THE POWER OF PERSISTENCE: HARNESSING TIME MANAGEMENT THROUGH APP DESIGN

Honors Thesis

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Abstract

As a young adult finalizing his Bachelor's Degree, it is important to overcome the limitations of poor time-management skills in order to prioritize one's best performance. In this case study, I analyze the results of strategically reassessing one's personal time-management skills through the usage of accessible task management tools alongside the development of a time-budgeting discipline.

This study describes the development of this process from a rough initial adoption of software-based time-management tools to the creation of an app prototype whose purpose is to encourage time-management. This prototype is structured with proper user experience (UX) in mind while maintaining compliance with guidelines to fulfill its core feature integrity. The ongoing development of this prototype is sectioned into a sequence of design that is representative of key components of understanding time-management, and its potential if harnessed correctly within an everyday workflow.

The final results of this prototype development are represented in various graphical mockups that showcase the user experience of the application, how the prototype is compliant with self-imposed design rules, and the impacts that developing this prototype has had on personal time-management skills.

Introduction

I struggle with proper time-management, and it has always been detrimental to my performance. Throughout my early education, many teachers and academic mentors would recognize my ability to comprehend new topics and practices rather quickly, only to be limited by a lack of overall focus and poor utilization of applied time. This is a problem that applies to many more than just I, as time management becomes more difficult to manage when we consider our increasing desire for convenience in consumption and production; multitasking has taken priority, fulfilling the sensation of occupation while only being fractionally productive in comparison to being focused while working. Studies have shown that multitasking not only reduces cognitivity, but it also increases stress levels through the production of cortisol, known to be the stress hormone[1].

By nearing the completion of my undergraduate degree and the start of my pending career at a stone's throw away, the development of this key discipline has quickly turned into a necessity to truly produce high-quality creations. After all, I would much prefer to produce content that is representative of my strengths rather than my avoidable shortcomings. Additionally, the benefits of gained time provide a fulfilling sensation of achievement, often contrasted by the uncomfortable stress that accompanies procrastination[2]. While many swear by developing time-management habits through lifestyle adjustments such as embracing "morning productivity sprints[3]", that solution is difficult for those who are working a large number of hours across any number of jobs alongside a full-time workload of schoolwork and its accompanying assignments. I decided that the solution would come in the form of an aid that helped keep me on track of my assignments and responsibilities, while decreasing exposure to potential distractions. I considered all the potential tools that facilitate our daily lives, realizing the power of convenience through

time-management tools or software on our mobile devices. Coupled with the large ratio of my workday that requires the use of a computer, it was important that whichever software solution persistently presented all key details regarding my current workflow to best apply my time at hand. These choices were inevitably building the foundation of my evolving thesis statement; my initial idea stemmed from determining which applicable time-management practices increased productivity whilst reducing stress. Further development of my professional needs as an aspiring UX designer determined the true goal of my thesis: an analysis of personal outcomes that accompany the development of a time-management application prototype.

Within this thesis project, I will describe the adoption and utilization of certain time-management software applications that are intended to directly impact two main issues I face: maintaining focus on tasks alongside their intended due date in addition to avoiding any form of procrastination or distraction from the tasks at hand. These directly impact the needs to be fulfilled by the development of the app prototype, for which I define a structured process flow in order to keep track of project steps and goals. This is finalized in the form of high quality graphical mockups that both demonstrate the app's user experience and its potential within marketing. I then synthesize the experience of working on this project and my personal outcomes as a result of such.

Case Study: Developing a Prototype

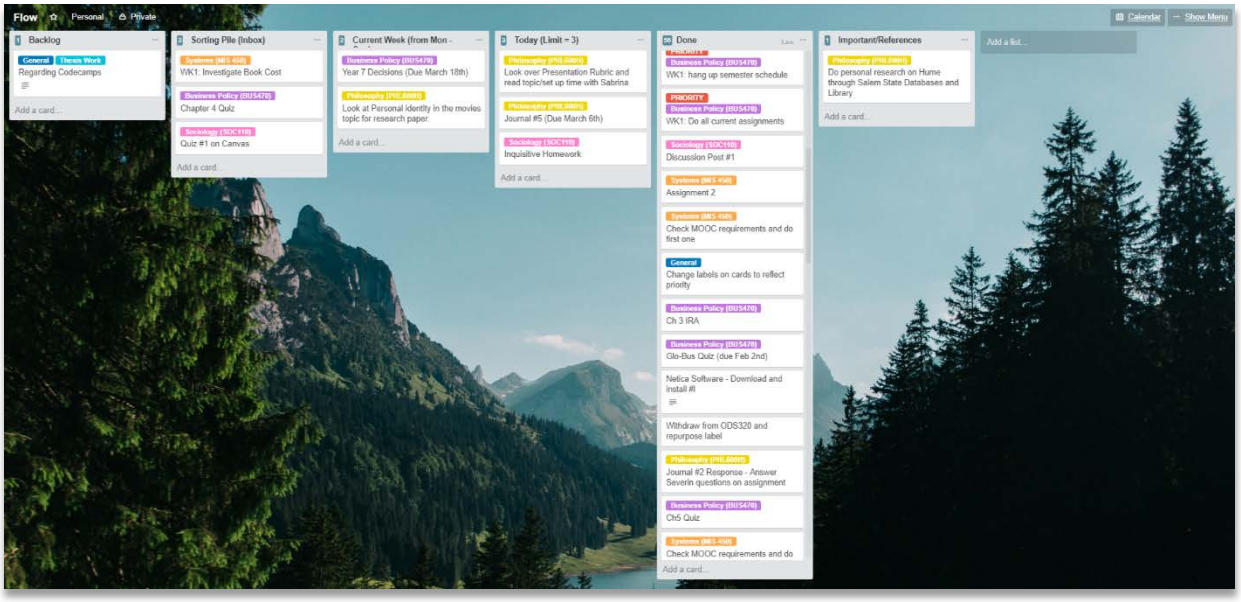
Methodology

My initial research on finding ways to improve time-management introduced me to Kanban methodology[4]. Kanban is a Japanese word that means "visual signal" or "billboard", as a means to visualize the flow of work. This was first implemented at Toyota automotive to

improve their manufacturing efficiency through the parallel implementation of “on-demand” shelf stocking akin to supermarkets. This led to an increase in productivity while having reduced the costs of handling inventory. This style of productivity has since been adopted in Western business practices and is widely used within IT projects to maintain a visual understanding of workflow whilst trying to continue improvement of systems. Personally, Kanban serves a great purpose by giving a general overview of all the tasks at hand while promoting timely process-handling and discouraging multitasking. Through the critically-acclaimed time-management tool called **Trello**[5]**,** I was able to start handling all my responsibilities in a way that offered the power of personalization on a Kanban-based board while being fully accessible through my mobile device alongside a desktop computer platform.

