrad algorithm for the four neutral and four vibrant colors in the palette.

A key element of the interaction for color selection is the inline color picker. Since each color may need to be fine tuned, adding controls for adjusting the colors to the panel on the left would not have been intuitive. As Norman suggest, “Get the mappings right” (Norman, Kindle Location 3248). This interface is designed to enable the, “User intentions [to] map clearly onto system controls” (Dix, 2002).

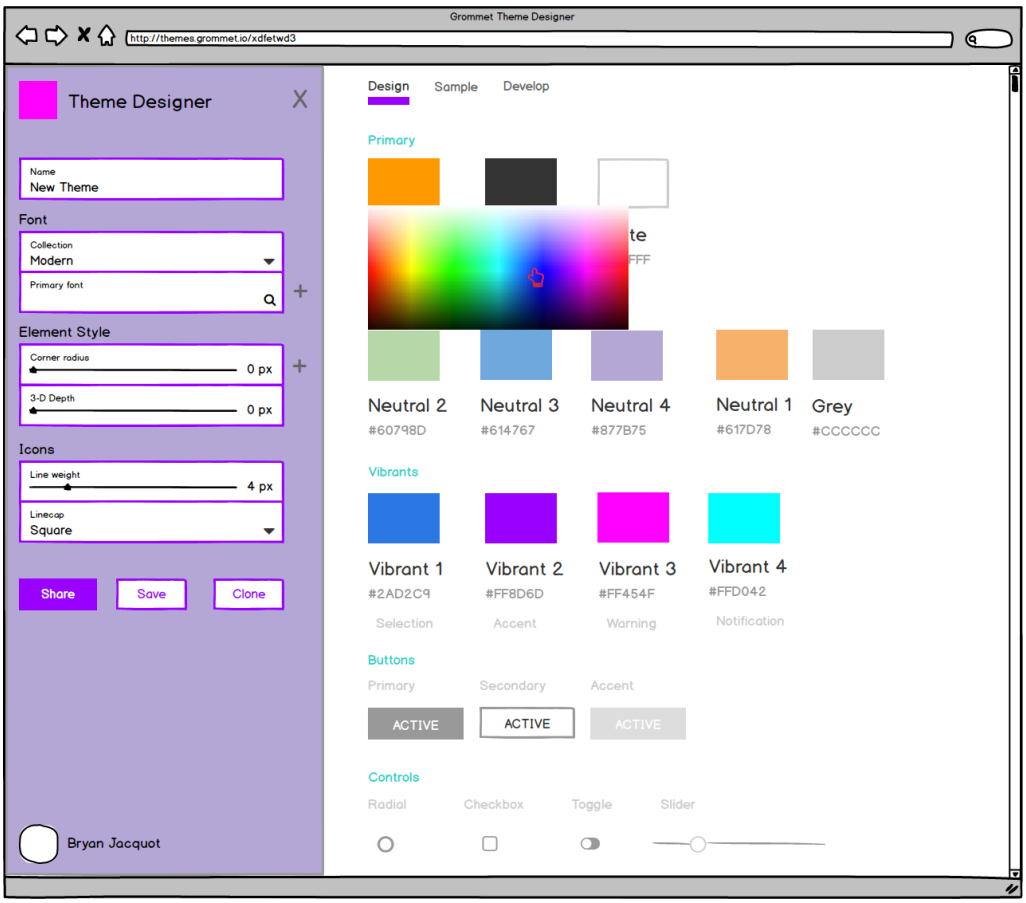

Figure 3. Grommet Theme Designer inline color selection

Element Styling

Once the colors have been selected, the next step for the designer is to style the user interface elements. The controls in the left menu of Figure 4 allow the corner radius and 3-D depth to be adjusted. As the designer adjusts the settings, results are shown in real-time in the Design

workspace. Unlike the color controls being inline, this interaction design was intentionally changed because of the scope of the controls. Individual buttons cannot be styled differently as that would present a haphazard design. Instead, element styling is universal to the theme. Consequently, universal controls are available in the left panel, while individually controllable settings are available inline.

