Time to Study

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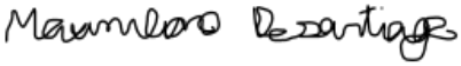

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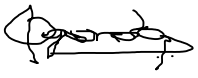

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ABSTRACT

Time to Study is a web application designed for students who have a busy schedule and would like to simplify the process of scheduling their events and assignments. Using Time to Study, users can manage their events, classes, and assignments. This application also allows users to pull information from Canvas to help users manage their classes and assignments.

INTRODUCTION

1.1 Introduction

Many people struggle with time management and for students, this is a common problem (Acuity Training, 2022). Research shows that a remarkably high percentage of students lack sufficient time management skills (Harman, n.d.). The everyday struggle to meet a balance of work, school, deadlines, and other life demands can create an abundance of stress and undue pressure on the average student to the degree in which it can often have a negative impact in their everyday routine.

1.2 Problem

According to a study by Jacques van der Meer, Ellen Jansen, and Marjolein Torenbeek, many students find it difficult to manage both their studies and their external lives, especially when it comes to their self-study time (van der Meer et al., 2010). Many studies have shown that a major factor to aid students in managing their studies, external lives, and study times is through time management (Adams, 2019). The Adams study demonstrated that students who identified and implemented time-management strategies achieved higher GPAs than those who did not (Adams, 2019). Thus, there is the problem that students benefit from time management strategies, and yet many students still do not use them.

1.3 Solution

The solution to the problem is to make time management strategies more accessible for students by automating much of the process through a web application to generate schedules. The automation will make it easy to schedule times to study, and help students manage areas of academics that are normally difficult, such as figuring out times to work on assignments and times to meet up with others for working or studying in groups. To accomplish this, Time to Study allows users to input any events, or assignment and whether the event has a set time. The user can then, either individually or to all assignments without a set time, choose to find available times to schedule the event automatically. To assist with managing their schedule, users can connect their account to Canvas in order to pull information about the user's coursework. A student will also have the option to create their own non-academic events in the schedule, allowing the automated aspects of the schedule to take them into account. This allows the user to input all-time sensitive events before finding open times. This flexibility also allows users to not only be able to manage their school life easier, but their home-school life too. Through the guided automated process of creating schedules, not only will students have a schedule to assist them in managing their time, but they may gain a new appreciation of their time, and how much different actions "cost" in time.

1.4 Project Goals

The goal for the project is a web application that helps people create a weekly schedule. The goals for the application are focused on simplifying the process of making a schedule and giving the users more tools to help manage their time. The application takes input from the user about events, classes, homework, or any other events they want blocked off and will search for available times in their schedules. Events are automatically scheduled depending on open times, event lengths, and how busy each day is. Allowing users to manually input events and set aside busy times gives the user more choices and flexibility in what they want to schedule, while still helping manage their time. Another goal is to make it straightforward for users that want to add events to existing schedules. This is accomplished by allowing users to individually find times for events in their current schedule, while still allowing users to find times for all their events at the same time. This will help users maintain their schedule as new events come up.

1.5 Overview

Time to Study is a web application built to automatically schedule events and assignments based off input from the user about their availability. Time to Study is user-friendly and is primarily targeted towards students but is a great tool for anyone that has trouble managing their schedule. Users have the choice to link their account to Canvas in order to pull information about their class schedule. After adding in events, users can choose to find an available time for individual events, or all events at once. This allows users to slowly generate their schedule as they go, or have their entire schedule found at the same time.

DISCUSSION

2.1 Project Concept

The project team was inspired to create this app due to firsthand experiences with time management in college. This along with having to juggle schoolwork, jobs and trying to find time to meet as a team at least once a week is where the basis of the idea arose. Dealing with all of this, the team realized that the team could be a lot more efficient with the limited time for this project if the team had schedules automatically generated so that the team has a straightforward way to know when the best times are for personal study, meeting as a group, and free time.

2.2 Design Objectives

The main objective of Time to Study is to develop an instantaneous processing, web-based scheduling application that allows users to enter or import their classes and manage events and assignments. The application allows users to automatically find available times to schedule any events they need. Although all calendar apps have the same basic functionality and most people use the app that comes preinstalled with the operating system, not all of them share the same functionality. Surprisingly, a useful feature can be found on one platform but not on the competitor's app. The objective was to create a web application that can serve a broader user base with needs like those of the average user. It utilizes current feasible technology as well as a user-friendly, and intuitive design. Finally, it should have features that will automatically schedule the ideal study periods for students without scheduling conflicts and be able to account every class and spare time in a few simple steps.