Core practice of Kanban structures workflow so processes are completed to be transitioned across the pipeline. Many basic templates prepare three columns that indicate the start of a process, its transition to commencement and progress, followed by its final move to completion; simply put, this is depicted “To-Do/Ongoing/Done”. For true Kanban efficiency, there are typically limitations to the number of “Ongoing” processes; this is done to avoid multitasking and prioritize a continuous workflow.

Below is an image of my schoolwork focused Trello board, where I have customized my Kanban design to best suit my everyday needs as a full-time student.



I started using Trello and my personal board in the beginning of my Fall 2017 semester, as a means to document the beginning, progress, and end of an assignment from my coursework. I have maintained its consistent use until now (nearing the end of Spring 2018 semester.) Each column and its categorical purpose in my personal productivity have been defined below:

Trello Board – Categories:

- Sorting Pile: An "inbox" that receives all pending tasks before assignment to other columns.
- Today (WIP = 3): All projects to be worked on today pass are on this pipeline. There is a limit of 3 assignments to be visible on this list at a time to avoid oversaturation and keep the workflow
- Current Week (Mon thru Fri): I triage a full week ahead through all the categories of work (containing all academic and all job responsibilities) and pull tasks from this list into "Today" to get to work.

- Done: Contains all the tasks I've completed. It serves as a great visual motivator to keep the workflow active and consistent.
- Important/References: Contains key content that I will continue to refer to within my workflow, consisting of syllabi, documentation, reference guides, and other useful info until their utility is no longer required.
- Backlog: All tasks that aren't a priority to be worked on get moved to the backlog, which gets reviewed on occasion or when a status update prompts action to be taken.

The employment of this system has been largely beneficial to my productivity due to quick accessibility through mobile, persistent data consistency, and my dominant control of almost all the application's features. Additionally, I grew to enjoy the satisfaction of keeping myself on track; a typically stressful semester had become less stressful and manageable as I developed a form of "time-budgeting".

However, Trello's successes as a diverse, customizable application still didn't fully resolve my pending concerns: the provided bird's eye view of one's listed tasks requires a few clicks to see the bulk of any tasked assignment. While this is very useful while utilizing a desktop machine at one's office or home, on-the-go interactivity with Trello became cumbersome due to the extended nature of the applications navigability. Additionally, this software and its useful Kanban board were not sufficient to keeping my attention on task. I consistently found myself starting a new assignment but lacking a full control over my focus; with social media services on my browser or phone were constant distractions that would further my procrastination. Proud of my successes so far, I did search around the software market for an app that would blacklist the use of any distracting site during a timed-session of work.

The result of this search was finding **Forest**[6], an app/extension that keeps you on track by limiting which applications and websites you're allowed to use during a user-controlled period of time. If you successfully stay on task throughout the user-assigned time, the application plants a tree in your personal forest as a reward for your merits; if you fail, the app punishes you by removing a tree instead. There are elements of gamification[7] which provide small rewards for commitment which help keep the user motivated by visually presenting the evolution of their efforts, even if it's in the form of a small virtual cluster of trees. Within application and website design, gamification has become a trendy design choice due to its focus on enhancing the user experience through the implementation of features that offer feedback to the user in the form of progression by completion, leaderboards to compete against others, and rewarding the completion of challenges that are simply a part of the application's core feature-set. This style of engagement hooks the user by making it fun to use the application, while still offering a full set of features that satisfy the user's needs. My growing forest had become sufficient motivation to stay on track, as I didn't want to let any harm befall them due to my negligence towards completing work.

Using these two apps had allowed me to develop several beneficial habits for productivity: I began to organize the upcoming week's assignments on Sundays, ensuring that the load was

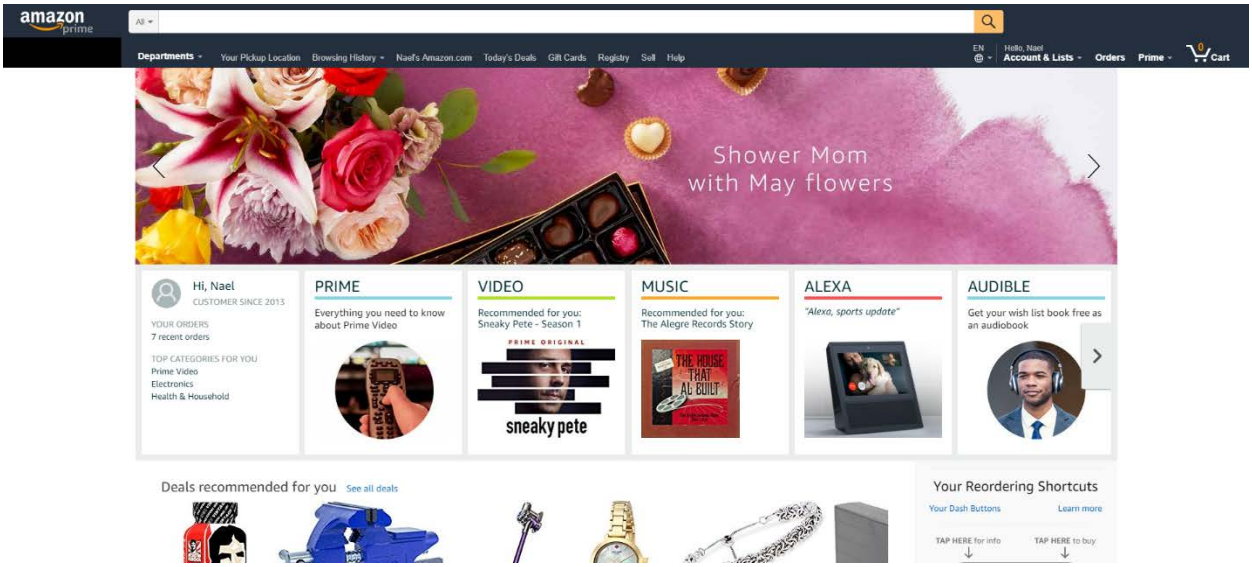
constantly shifting from one completed task to the other. I dedicated a more rigid portion of nightly time to get activities done ahead of time instead of my previous habit. I find myself considerably less stressed now that I'm able to understand the substantial weight behind proper utilization of time ahead of distractions. Alas, I still succumb to bouts of procrastination, but these typically come after lengthy study sessions or the finalization of a large project.

