TimeWork: Reducing Busyness by Providing an Insight and Understanding about Courses and Their Time Commitments.

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Abstract

Being too busy is becoming an unhealthy trend in today's world with many overloaded with information from their cell phones, laptops, and their connection to the Internet. "Busyness" isn't just about having too much work to complete in a given amount, but it can also be a feeling. Students often feel busy with their class schedules, extracurricular activities, and homework assignments overlapping with one another. Students often feel too busy during the semester and sometimes it's too late for them to drop classes. *TimeWork* aims to give students the opportunity to better choose their classes and improve their time management to feel less busy by having a better understanding of their schedule and workload.

Introduction

In today's age, everyone seems to always be busy [9]. People are either consumed with work, can't find the time to do everything they need or even want to do, or feel overwhelmed by all the things they have to do. It seems as if it has started to become a trend to experience a loss of time or a loss in the ability to control and manage their time. College students make up one of the busiest populations yet. Between balancing an academic workload with extracurricular and personal activities and the occasional curveball life throws at them, students are feeling evermore pressed for time that they cannot seem to find or allocate properly.

The rigorous experience that is attaining a college education is no easy task. It is therefore to no surprise the fact that many college students are constantly busy and find their academic experience to be either incredibly time consuming, stressful, or both. One of the main factors that contribute to a high level of busyness is the academic workload [7]. College students have a plethora of assignments, commitments, and responsibility inside and outside of the classroom that need to be met in order to successfully meet the requirements for achieving a good performance. This can include reading books and completing reading assignments, conducting research and writing papers, doing homework assignments and projects, studying for exams, and learning course material, all by a given deadline [6, 1, 7].

The workload can become overwhelming due to the fact that assignments and deadlines for different classes tend to overlap with each other. College students take on average four to five classes, and each class has a

different workload, difficulty, and set of tasks and assignments from the other [1]. Within a class, the tasks scheduled throughout the semester may all differ in the amount of time needed to complete, the complexity of the assignment, the priority of the tasks, and deadline. Students need to pay close attention to the specific expectation for each course and related work, and have a clear understanding of what needs to get done, by when, and how long it will take [2].

College students, have a limited amount of time available throughout the day. This time needs to be balanced and delegated between academic and non-academic events [1]. Students sometimes feel that the amount of work they put into a class or task depends on how much time they have available [2]. Students need to manage their time effectively in order to get everything done on time and well. However, this is tricky, as many students have reported that their greatest personal need is to manage time more effectively [1].

If students cannot properly manage their time and allocate it well, they will become overwhelmed and will feel stressed out, leading to poor academic performance. Poor time management or even cramming and leaving things for the last minute are some common results of being too busy [6, 7]. A severe consequence that can be attributed to these factors is excessive stress, both physically and psychologically. Only by means of proper time management and social support can students reduce stress and improve their well being [7]. This is essential for students to master in order to successfully get through their busy schedules.

Background Information

Implementing effective time management (TM) is a mechanism that can help busy and overloaded college students set, manage, and balance the use of their time more efficiently. TM is a behavior that when practiced properly can affect how much people can achieve, how much time they devote to a task, and the level of productivity and quality with completing the task [7, 1].

Without proper TM, college students will surely face several consequences. Studies have shown that students who do not engage in effective TM when completing tasks will tend to be more uncertainty about what needs to get done, be more overworked with work, experience more tension, and experience the sense of losing control of their time [1].

Conversely, studies also have shown the positive effects and benefits of proper TM. Proper TM can lead to a better structure and organization throughout the day and during periods of work [6]. This can come as a means of engaging in more efficient study habits, having a clearer set of goals and tasks, and following an outlined schedule. Proper TM also facilitates productivity, providing students with a better sense of feeling in control of their time and the accomplishment of their tasks, leading them to accomplish more, perform better [7, 6, 1]. The results of these studies have shown that those who engaged in proper TM experienced an improvement academic performance; they perceived their work to be easier to accomplish and resulted in an increase in GPA [1].

Because of the organization and structure that proper TM skills have on students' balance of and allocation of time, utilizing the skills can be an effective source for an improved health [1]. Those who exhibited proper TM

not only improved academically, but they experienced a better psychological well being [6]. These students reported to have been more optimistic about their goals and the near and far futures, experienced drastically lower tendencies to feel depression, hopelessness, distress, and anxiety, and were marginally more satisfied with their performance and outcomes [6, 7].