2.3 Methodology and Technical Approach

Time to Study is designed to help simplify creating a schedule. To successfully create a schedule that meets users' needs, users input information about events and classes. When creating events, users can decide if they want the event to have a set time. If the event does not have a set time, the user will then have the option to find an available time for the event. Time to Study then uses information about the user's current availability, how spread-out events currently are, and when the event needs to be finished by. To assist users in managing their schoolwork, users have the option to add their canvas token to their account. With this token, users can then use the Canvas merge button to call the Canvas API and save information about their classes. Events and Classes are created by the user when they manually input them, or input them from Canvas, which then stores them in an SQL database.

The project team uses a GitHub repository to manage the project files. The team works on the project online utilizing Microsoft Teams, with work done both asynchronously and through regular weekly meetings.

2.4 User Profiles/Personas

Most of our user base will be individuals who have a busy schedule and would like a simplified way to manage their schedule and find available times for new events or assignments. Not only would this application be especially useful for most college students with full-time schedules and a personal life to manage, but it can also be a very powerful tool for the working class as well.

College Students: College students are the target audience for the app. Therefore, it is important to consider how Time to Study can help them manage their time and work-life balance.

Table 1: College Students profiles

General Users
Application: TimeToStudy
Users: College Students
User 1: Audrey White Age: 23 / Status: Sophomore
Audrey is a motivated and aspirational UC student studying cybersecurity. She was raised in Michigan and then migrated to Ohio to pursue her dream of becoming a cybersecurity expert. She worries that her heavy course load would prevent her from fully developing her social skills and keeping in touch with her family, and she wants to maximize her time on campus by balancing her social life and education. A scheduling tool will undoubtedly help her to adjust her schedule to fit her various activities.
User 2: Jessica Queen Age: 27 / Status: Undergraduate
Jessica, a busy undergraduate student, wants a quiet area to study and read without interruptions as well as enough free time to fit everything else in between her classes. She is a big gamer, frequently goes out, and spends a lot of time on campus. She desires a tool or application service that will enable her to plan and manage her time across all of her activities more effectively.

Workforce Personnel: Although Time to Study is oriented towards students, many other professionals may benefit from using it, so it is useful to consider how it would be used in a professional setting.

Table 2: Professional Users profile

Professional Users
Application: TimeToStudy
Users: Workforce Personnel
User 1: Jill Campbell Age: 42 **/** Status: Banking Financial Analyst
Jill is a highly productive female working in the corporate world. She has a very busy work life and is constantly running late or missing appointments. She also struggles to find the time to crunch numbers for her accounts after normal work hours. The Time to Study Scheduling application is a tool that would be very beneficial in helping her manage her free time as well as the extra time she usually needs outside of her normal business hours
User 2: Mike Dossier Age: 61 / Status: Journalist
Mike is a veteran journalist with a leading news and information corporation in the tri-state area. His job is very demanding, and he often finds himself in board meetings and interviews that are sometimes longer than expected, which leads him to constantly adjust his schedule. Having a scheduling application with the ability to adjust times on the fly is a tool that can be of great assistance to an individual in his position.

2.5 Use Cases

In order to know what features needed to be implemented and what must be prioritized, how ordinary users would use and interact with the application must be considered. In addition, users have an expectation for the security of the application, so how users interact with the application from a security perspective must also be considered.

Use case 1: After creating his schedule, Jake wishes to add a new event without starting over. Jake visits the Event page and manually inputs an event without assigning it a time. Jake then

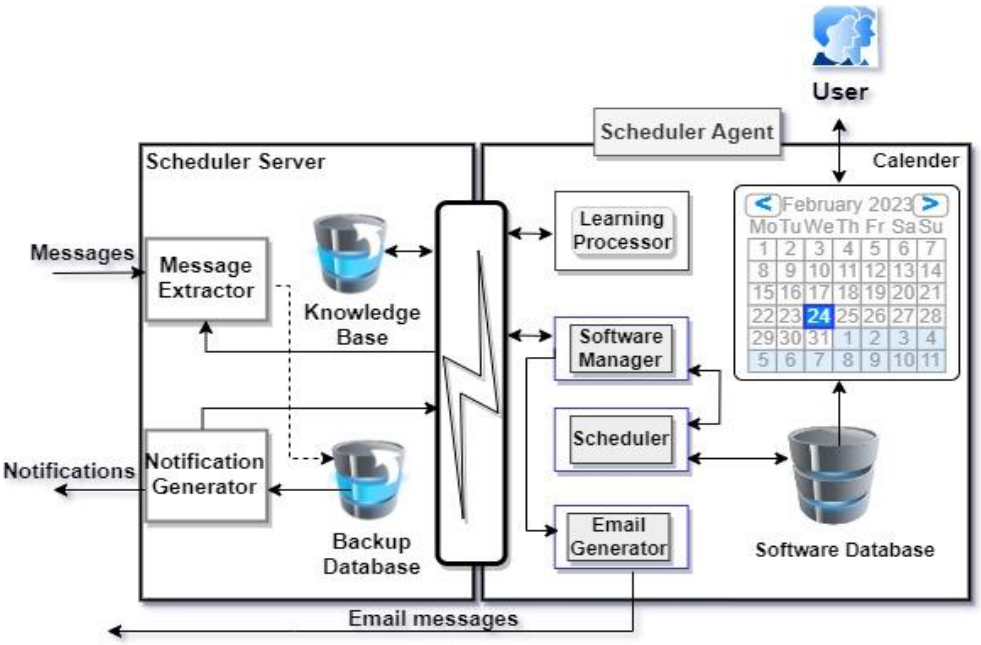
hits the “Schedule Event” button, and an open time is automatically found and reserved for the event.