In the same way, icons can be styled. Icons in the Grommet platform are in the Scalable Vector Graphics (SVG) format. This offers the ability to apply subtle styling to icons by adjusting the line weight and end cap. These two settings enable a variety of visual aesthetics ranging from thin, light icons with soft edges to heavy, dark icons with hard edges.

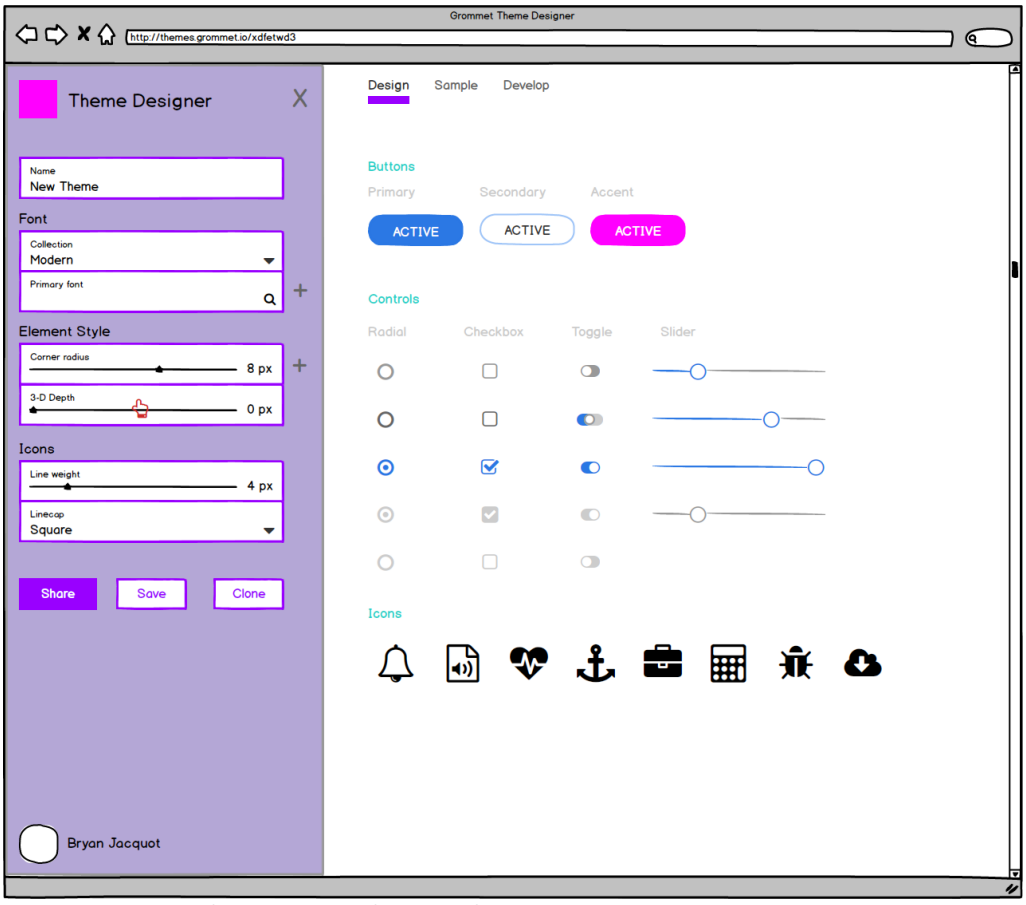

Figure 4. Grommet Theme Designer element styling

Font Selection

Next is the font selection activity. In this phase, the designer select fonts using the Google Font service. This service was mentioned by 2 out of the 3 designers during personal interviews as the service they used to select fonts. Since fonts are universal, the controls are in the left panel. As the designer selects different fonts, the result is shown in the Design workspace. The font is shown at different sizes and weights in a typographic scale to give the designer a complete representation of the font.

After the designer selects a font, individual font weights and sizes can be adjusted inline for each element of the typographic scale.