In order to implement effective TM, it is essential for students to plan and have an understanding of their availability and of what is expected of them to accomplish [1]. An adequate way to ensure you are balancing your time properly is identify each task, set up goals to accomplish, prioritize each goal, and allocate time accordingly [6]. Prioritize goals into the order in which tasks should be performed and how much time to spend on each by taking note of important dates, and keeping a scheduled to-do-list [1, 6]. By doing this, students will learn how to develop well-organized work habits and ensure having a clear idea in advance of what is expected of them in order to efficiently and successfully accomplish each task [7].

Preliminary Interview Findings

In order to get a better and more accurate sense about how Cornell students perceived their busyness, we conducted an initial round of interviews where we addressed students' time management practices.

We found in all of our interviews that students usually have some sort of device, whether it is a paper planner, smartphone, or laptop to keep track of assignments for their classes. Whether lazy or hard working, students consistently can't keep track of the events and are always concerned with the amount of work that needs to get done in any given week.

Across all our interviews with students, we discovered unique behaviors when it came to their work ethic and their ability to manage their time. From the data collected and analyzed from these interviewed, we created three personas that were used to facilitate and guide the remainder of the design process.

The first persona we created was of a self-admitted lazy computer science major who is quite efficient when he actually starts doing his work. Another is a history major who spends a lot of time procrastinating during the day, but works sufficiently during the night. The last is an operations research major who is incredibly efficient and diligent and loves starting her work ahead of time. Let's refer to them as CS, History, and OR.

CS usually isn't too stressed out by coursework, but that it is very important for him to manage his time so he can get his work done. CS discussed various tools, one of which includes makeshift digital post-it notes on his computer that help him be incredibly efficient. While he occasionally has a lot of work, it ends up not mattering too much since he gets it done quickly, often finishing it with plenty of time before the due date.

History, on the other hand, feels quite busy all the time. He sees his roommates do not do as much work all of the time and envies them for that because he seems to always be spending time on some type of academic assignment because he procrastinates a lot and leaves his work to the last minute. He usually plans his schedule in a paper planner and has found no problems with it so far.

Lastly, OR uses a combination of a paper planner and a digital program called Momentum to write down her schedule. This helps her be disciplined, as she sets her own deadlines ahead of time so she has more time to

review material. Regardless of the good time management, she still feels quite busy all of the time.

When asked about scheduling and choosing classes, the majority the students interviewed agreed that requirements come first and opinion of the class comes second. Some additional comments included that some students prefer to take classes that require less time and use many of their contacts to decide which of two classes is the easiest. Another comment was that students would wish to be able to know beforehand how spaced apart assignments were going to be and how long each assignment has taken previous students so that they can plan their weekly schedules accordingly.

While all the students shared different work ethics, they were all conserved about managing their time and minimizing the amount of workload they had. They all use digital and non-digital ways of managing their work at hand, but the only way they'll know how many hours of work they'll have in a given week is based on estimating their friend's response to the question "How long did it take you to complete X assignment?" A key finding is that students may not necessarily want to take less classes because of the amount of requirements they want to meet, but students *do* want to feel less stressed out and have a better understanding of the workload, especially with multiple deadlines overlapping amongst their classes.

Existing Technologies

We decided to take a look at existing technologies that students use to help them select which classes to take and to manage their time and assignments in order to understand the benefits of the different methods and guide us towards designing a more practical solution.

RateMyProfessor

RateMyProfessors.com is intended for college students to interact, connect, and share information about past experiences with professors. The site attempts to give students sufficient resources to choose the best courses and professors. Students can check in with other students and figure out which professor will be great to take a class with or which to avoid.

RescueTime

RescueTime runs in the background and tracks specific phone usage to give an accurate representation of how much time spent on activities by providing reports showing the time spent on different apps. It allows you to get a good perspective on your phone habits in order to set goals and take actions to accomplish them.

Google Calendar

Google Calendar is a time management application that can be used to organize events into a schedule that's easily accessible. Users have the option to view, add, and drag-and-drop events from one date to another and can view their calendar in weekly, monthly, and agenda modes.

myHomework

myHomework is an application that allows students to manage and keep track of school assignments. This app is essentially a digital version of the student planner that sends notifications about an upcoming deadline.