These two tools are still core to my workflow arsenal, allowing for newly discovered time to be used for brainstorming and innovative ideation, leading to my decision to incorporate my education as an MIS student, my endeavors as a future UX designer, and my dedication to commit to time-management discipline.

Implementation:

As a self-branded "technology geek", I have always admired the structure of applications and their potential to create functional interfaces that provide satisfaction through interactivity. This satisfaction is a direct result of well-designed "user experience[8]", abbreviated UX as previously mentioned in this case study. For example, a website that provides a UX with interactivity that provides feedback to the user (such as a visual cue upon selecting an option), redundant navigability (provision of multiple buttons that return the user to a core page), smooth performance (a buttery-smooth scroll down the page), consistent design/aesthetic language (consistent color complementation & above-average asset placements) will prove to be more effective at conveying its purpose than a website that focuses on pure style without functional navigability. Included on the following page are two snapshots of two different websites, providing good examples of UX design:

Amazon:



Amazon.com is my example of a website with good UX in mind. With their design choices, it comes as no surprise that their website is globally ranked as the 11th most visited site[6]. To begin:

- Amazon's color scheme of dark blue, sandy yellow, and white are not only readable, but are known representative of Amazon due to their strong market image related to these colors, therefore reinforcing their identity.
- The horizontal navigation menu across the top is persistent across all website navigation, allowing for easy access to account-based settings and services.
- The website's canvas allows for clear product displays alongside a brief but useful description; while navigating Recommended Product feeds, these product displays list in grid form, updating smoothly with minor delay.
- Through persistent marketing, all Amazon services and products are accessible with merely a few clicks, allowing the marketplace to seem endlessly convenient and encouraging users to continue to shop.

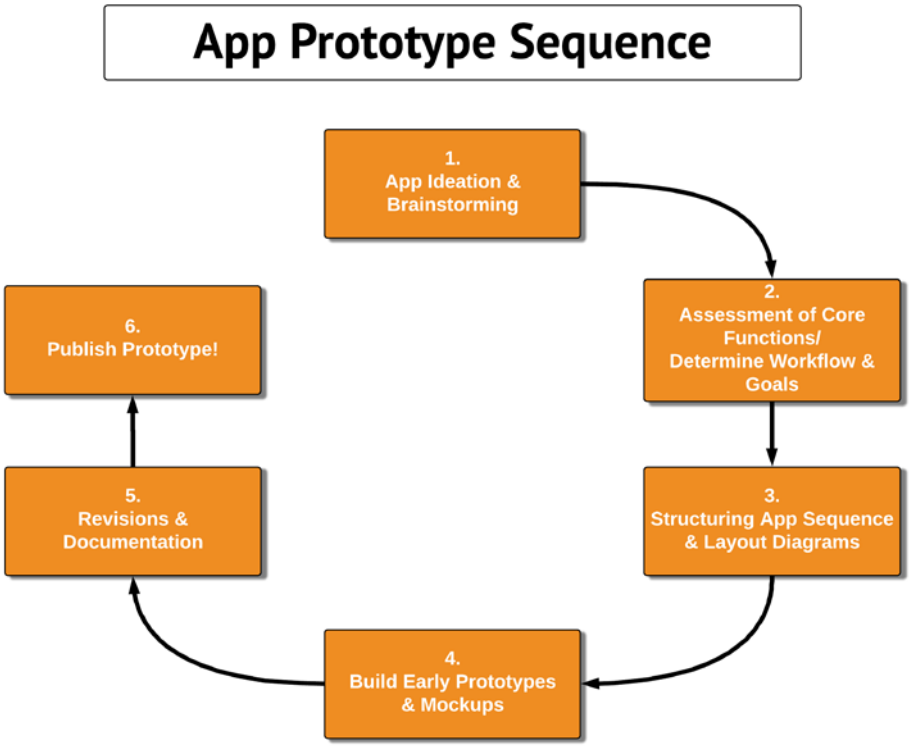
Uglytub.com:

Uglytub.com is my example of bad UX design, which I discovered through research in 2015. I am grateful to say that they have revised their web design and have improved their UX significantly. Some notes regarding their previous design:

- With the website's last redesign having been in 2012, their decision to restrict the webpage to 1024x768 resolution causes navigability to suffer.
- The company has provided too much information on their central home page, with abrasive imagery and uninviting blocks of non-rich text.
- The website hyperlinks across this page contain many duplications and false redirects to unrelated Uglytub webpages; the ad for BBB on the right is their unapparent main link to configure a quote.
- There is little-to-no aesthetic consistency, as there are a number of different uncomplimentary fonts, size discrepancies, and unfavorable color placements.

Between these two examples, it stands clear how the overall user experience may aid or hurt the users' enjoyment, directly affecting opportunities to increase user traffic and accrue an increase in retained users. These same principles apply to the UX provided on any installed mobile app, or even the interface provided in the latest blockbuster video game; if the interface is satisfying to use, it will stand out against the competition.