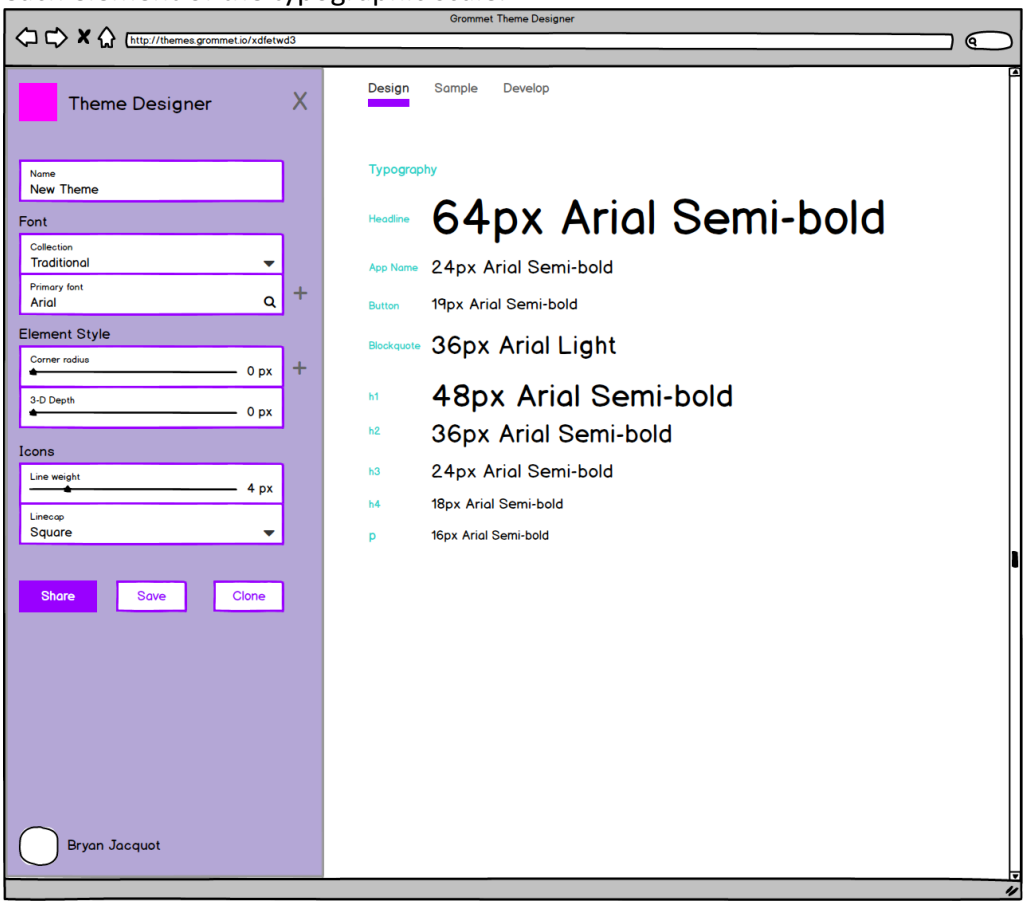

Figure 5. Grommet Theme Designer font selection

Sample Application

"A tool that displays colors in isolation or in groupings unrelated to an image will fail to provide all the necessary information to make a color choice, and it can also significantly mislead the user" (Meier, 2004, p. 65). From my evaluation of color palette design tools, the ability to see the palette in context is a feature generally overlooked. Individual selections may be pleasing in isolation, but when the colors, fonts, and element styles are evaluated together, the designer is given a much better sense of the overall aesthetic. A primary reason designers iterate and "tweaked settings until we got the right feeling" (PS1, 2016) with developers is they need to refine elements after seeing them in context.

The designer can view and interact with a sample application as shown in Figure 6. The sample application will utilize a variety of elements, colors, controls, and icons enabling the designer to get a strong impression of how elements of the theme interact. The Sample page is always available and can be toggled between it and the Design at any time. This allows for rapid iteration and exploration by the designer.

The Grommet Theme Designer also enables themes to be cloned. Using this feature, designers can create derivative themes and use them in A/B testing among the variations and iterations.