Course Evaluations

Course evaluations are online surveys given out to students at the end of the semester to gauge overall feedback about the course, professor, and the student's learning experience. These are optional for students to fill out. Only the instructional staff see the responses.

Application Goals

College students need to recognize the amount of time their schoolwork will require and prioritize this in relation to other commitments. This can be aided by an improved faculty-student communication to increase students' understanding of the course requisites to ensure success [2]. As our preliminary interview findings have showcased, college students are known for using a vast majority of resources that provide information for better decision-making, but the most popular methods rely on online resources and the past experience of friends and peers. Students heavily use these methods when they are trying to figure out which classes to take the upcoming semester.

Therefore, we sought out to develop an application that would provide college students with a better understanding of the commitments a class requires in order to allow them to effectively allocate their time onto the different assignments for all of their classes. This application will allow students to assess the proper information that would allow them to break down their tasks, set goals, and prioritize them to gain a better sense of how much time a course will require and plan their schedules accordingly.

Design and Technical Considerations

Because most college students use their laptops when working, we chose to create a desktop application. Our application is designed to give college students a better idea on how much work they should put into future assignment and how their performance compares to other students in the class. This functionality is designed to make users more aware if they are putting in enough hours for classes. Additionally students can shop for classes by looking at time spent by previous students on prospective classes to pick a schedule that is better suited for their needs. This application can be used to avoid creating a crowded schedule that would make the individual feel stressed.

Our application consists of two main categories "Logs" and "Overview". The Logs section of the website is intended for students to contribute to their community by submitting their hours posted for each class they are in. The ability to log hours is an important aspect of our application and is necessary for other students to reap the benefits from [5]. Contributing is a vital aspect of our application and we want to make it as quick and easy as possible for users to enter in their personal data regarding homework and assignments. This contribution is beneficial to the community because future students will have a better understanding of the breakdown of each assignment, how long it takes, and the grade they could expect based on the number of hours put in [3, 4].

This brings us to the second part of our application, the "Overview" page, which displays all this data that students have logged on a weekly basis. The overview page breaks down a student's schedule into their classes and displays the amount of hours a student should spend on that class that week based on statistical data. Furthermore, each individual class shows statistics how the amount of hours spent on an assignment vs. the grade previous students in the class received. Displaying the number of hours a student should spend each week to achieve a certain grade is a solution for students feeling anxiety over the amount of work they have [2, 8]. Instead of them guessing how they'll break up their day for each class, student's can see actual performance of previous students to get a better understanding of the class's expectations and their own time.

User Interface Features

Figure 1a represents the first screen users are taken to when the overview button is clicked. The users can see how many hours were put into each class over a week in February. The pie chart is broken up by their current enrolled classes and the hours displayed are based on averaging the statistics from previously logged data.

Figure 1b represent the effect of clicking on "COMM 4400." Users are taken to a screen showing the hours and grade for each assignment in the class. Users can also view how well they did compared to other students in the class for each assignment. If an assignment is not complete students can still see the graphs for their assignment to gain insight into each assignment's length and difficulty.

Figure 1c demonstrates how to log hours for each assignment. Users have the ability to select different assignments for each class and select the amount of hours put into each one. This would be a requirement for all students to fill out when turning in assignment.

User Testing

For our user testing we recruited several students and gave them the opportunity to interact with some of the stills we had for our prototype. We screenshot each page of the webpage and asked users to perform multiple tasks and asked them to think out loud as they navigated some of the pages on our website. This style of user testing allowed us to see students interact with a low-fidelity prototype without coding any part of the website. When a user touched part of the screen we unveiled the corresponding next page of the website and asked the user if this is what they expected on the page. This process was achieved by simply advancing the slides of the assets we created for the web pages and gave the user a feeling of an interactive and dynamic website. We also gauged their view on the purpose of the website, target audience, and how the web page could be improved to make navigating the site easier.