Use case 2: After signing up for his classes, Alex wishes to simplify his schedule generation by pulling information from Canvas. Alex goes to his profile and saves his Canvas token. Alex can then go to the classes page and hit the canvas button to automatically import a list of his classes and save them to the database.

Cybersecurity Use case 1: Henry has a schedule built in the app and wants to connect his Canvas token to his account to synchronize his classes to the application. Henry expects that the application will not share his token with anyone, and that the token will only be used to save his desired information.

Cybersecurity Use case 2: Zach uses the Time to Study web application to generate schedules. Zach expects that any privileged information collected by the application will not be shared with anyone without his knowledge and consent.

Figure 1: Use Case Diagram



2.6 Technical Architecture

To meet the project goals, the ASP.NET Framework was chosen as the framework. ASP.NET is a powerful framework that provides a multitude of benefits in web application development. ASP.NET was the best choice due to its security, flexibility, and its large in-built UI controls.

ASP.NET was also chosen due to its Model-View-Controller architecture. The MVC architecture involves dividing code into three categories to break up the frontend and backend into different components. Through this structure code is easier to scale and changes have less chances of interfering with other components MVC also helps simplify the testing process and makes the code easier to navigate as individual components are easier to understand and define.

2.7 Testing

To ensure functionality as new features were added, frequent testing was done on the application. With the MVC architecture, our code is separated into logical components. This makes it simpler to identify and isolate problems as features are more isolated and self-sufficient. When adding new features, the application was tested to attempt to find any bugs that might break the logic. This included attempting to input invalid data in the application, seeing how using one feature would update another, and heavily testing each feature with different inputs.

2.8 Budget

Currently, the project team uses their own equipment, and Open-Source tools such as GitHub. As a result, most of the current budget is an estimated cost of equipment and time spent.

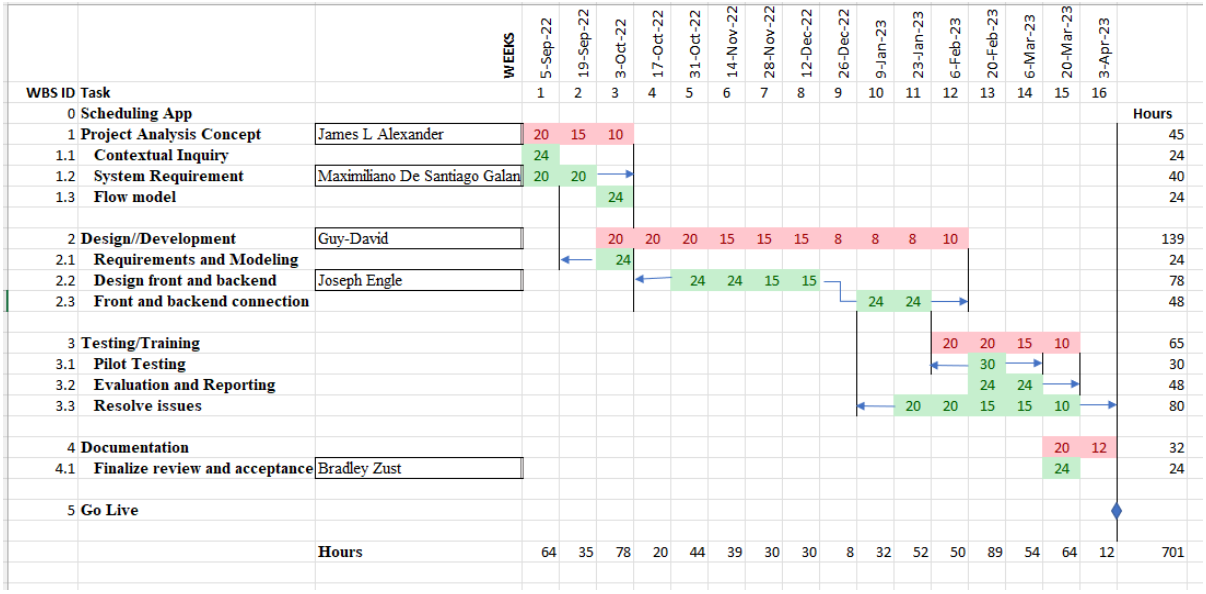
Item	Total	Estimated cost
Personal Computer	5	~$2,500
Time	15 weeks, multiplied by 6 hours a week, multiplied by 5 group members. 15 x 6 x 5 = 450 450 x $20 = $9,000	~$9,000
		Total Cost: ~$11,500