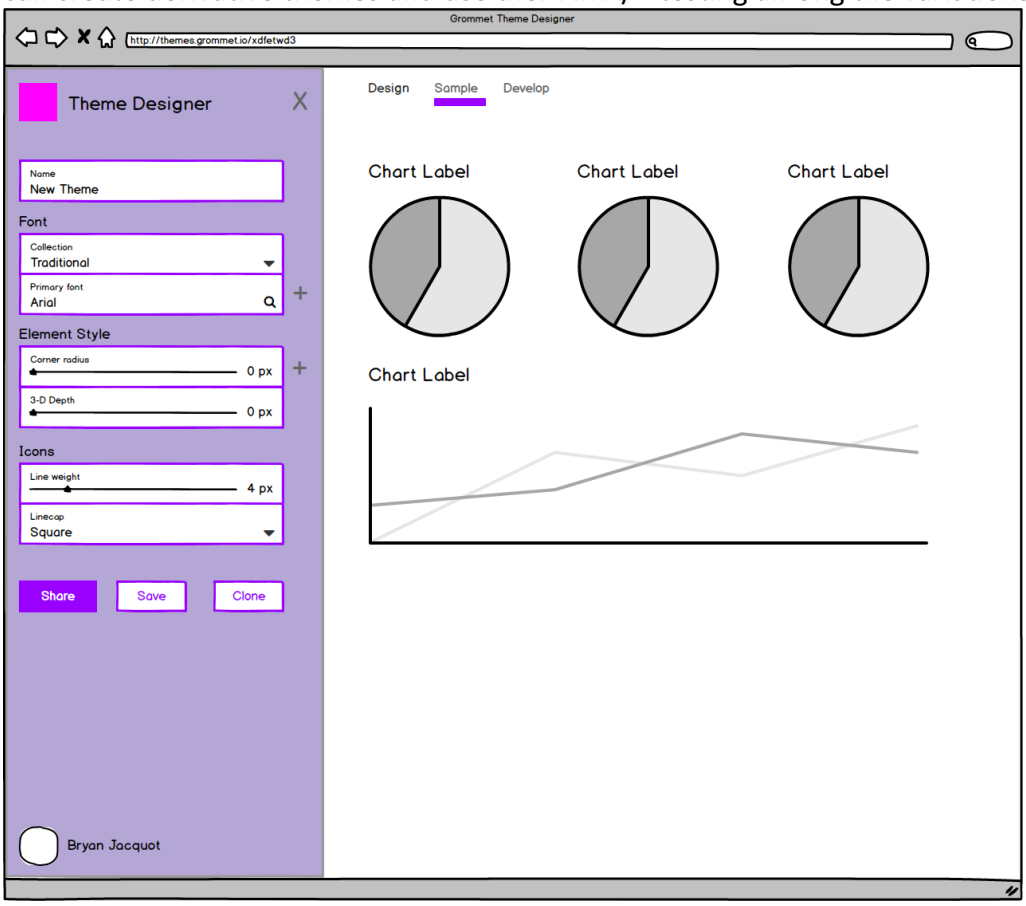

Figure 6. Grommet Theme Designer sample application

Developer Style Sheets

The final element of the Grommet Theme Designer is the page for developers shown in Figure 7. Here developers view the theme's Cascading Style Sheet (CSS). This feature is commonly provided in other theme design tools. However, this feature may be removed from the Grommet Theme Designer based on user response. My belief is developers will prefer downloading the theme and using it directly within the Grommet development platform rather than viewing the CSS file on this webpage. Since developers are secondary stakeholders and were not interviewed during the initial phase of the project, the feature is being considered until it can be confirmed it is unnecessary.