Discussion and Future Improvements

Our user testing data showed users generally had an easy time navigating and understanding the

Figures 1a (LEFT), **1b** (MIDDLE), and **1c** (RIGHT) depict the user Interface of TimeWork.

a

b

c
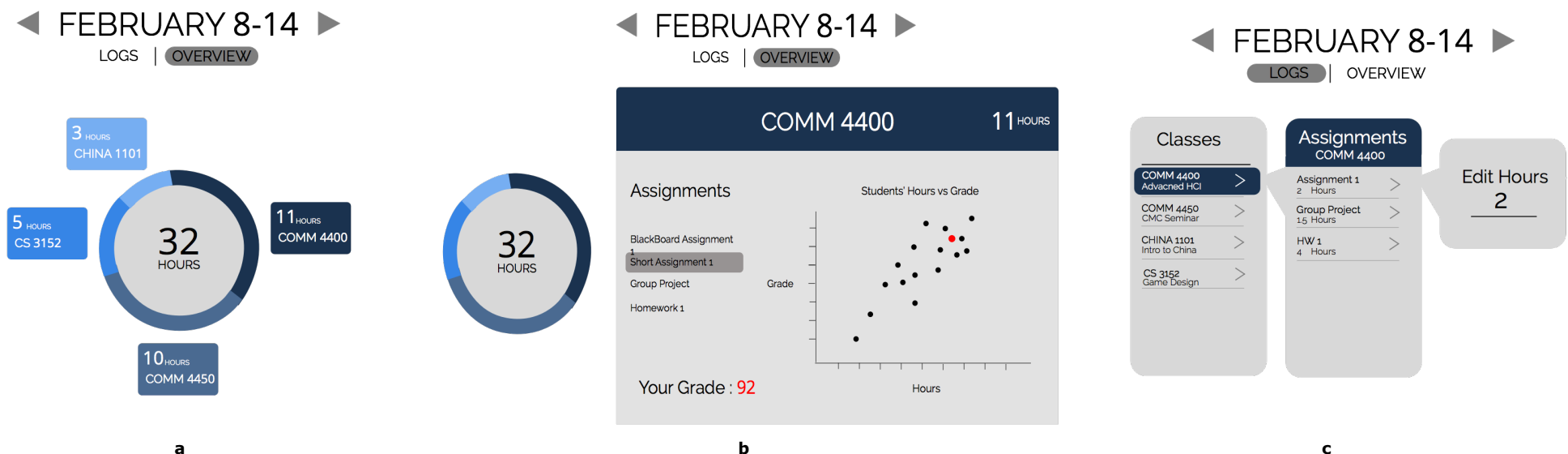
application, but had trouble in a couple of areas. One user thought that clicking the amount of hours on the overview page would take him to the logs page. To fix this, we could make the log button more visible. Additionally this user did not find the weekly breakdown of hours helpful since he did not know how many hours were in a week. He suggested that we make the hourly view daily, which would give him a better sense of a breakdown of his work habits. He initially did not understand what "Overview" meant so we could change it to "Statistics".

We also considered ways to improve user experience apart from our user feedback. Integrating assignments and logging hours could be a potential issue since there is little incentive to users to accurately log all their assignments. One solution is for class instructors to give out extra credit from since this application would also help instructors become more aware of student work habits. Additionally we would like for users to spend more time on our application, which could be solved by adding a comment feature for each assignment. Comments would allow users to interact and give feedback to each other, helping users become more aware of and have more control of their time.

Conclusion

Our initial goal was to come up with a unique solution for students to be less busy at college. The primary research that we gathered demonstrated that college students are overworked and don't have great time management skills, which lead to a busy lifestyle with, increased levels of anxiety and stress. Students have varied work habits and often have overlapping schedules. In addition, students feel anxiety over not knowing how much work each of their class's will have and how to divide that time up to maximize productivity. Our web application, *TimeWork*, sets out

to give students more awareness regarding their classes and helps them visualize their time. While visualizing time is great for students to better manage it, one of the biggest obstacles for our application is providing incentive for all students in a class to use it, and thus create a community. *TimeWork* strives to give students more information about their classes based on statistical data, but how they use that data to better manage their "busyness" is up to them.

Acknowledgements

References

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APPENDIX I

Preliminary Interview Protocol

Consent

Ask students before the interview for consent in participating in our anonymous data collection.