Presently, my career goal is to directly contribute to the prioritized expansion of UX design in web/app interfaces, as a means to prioritize standardizing a positive user experience while also maximizing on profitability through user loyalty. To begin building my portfolio, I decided to design an app prototype that integrates task-management principles provided by Trello alongside the filtering utility provided by Forest. By applying systems design skills learned in my MIS 450 capstone course, "Systems Analysis and Design", I began the process of prototyping this idea alongside its required documentation.



To begin, I defined the structure of this project and each required step of the process.

1. **App Ideation & Brainstorming:**

   I was committed to prototype an app that would serve as a solution to my and many others problem: performing as a time-management aid while keeping the user in focus on the tasks at hand. Through brainstorming, I allowed all forms of ideas to help build the core of the prototype concept, such as being able to connect to other services such as Trello to regularly import tasks; I also considered team-collaborative functionality and a customizable interface.

2. **Assessment of Core Functions/Determine Workflow & Goals:**

   This step required a review of the previously proposed ideas in an effort to trim unnecessary corners in order to design the UX around the central features of the app, productivity management. This meant that ideas like team-collaboration, interface customization, and Trello importing were not crucial to the apps functionality, therefore reducing their priority for implementation. The creation of Design Philosophy tenets will take place, as guidelines to follow to avoid feature-creep. As goals, I set forth to create a diagram that describes the app-human dialogue processes, the creation of a high quality digital mockup, and marketing material.

3. **Structuring App Sequence & Layout Diagrams:**

   To create an application, it is important to understand the relationship between every different screen you plan on implementing; Using diagramming tool Lucidchart, I will prepare a schematic representation of the app's sequence and its related processes.

4. **Build Early Prototypes and Mockups:**

   Early prototyping will be done by drawing out the layout of each important screen before being reimagined in high-quality graphics through the use of Adobe Illustrator and Photoshop.

5. **Revision and Documentation:**

   Nearing the finalization of the apps publication through thesis presentation, the prototypes will be edited to their final, presentable form. This includes any pending revisions to design, grammar in text, and accompanying documentation, such as this case study.

6. **Publish Prototype:**

   The high-quality mockups will be used to illustrate the application's marketing as a final demonstration of the prototype. This marketing will be broken down to demonstrate each proposed feature of the prototype, its qualities within the UX of the prototype, and its respective aesthetic design choice. The finalized thesis document will discuss the how the prototype serves as a solution for issues with time-management as well as the outcomes of dedicated time-management as studied for this project.

By setting these steps as milestones within the project, progression all came down to maintaining consistent productivity within the scope of this project, while considering that this iteration of the application prototype would be primarily focused on the desired overall user experience.

As previously mentioned, the brainstorming phase of this app ideation considered the persistent features of Trello in combination with a focused mode that blacklists any potential distracting websites. By trimming down to maintain focus on these two core concepts, development on the proposed prototype would strictly adhere to a set of rules; this is to ensure that full focus is applied

on properly implementing these features while avoiding unnecessary extra features that take away from the real focus of the project.

These rules are my Main Design Philosophy Tenets, which are:

1. Consistent Usability Across All Intended Platforms

   All interactions and data that occur in one instance of the application will sync and reflect identically when used on another platform; the design of the tool itself will be the same across all platforms for reliable navigation.

2. Redundant Navigability

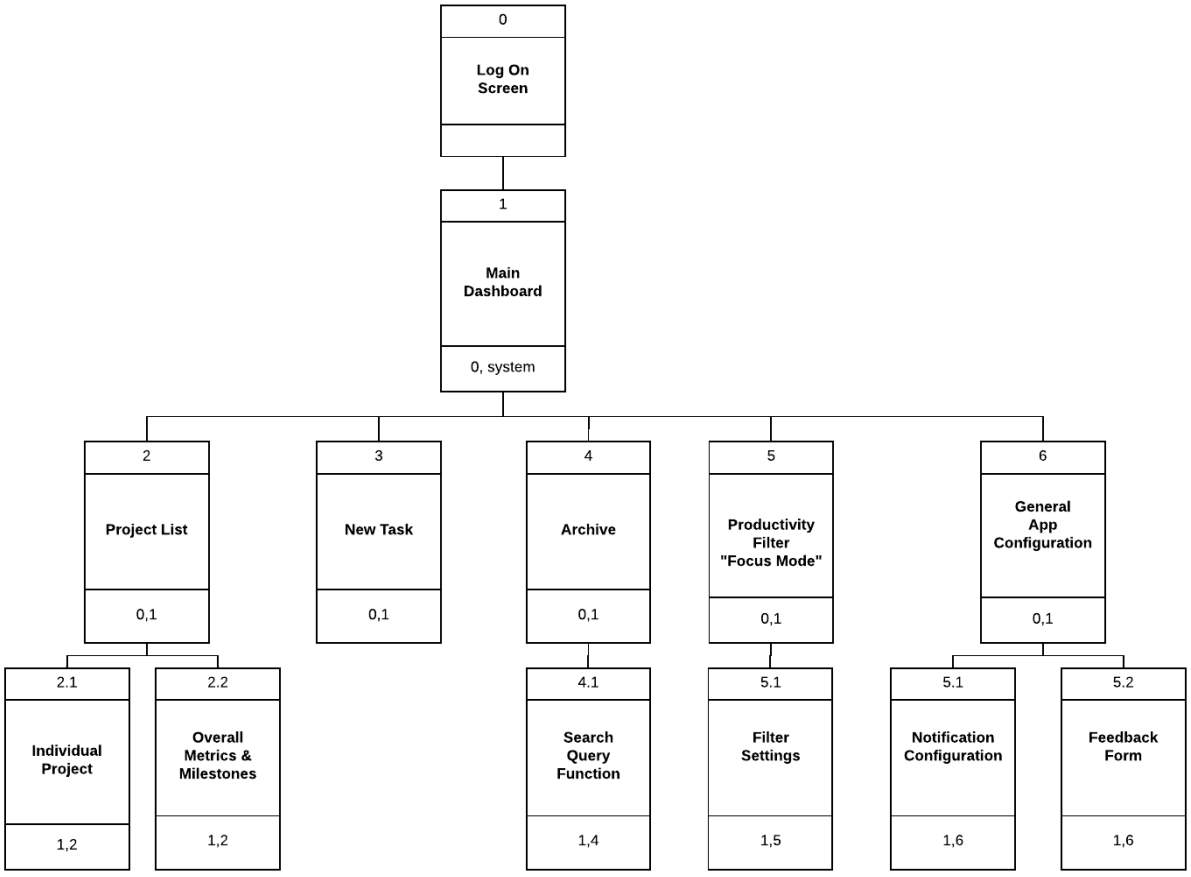
   The app will have easy navigability in mind, by allowing access to different screens through multiple different forms of interaction, whether it be an actively present button, one within the sidebar, or direct access from the notification itself.