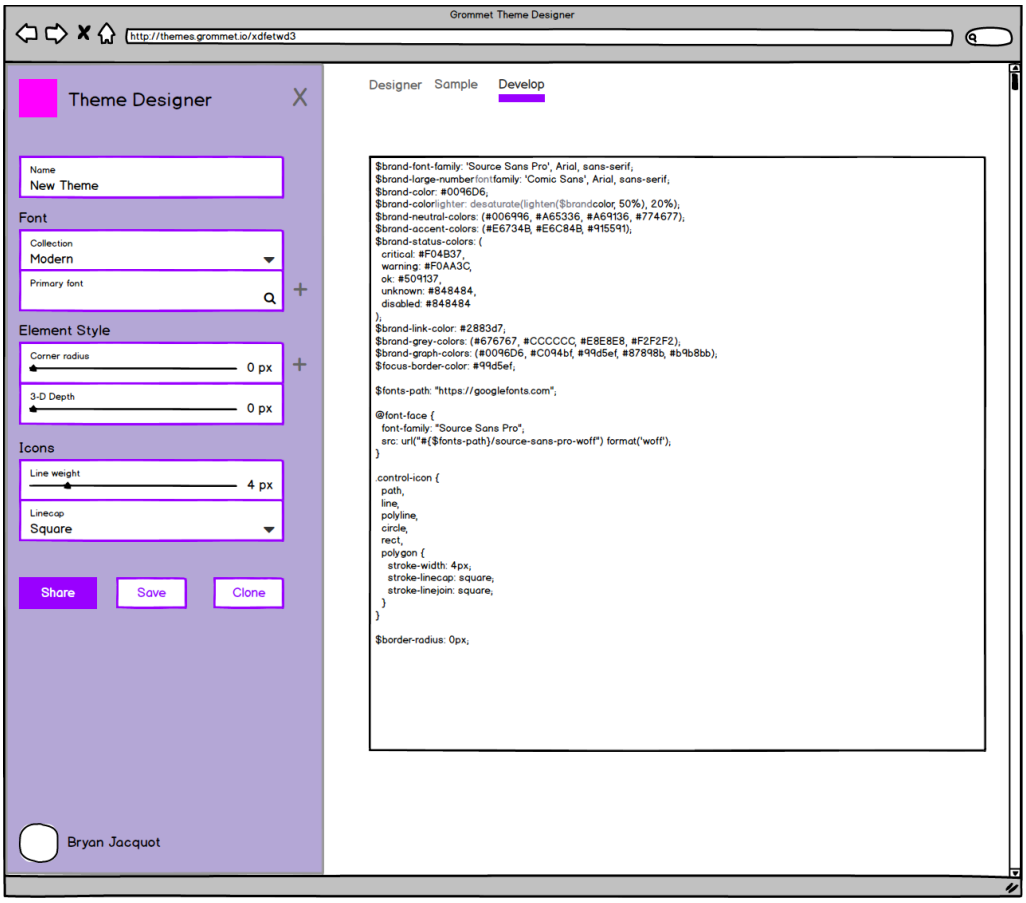

Figure 7. Grommet Theme Designer developer style sheet

Sketch Plugin

The Sketch Plugin for the Grommet Theme Designer will accept the CSS file output from the web interface. Figure 8 shows the Sketch application with the Grommet Sticker Sheet. A mockup of the Plugins menu is also shown. The Design sub-menu provided by the plugin allows a theme to be opened.