In-Depth Questions

1. What is your major, year, and number of classes/credits you usually take per semester?
2. What are the most important factors in choosing a class?
   a. (If not in response) Is [time, difficulty, requirement] important?
3. How do you find out information about certain classes or the amount of work/assignments/time commitment involved for them?
4. How do you go about managing your free time vs. time spent working?
5. Do you use existing technologies to manage your time?
   a. If yes, can you walk through some of these technologies for us?
   b. If no, what do you use to manage your time?
6. Do you always get your work done on time?
   a. If yes, what study techniques/habits do you use?
   b. If no, what are some obstacles that deter you from completing your work on time?
7. If you could change one thing about the technology you use today that manages your time, what would it be?
8. How do you think the amount of time you put into your classes compares to other students?
9. Why is it important to manage your time at school?
10. How would gaining access to more specific class information such as hours of work per week would affect your work habits?

APPENDIX II
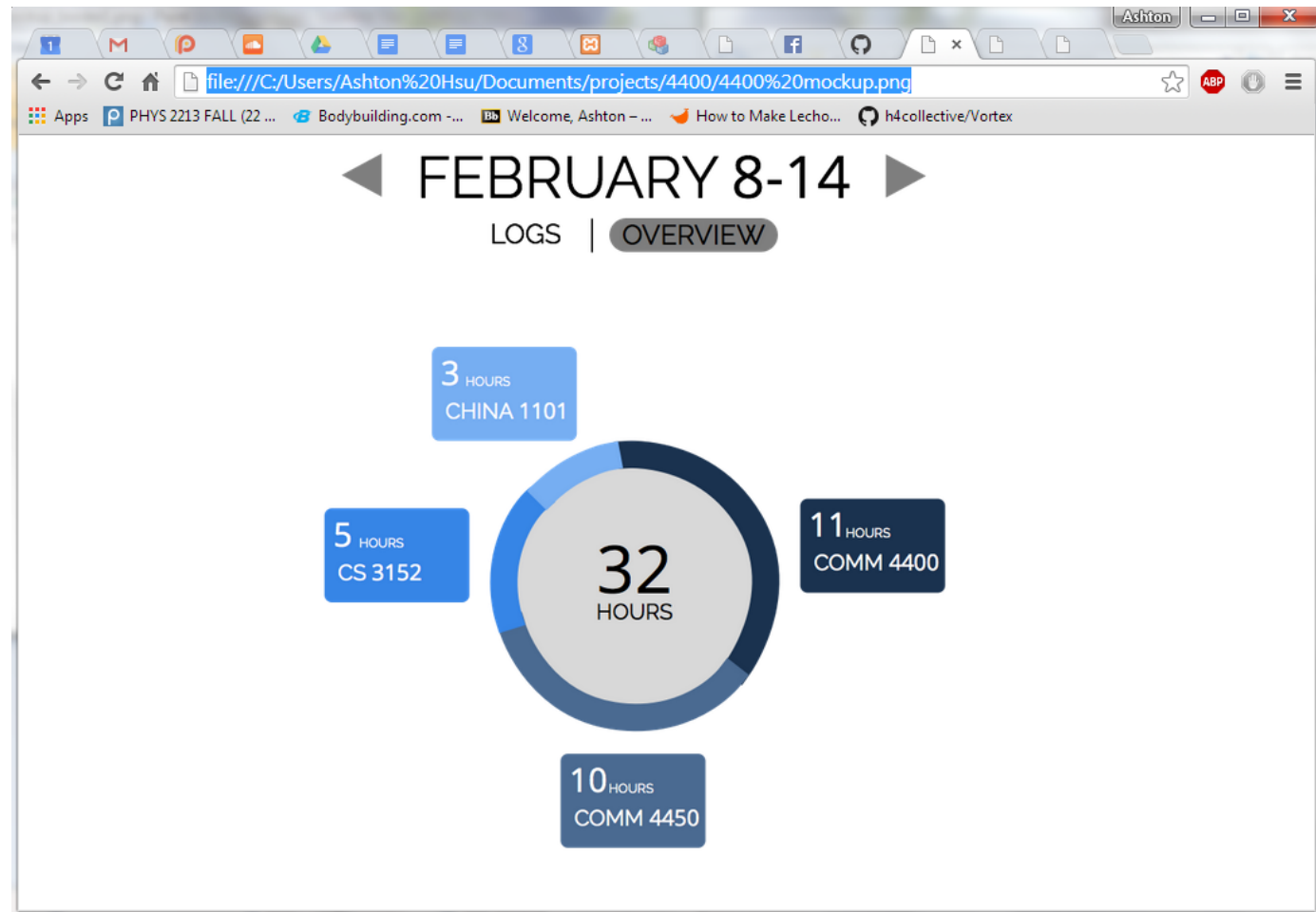

User Testing Protocol

Consent

Ask students before the interview for consent in participating in our anonymous data collection.
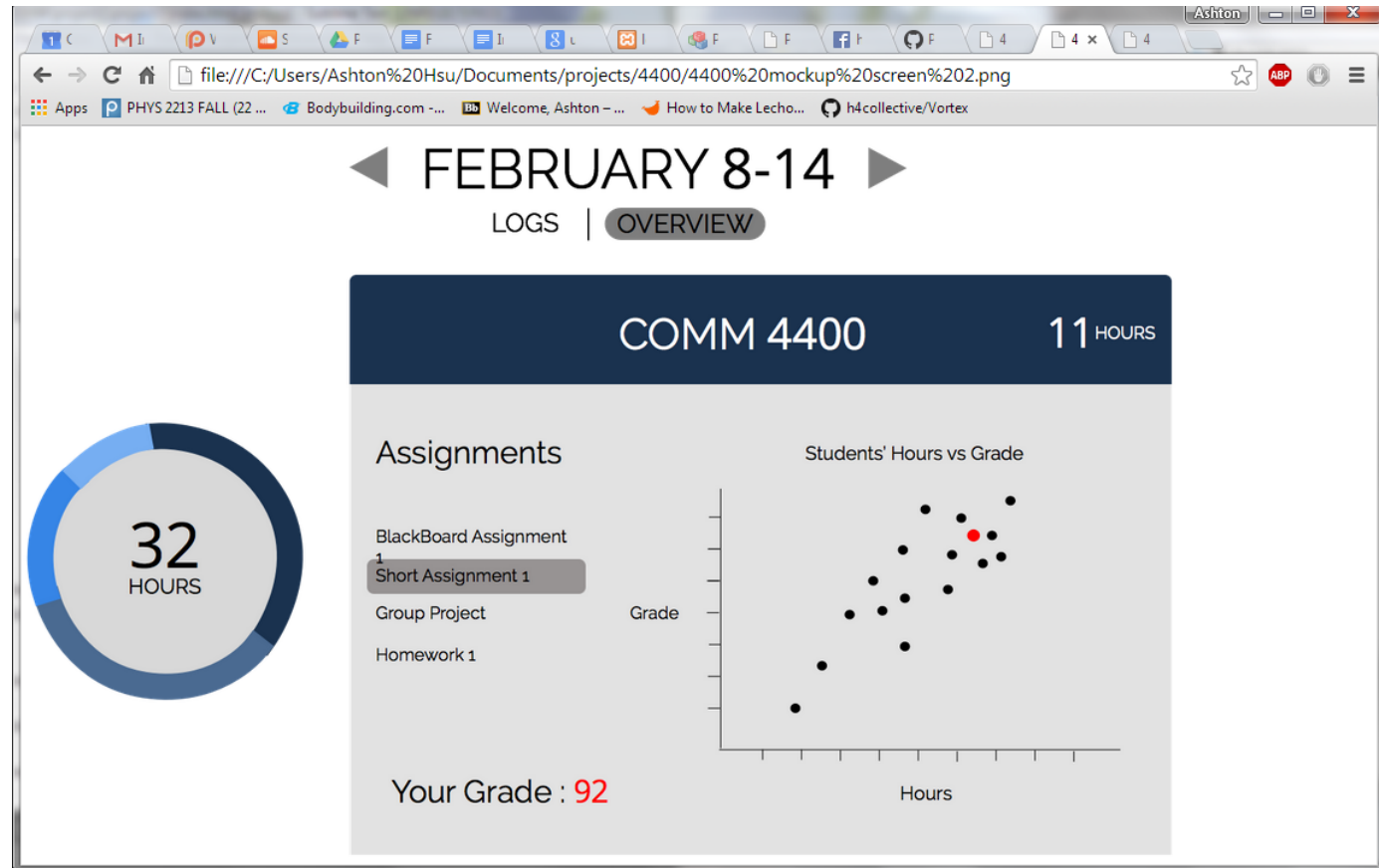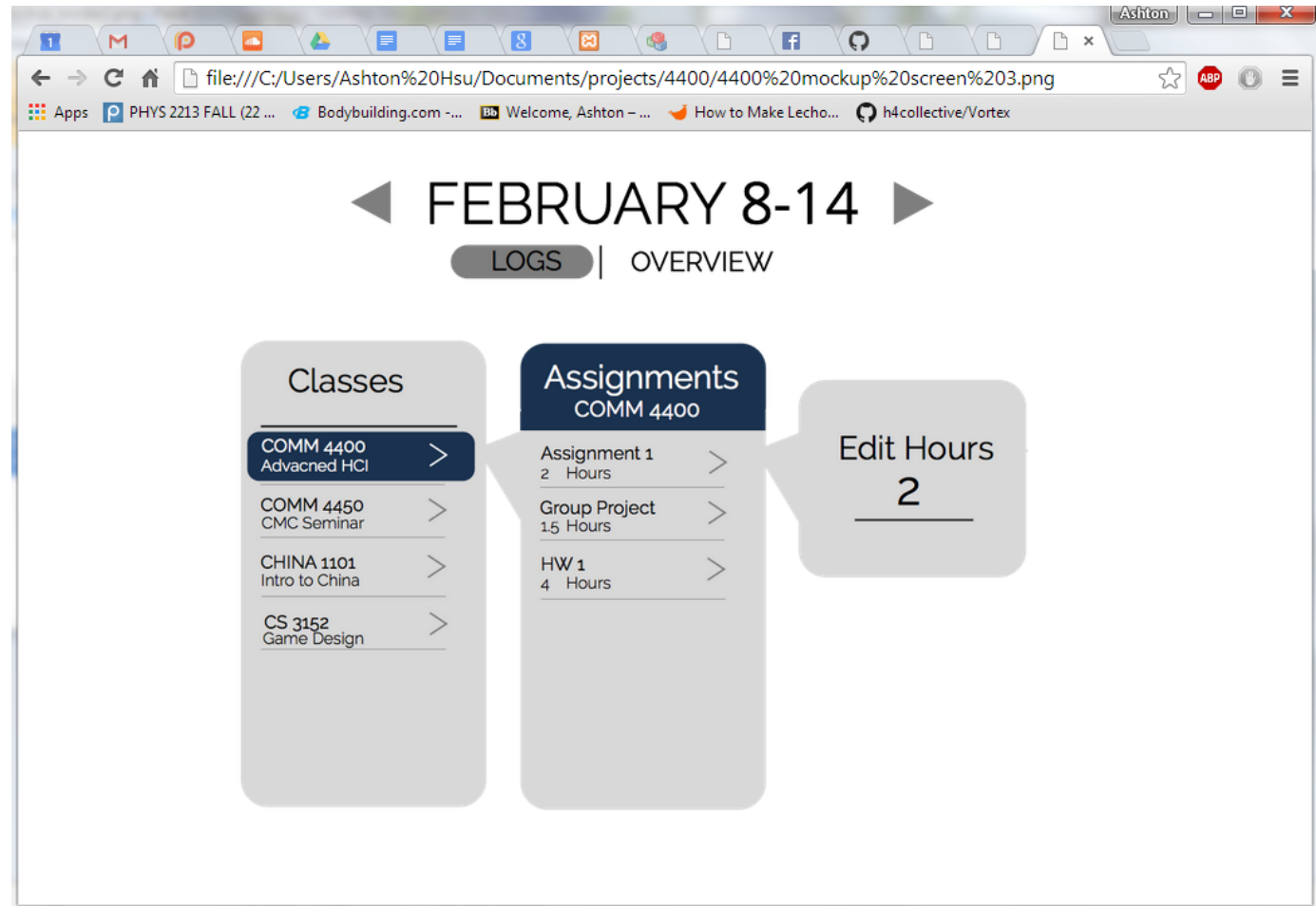
In-Depth Questions