3. Persistent Presence

   When used on a desktop computer or on a mobile phone, an active notification showing you which task is being worked on alongside any statistics or metrics related to the pertinent task.

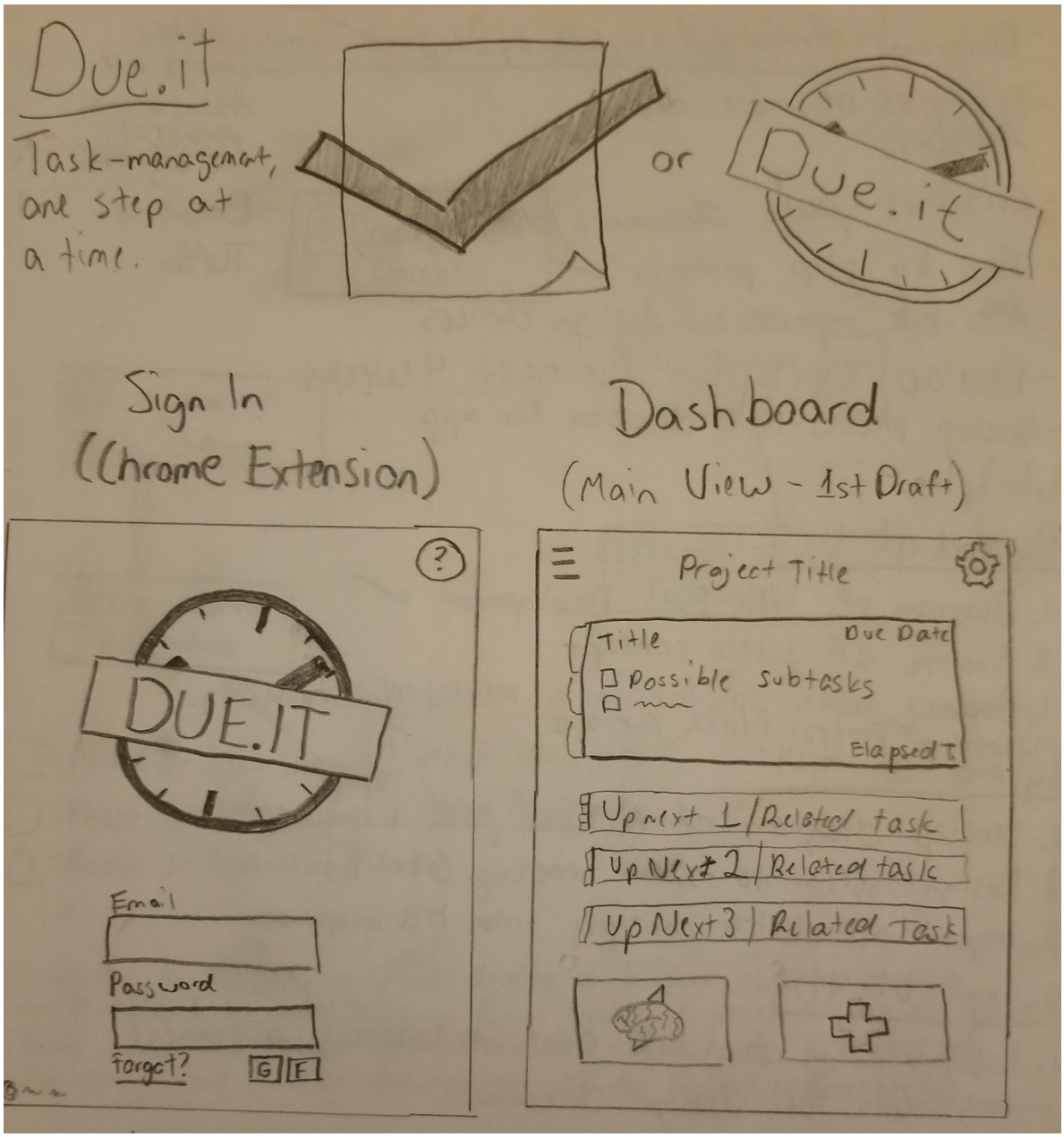
By following these core design tenets, I was able to develop an app-human dialog diagram that represents the relationship between each potential screen that comprises the basics of any application of web extension. This was created in web-app Lucidchart, a service that allows you to create any style of diagram you need through the provision of plug-ins that are reflective of the needs of many different IT systems, whether it be Entity Relationship Diagram of a database or the Process Sequence Diagram that structures an application.