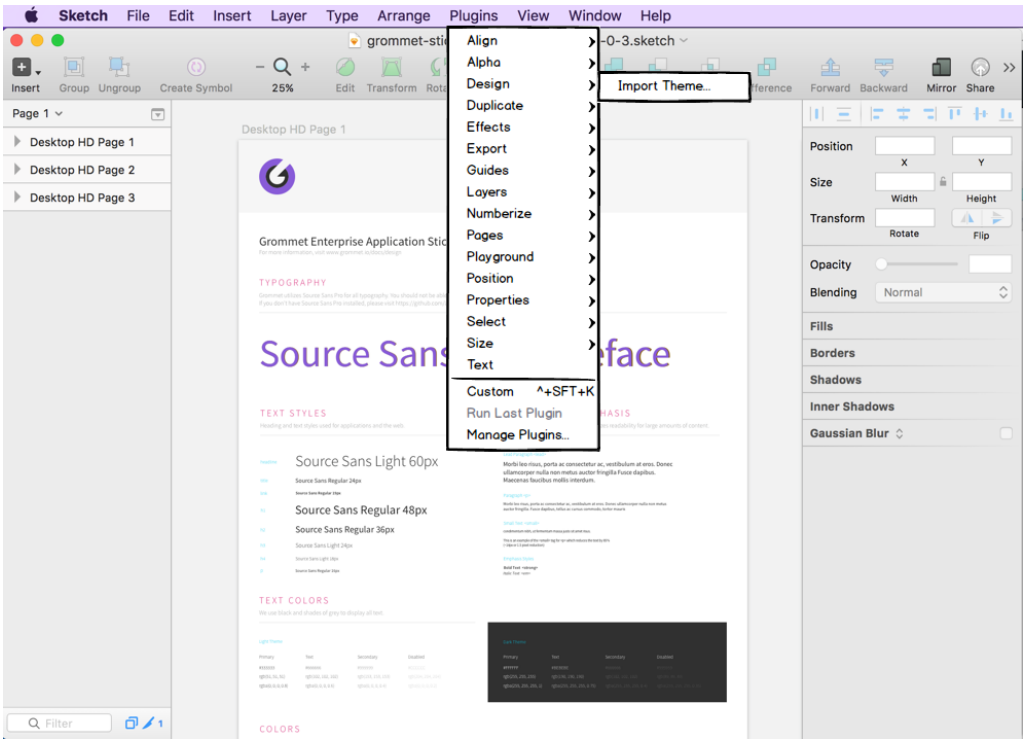

Figure 8. Grommet Theme Designer plugin for Sketch

Upon selecting the theme file, the plugin will apply the selected colors, fonts, and element styles to the Grommet Sticker Sheet. At this point, the designer is able to design their website or web-based application using their theme.

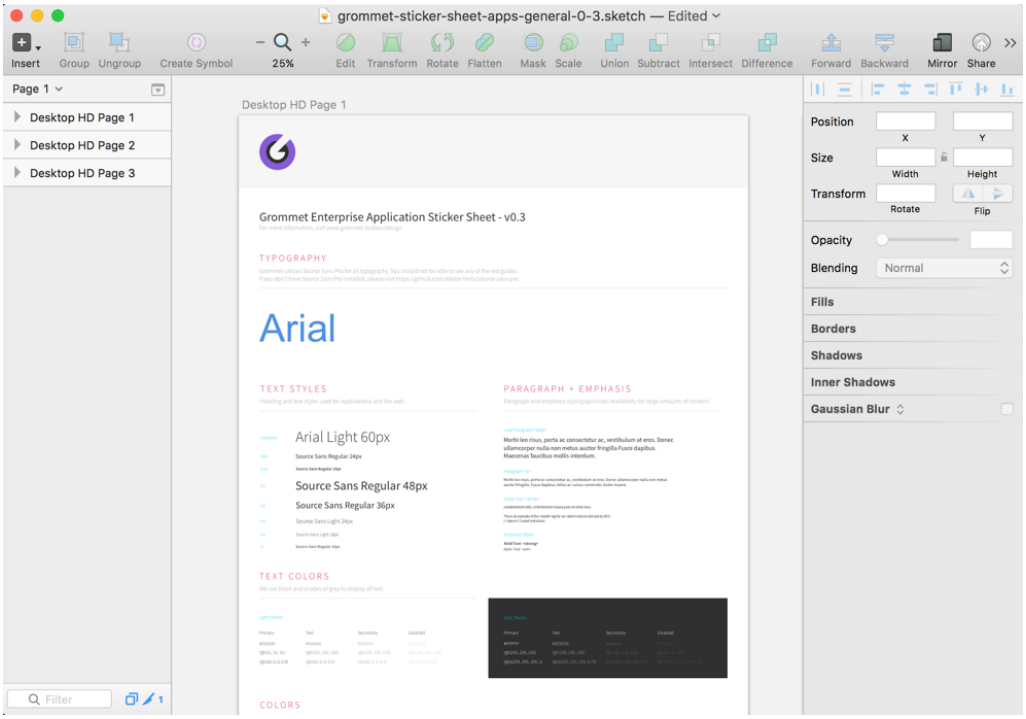

Figure 9. Grommet Theme Designer plugin for Sketch results

The final step in the designer's workflow is handing off the theme and the actual design files to developers. The designer will deliver the design files from Sketch in either Sketch or PDF formats. In addition, the designer will deliver the CSS theme which contains the colors, fonts, and element styles in a single file that developers can directly use in the Grommet web development platform. Taken together, the developer can quickly and efficiently begin implementation of the website or application.