2.9 Project Plan

The project plan has 4 main sections for fall and spring semester as shown on the work breakdown structure below:

1. Project analyst concept
2. Design and development
3. Testing and training

4. Documentation



WBS ID	Task		WEEKS	5-Sep-22	19-Sep-22	3-Oct-22	17-Oct-22	31-Oct-22	14-Nov-22	28-Nov-22	12-Dec-22	26-Dec-22	9-Jan-23	23-Jan-23	6-Feb-23	20-Feb-23	6-Mar-23	20-Mar-23	3-Apr-23	
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
0	Scheduling App																			Hours
1	Project Analysis Concept	James L Alexander		20	15	10														45
1.1	Contextual Inquiry			24																24
1.2	System Requirement	Maximiliano De Santiago Galan		20	20															40
1.3	Flow model					24														24
2	Design//Development	Guy-David				20	20	20	15	15	15	8	8	8	10					139
2.1	Requirements and Modeling					24														24
2.2	Design front and backend	Joseph Engle					24	24	15	15										78
2.3	Front and backend connection												24	24						48
3	Testing/Training														20	20	15	10		65
3.1	Pilot Testing															30				30
3.2	Evaluation and Reporting															24	24			48
3.3	Resolve issues												20	20	15	15	10			80
4	Documentation																	20	12	32
4.1	Finalize review and acceptance	Bradley Zust																24		24
5	Go Live																			
		Hours		64	35	78	20	44	39	30	30	8	32	52	50	89	54	64	12	701

2.10 Problems Encountered and Analysis of Problems Solved

Throughout the project, there were multiple issues with scheduling times for all group members to meet, which is one of the team's motivations for the project. The issue was resolved once the team established a normal meeting time each week.

2.11 Recommendations for Improvement

Even though problems could crop up at any time, everyone has done their share to ensure the project's success thus far. It is critical for the team to modify their course as the group goes to accomplish the project's objectives, stay on schedule, and fulfill deadlines. If the team were to recreate this project, the team believes that having at least two team members that are proficient in programming would be more advantageous and balance the workload of the lone software development team member.

CONCLUSION

3.1 Lessons Learned

Throughout this course and this project, the team has learned:

- Teamwork/Communication: The team has learned throughout working on this project how to work together and on projects more effectively using strategies such as meeting at regular times of the week and working on parts of the project both synchronously and asynchronously effectively. This was only possible by improving communication between group members.
- Time management: The team learned how to manage time effectively by researching time management strategies for the project and developing time management skills working on it.
- Respect of meeting deadlines: The project team puts an important emphasis on meeting project deadlines, and when those deadlines are unable to be met, establishing what must be done to remedy the situation.

3.2 Abilities and Skills Developed Throughout Project

During the senior project course, every member of the Time to Study project team has gained the valuable experience of working in a group over an extended period and at this point are all very proficient with meetings and writing about the project. Some other skills also had to be

developed throughout the duration of the project, such as public speaking and programming, for those who needed it.

3.3 Future Goals

The top priorities for the continued development and support of the Time to Study Application is maintaining the application and continuing to develop the features of the application. One main feature we would like to add is the ability to create group events to schedule an event for multiple users at the same time. Once the application is launched and undergoes more testing, the team will need to fix bugs and other errors that appear. In addition, the project team will continue to develop more features that have been labeled as “nice to have” or on the wish list that have not been a priority for development prior. Throughout the continued development of Time to Study, additional cybersecurity features and reporting will have to be developed and conducted accordingly to ensure the security of the application, and the safety of the end-users of the application.

REFERENCES AND APPENDIX

4.1 References

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4.2 Appendix

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