App Dialogue Diagram



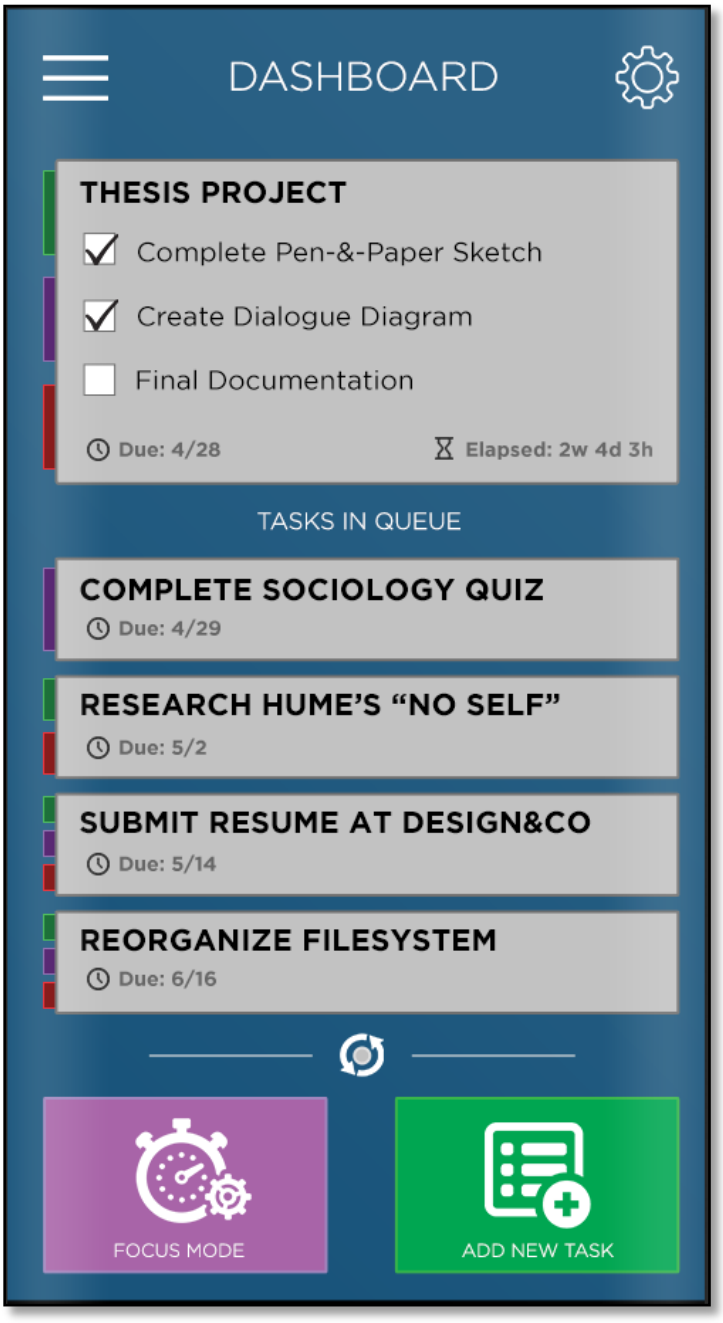
At this point in the development of this prototype, I had envisioned what I would like to name the application: “Due.it”, as a play on words that motivate a person to get a project done before it’s due.

After having established the diagram and structure of the application, the next step was to create the design prototypes for how the app would universally be presented to the user. I began with paper-and-pencil sketches of what I was envisioning the app to be.



As these were still early concepts for the app prototype and the related main screens, it still captured the simplified core idea, allowing for a quick translation with minor revisions to certain

button placements. Designing the initial revision of the Main Dashboard required careful consideration of app navigability, and content ratio. The next step was to prepare the mockup concept in Adobe Photoshop, and to create the Due.it logo in Adobe Illustrator.

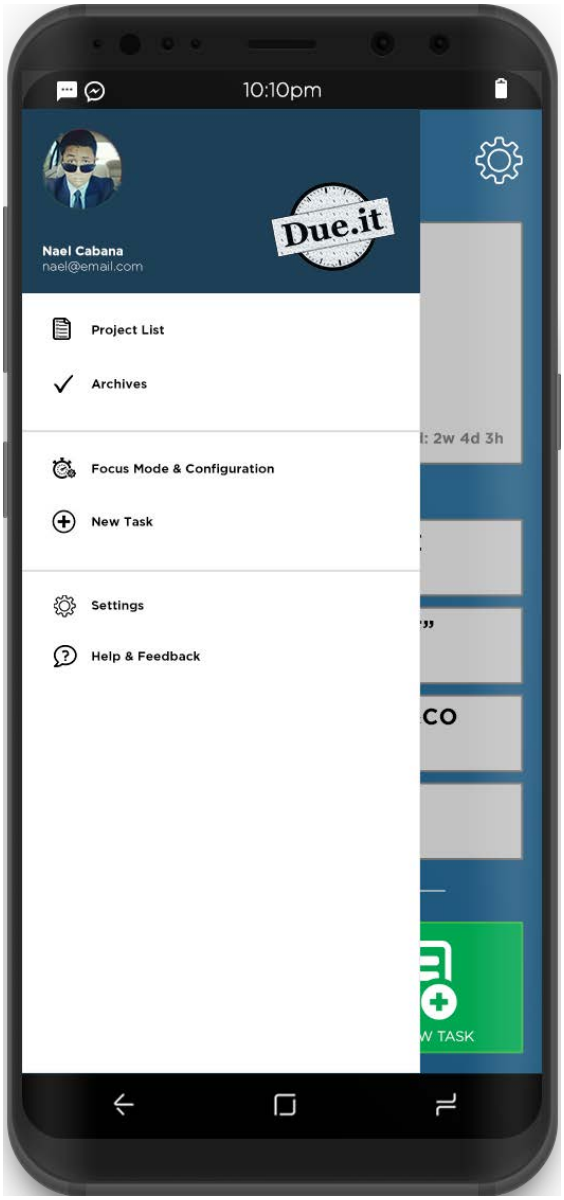


The final revision of the Main Dashboard expanded upon the initial ideas proposed in the first draft, in addition to specific design choices to maintain a modern aesthetic:

- All fonts are different implementations of **Gotham**, as their combination is bold yet sleek.
- The neutral blue background provided accessible placement for the tab colors and "Focus Mode/Add New Task" buttons with their respective purple and green.
- Content ratio was structured to avoid oversaturation of information.

The Main Dashboard was designed with current task completion in mind. The top section contains a hamburger menu (on left), the screen's name (Dashboard), and a Settings icon (on right.)

Immediately below is the Current Task, with its elapsed time since commencement, it's Due Date, any pertinent sub-tasks, and its colored labels for categorization on the left. Immediately below are the next tasks in queue, with the tasks title description and the upcoming Due Date. A refresh/sync button was added to manually update data to ensure data consistency. Finally, the button to enable the proposed Focus Mode is on the bottom left, allowing users to easily activate the mode and maintain productivity; on the right we have our Add New Task button that will allow you to create a new assignment.