1. Show them interface and ask them what they think the purpose of the application
2. Have them interpret what they think the pie chart represents.
3. Ask the users to look up information about COMM 4400. (Note their reaction)
   a. Ask the user if the screen they navigated to is what they were expecting.
4. Asks the users to interpret the graph.
5. Have the user log their hours for a COMM 4400 assignment.
   a. Was this what they expected?
6. What would be a more intuitive way to log your hours?
7. How else should the information be displayed?
8. Does the wording make sense "Logs" and "Overview"? What would you call these pages now that you have seen their results?
9. How would this application help you feel less busy?
10. Who do you think the primary target audience of this application would be?
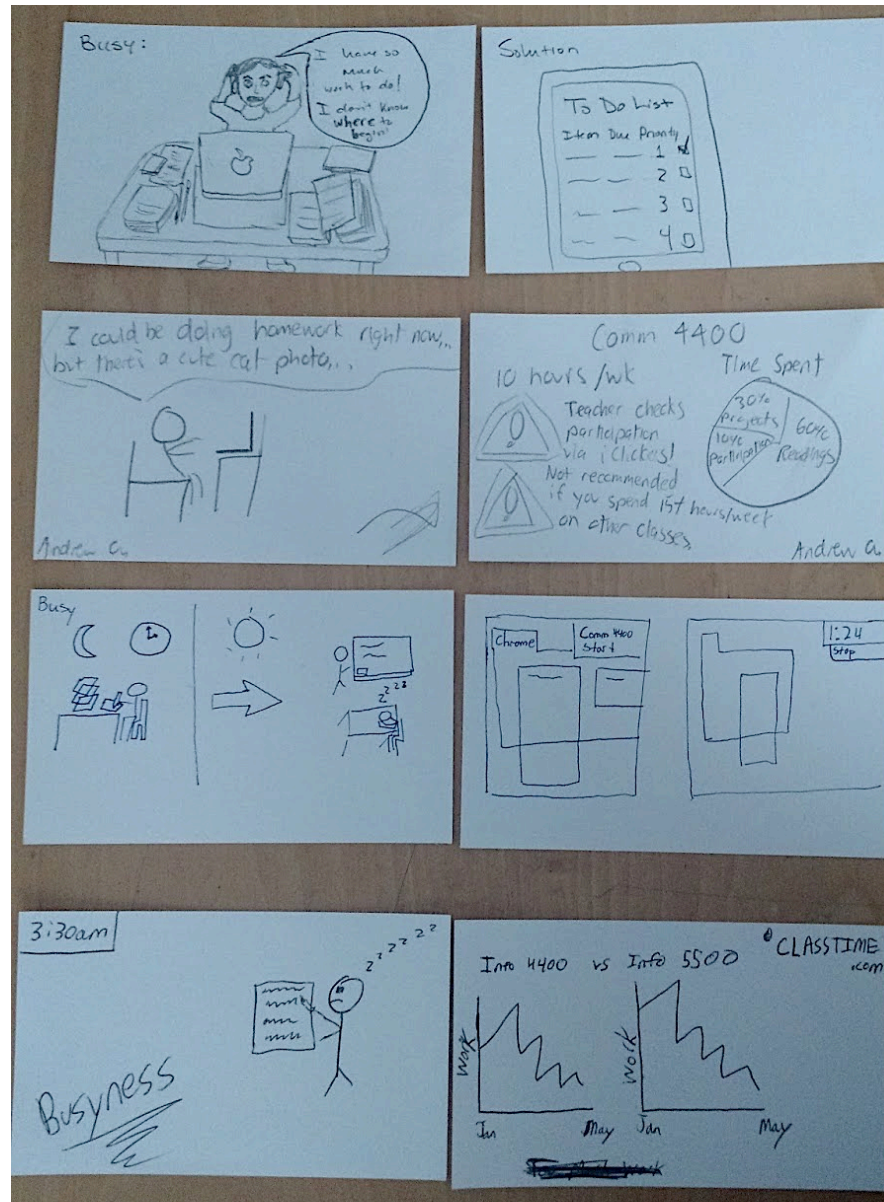
Additional Supplementary Material

Prototype Screenshots

◀ **FEBRUARY 8-14** ▶

LOGS | OVERVIEW

COMM 4400   11 HOURS

Assignments

BlackBoard Assignment 1

Short Assignment 1

Group Project

Homework 1

Your Grade : 92

Students' Hours vs Grade

Grade

Hours

32 HOURS

Early Design Ideation and Sketching

Our first design exercise was sketching how we "saw" busyness in our everyday lives and a potential solution to this issue. On the left are individual drawings of being busy and on the right are potential solutions to busyness. These sketches lead us to creating our initial design ideas as discussed earlier.