Emerging Technologies

Emerging technologies have been an influential factor in the design of the Grommet Theme Designer. Responsive web design is integral to this project. As leading designer Ethan Marcotte stated, "[Responsive web design is] an incredibly effective (and affordable) way to design for the Web—and by extension, for all the myriad devices, screens, and contexts that access it" (as cited in Carlozzi, 2015). The design of the Grommet Theme Designer provides designers with the ability to use any device for the creation and sharing of themes.

Figure 10 shows the Grommet Theme Designer mockup on a mobile phone. Notice the left panel is an overlay with universal settings that can be opened and closed easily. The body of the page is a long, scrolling page for the theme that has the same interaction model as the desktop site.

Figure 10. Grommet Theme Designer on mobile phone

A related trend that the Grommet Theme Designer embraces is the ability for designers to use tablets for their design work. With the recent release of the Apple iPad Pro and the availability of popular Adobe design tools, designers can utilize this new hardware form factor for design. As Ruby (2015) stated, "For designers, there are limitations – but within them you can still do amazing things." This emerging technology trend will continue to grow as the apps become more capable and the capabilities of the hardware improve. At this point, developing the Grommet Theme Designer with responsive web design makes it a viable tool on a pro-sized tablet.

Another modern design pattern embraced in the Grommet Theme Designer is a minimalist design that removes anything unnecessary. Many features, such as those for validating contrast ratios are not exposed unless there is an issue the designer should address. This approach keeps the interface simple on the surface, yet deep with capabilities that designers will appreciate as they encounter them.

A final design tenant employed by the Grommet Theme Designer is the principle of instant gratification. Users want to see something useful immediately. They don't want to go through a registration process, they don't want to create a new project, they don't want to answer a

series of questions about their theme. They want to begin designing their theme immediately. Hence, The Grommet Theme Designer has zero setup required. Everything has good defaults, some of which are static, and others are dynamic. But the key principle is designers will get instant gratification from the system.

The Grommet Theme Designer is a modern platform that embraces the latest design trends and embraces key principles that enhance the user experience.

Social Implications

On the surface, it seems the Grommet Theme Designer is rather benign when it comes to social implications. It is a tool that designers use to create themes for websites and web-based applications. However, upon deeper consideration, there are a few areas of consideration with respect to social implications. First, when colors are selected, there's nothing that would prevent designers from easily copying colors from well-established brands. Obviously this could run legal risks in the areas of copyrights or trademarks.

A socially responsible feature of the Grommet Theme Designer is the feature which notifies designers when themes are not compliant with accessibility standards. A survey by WebAIM found that nearly 43% of respondents blame "Lack of awareness of web accessibility" as the reason websites are not accessible (WebAIM, 2015). Using the Grommet Theme Designer will raise awareness to this important topic for designers.

References

Burchett, K. (2002). Color harmony. *Color Research & Application*, 27(1), 28-31.

Carlozzi, C. (Interviewer) & Ethan Marcotte (Interviewee). (2015). 2016 Responsive Design Trends with Ethan Marcotte | *Grommet Blog*. Retrieved February 15, 2016, from http://blog.grommet.io/2015/12/28/2016-responsive-design-trends-with-ethan-marcotte/.

Dix, A. (2004). *Human-Computer Interaction*. Harlow, England: Pearson/Prentice-Hall.

Meier, B. J., Spalter, A. M., & Karelitz, D. B. (2004). Interactive color palette tools. *Computer Graphics and Applications, IEEE, 24(3)*, 64-72.

Norman, Don (2002-09-19). *The Design of Everyday Things* (Kindle Locations 1651-1652). Perseus Books Group. Kindle Edition.

Primary Stakeholder 1. (2016, Feb 1). Personal interview.

Primary Stakeholder 2. (2016, Feb 1). Personal interview.

Ruby, C. (2015). A designer's take on the iPad Pro. The Verge. Retrieved February 15, 2016, from http://www.theverge.com/2015/11/13/9728140/ipad-pro-apple-pencil-stylus-adobe-draw-sketch-comp.

WebAIM Screen Reader User Survey #6 Results. (2015). Retrieved from http://webaim.org/projects/screenreadersurvey6/#reasons.

Web Content Accessibility Guidelines (WCAG) 2.0. (2008). Retrieved from https://www.w3.org/TR/WCAG20/.