Secondly, I've created a sidebar with additional options that would be accessed through the hamburger menu on the Main Dashboard. Through the implementation of the options on the sidebar, the app prototype satisfies Main Design Philosophy Tenet #2: Redundant Navigability. Offering multiple methods to transition to another page allows users to experience more control during their app usage experience.

On this sidebar, we see the next qualifying options to reach the next potential screens, as designated in the App Dialogue Diagram:

- Project List and Archives are exclusively accessible from this sidebar.
- Focus Mode and New Task are accessible from the Main Dashboard in addition to this sidebar
- Settings are accessible from the Main Dashboard in addition to this sidebar, but Help & Feedback are only accessible through the sidebar.

Thirdly, I have designed an app login screen. I have kept this design short and sweet, as there is no need to add much content; this Login screen would allow users to sign in permanently

with their assigned User ID and Password, while also accepting credentials from social media giants Facebook and Google.

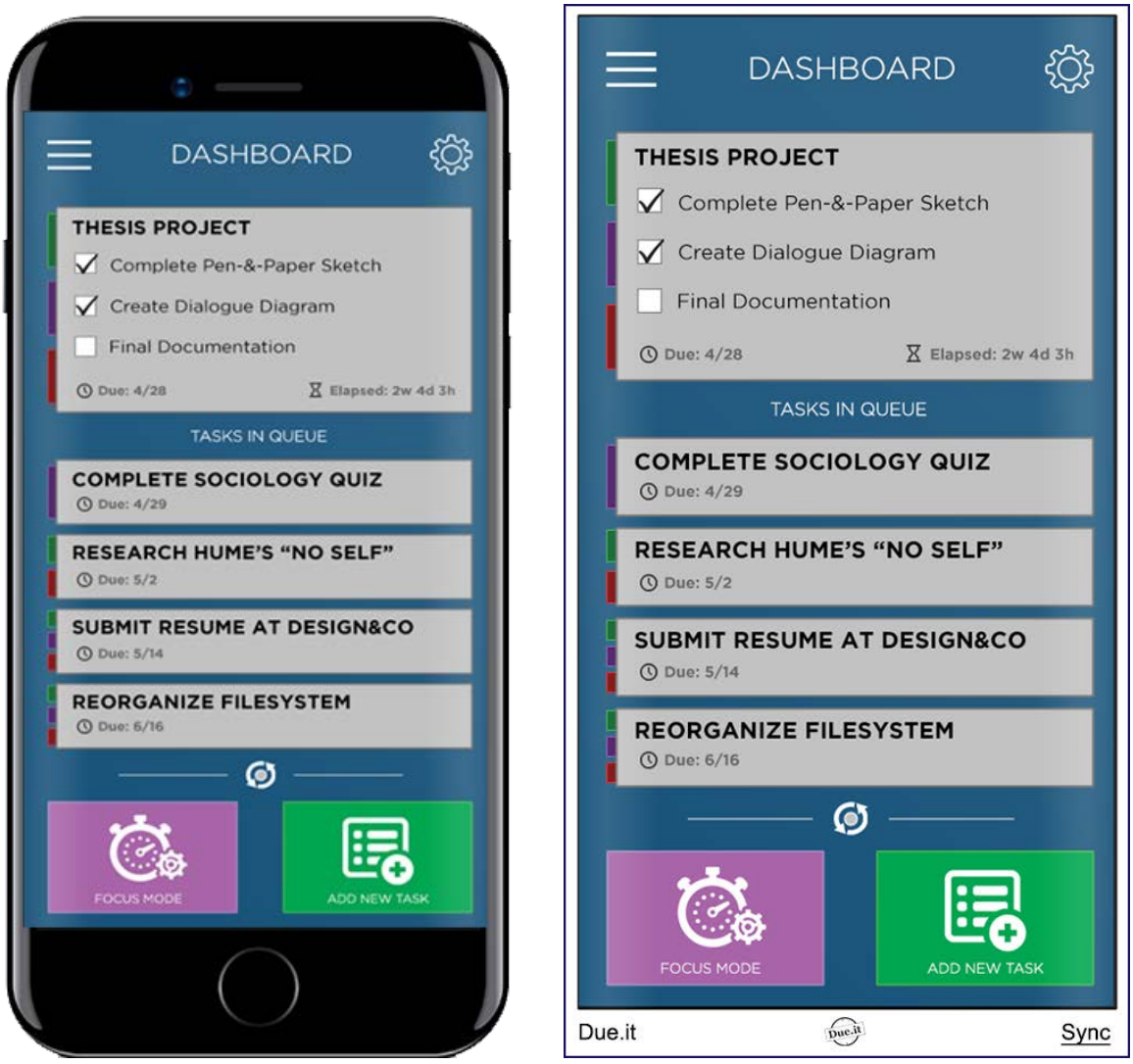
I have designed the "Due.it" logo to resemble a stamp, in relation to the usage of stamps to represent completion and to move onto the next step, such as a stamp seal on the back of a letter in preparation for its submission, or a financial form facing acceptance or declination.

Finally, at the very bottom I have included a button that would allow you to sign up for Due.it, moving to the next steps to create your ID, password, and entering personal information that would be typically stored securely in a server. Considering this is simply an app protype design, I have forgone the design of the Sign-Up pages; it is important to note how complex app creation can become, due to the requirement to maintain the relationship across several screens, all serving different purposes while still needing to be designed for redundant navigability.

Next, I designed the concept for the notification that would be seen on Android and iOS devices. Its existence fulfills my Main Design Philosophy Tenet #3: Persistent Presence, as the notifications intention is to always be at the forefront on your mobile device and desktop, offering convenience of information with a quick glance.

The displayed notification is framed on a Samsung Galaxy S8, an Android device. For iPhone, the notification would display the same information while following the consistent notification design offered on iOS. As a Chrome extension, notifications persist through push appearances on the lower right corner of the browser; if developed, this application would take advantage of all methods of communication in order to maintain ongoing productivity.

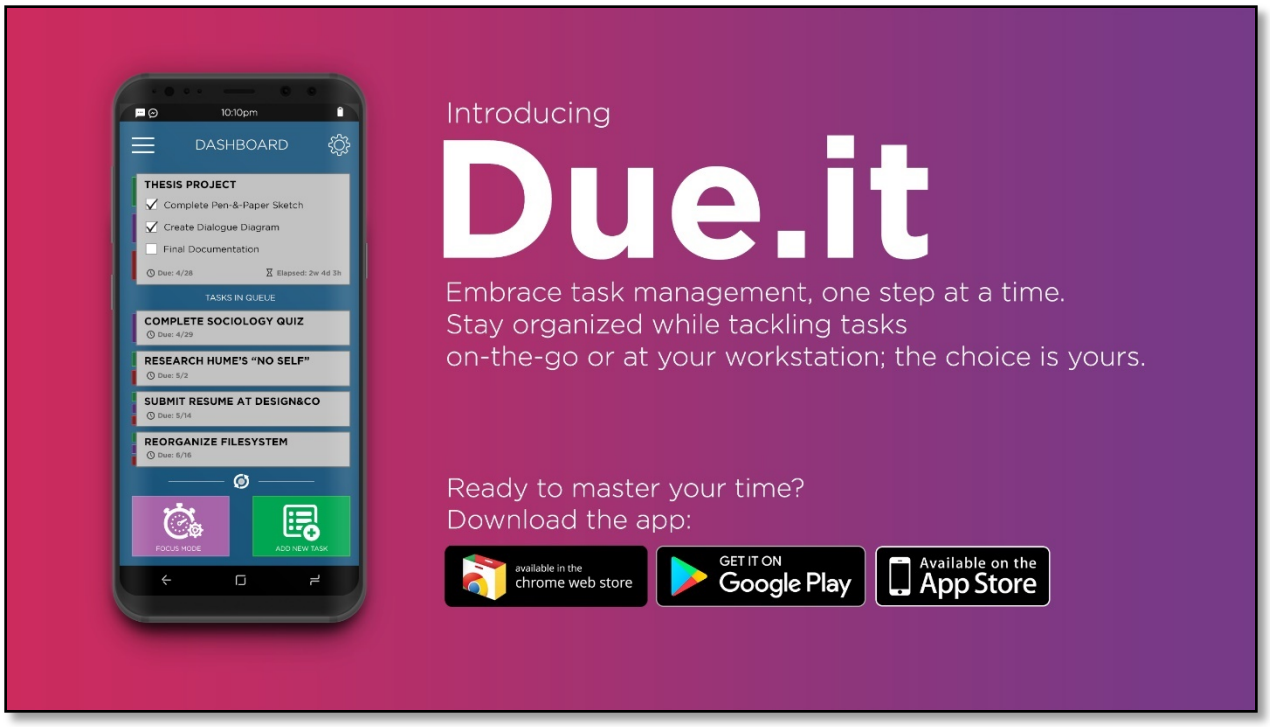
Regarding the design of the prototype and its appearance on other platforms such as iOS and Chrome, I appended the Main Dashboard in both perspectives in order to visualize how the prototype follows the very first Main Design Philosophy Tenet: Consistent Usability Across All Intended Platforms. Below are the designs for iOS on the left, and as a Chrome Extension on the Right.



To maintain consistent usage across all platforms, the design choice to allow taps or clicks was a priority. Additionally, I provided the Chrome Extension design with an external Sync Button.

This was added to resolve any issues if the extension were to freeze or become inoperable; browser processes are handled differently than mobile applications, where the operating system allows force closing as a natural component of usability.

Through the finalization of these mockups, all edits and corrections have already been applied to maintain efficiency; it would be disadvantageous to return and edit fully rendered high-quality graphics. Additionally, all documentation has been included in this section of the case study, therefore wrapping steps 4 and 5 of the App Prototype Sequence process together. Therefore, the next step is to publish the prototype; below I have attached the marketing I have designed for this application.



The marketing mockup was designed with online publication in mind; the use of a gradient background hosting a sleek combination of fonts, an Android mockup of the Main Dashboard, and a description of the app alongside its purpose. The language within this mockup is targeted

towards users that could benefit from the adoption of persistent time-management while on the go or at their typical desktop workstation.

Personal Reflections & Outcomes

Beginning the work on this thesis project, I faced great uncertainty with my quickly approaching graduation and transition onto my career path. Additionally, my struggles with time-management were not something I would like to carry over for much time entering my professional life. Fortunately, through the development of this app prototype, the realization that UX design is a personal passion was essential for personal growth: maintaining consistency in productivity will has always been dependent on levels of care. This directly ties into my negative productivity habits, as my dedication and focus towards the completion of a task is largely reliant on general interest and how said task falls on the constantly updating list of priorities. However, my personal recognitions regarding my own time-management skills are more introspective in nature. I came to realize that my inability to correctly budget the use of my time decidedly comes from a lack of structure within my workflow. With multi-tasking having taken the forefront in my productivity due to the convenience technology offers us, allowing my brain to focus on a singular task is difficult at times, even though complete focus is when I will be performing my highest quality work. I consistently envision ideas and projects that I would like to follow through with but ultimately fail to appropriately design the steps to get there that will make said project manageable. It is important to take one's eyes away from the prized finish line to better understand the processes required to make any substantial progress.

In designing "Due.it", the division of labor into sizeable chunks allowed me to realize one of the many ways I have been poorly utilizing my time. The completion of individual steps within a project serve as a growing foundation that can stand as motivation to keep going; consistently

building upon that structure will significantly impact retention of interest rather than attempting to tackle unrealistic task completion due to procrastination or a lack of self-developed discipline.

It was very enjoyable to slowly witness how the correct completion of each step comes together to form the big picture we all crave to be completing. This satisfaction may be aided using tools such as Trello or Forest, but it will all come down to developing that personal discipline to best understand ones budgeted-time and its consistent utilization without falling victim to procrastination, multitasking, and poor allocation of priorities.

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