TaskBuddy

***The Task Titans***

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ABSTRACT

Many individuals live a hustle and bustle lifestyle. Meeting after meeting, event after event, workout classes and actual classes. Is there even time to fit in a meal? Our team’s goal was to find a solution to sticky note, notes app, and Google calendar to-do lists. We wanted to create an app that is user-friendly and intuitive, while also having useful organizational features. We want to increase productivity without overwhelming our users. This paper will introduce TaskBuddy as well as discuss related works. We will also cover important design decisions and our maintenance and deployment plan.

INTRODUCTION

In the fast-paced landscape of modern life, the art of task management has become a critical skill for personal and professional success. However, amidst the endless responsibilities, deadlines, and commitments, individuals often find themselves overwhelmed. Industry professionals and students alike are struggling to prioritize tasks effectively and maintain productivity. Recognizing this everyday challenge, the need for a comprehensive solution arises, the TaskBuddy app.

TaskBuddy is not just another productivity tool. It is a personalized, intuitive companion designed to streamline the management of your to-do list and increase your efficiency. The motivation for creating TaskBuddy stems from several key factors including increasing complexity of daily tasks, increasing importance of time management, and decreasing accountability and motivation. The demands placed upon individuals today make it difficult to juggle what needs to be done. As college students, we understand the stress of going to bed worrying if you missed an assignment and the amazing relief when a task is crossed off your to-do list. It is crucial to have a centralized place to monitor tasks for school, work, sports, extra curriculars, and life’s daily tasks. Time management is a very important part of staying on top of your tasks. It becomes hard to manage your time when many of your tasks can be completed at your desk or in the comfort of your own home. We’ve all said, “I’ll get to that later!” and then completely forget about it. TaskBuddy will help organize and manage your tasks, so you don’t fall behind. Finally, it has become harder than ever to hold yourself accountable and feel motivated to check off items on your to-do list. With the TaskBuddy app, you will be able to hold yourself and others accountable for the items you need to complete on time and without stress.

RELATED WORK

**Zeigarnik Effect**

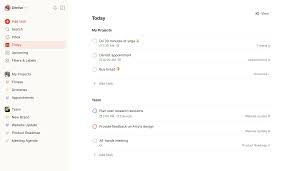
Dr. Schrager and Dr. Sadowski conducted a research study on how organizing necessary tasks affects an individual’s productivity level (Schrager & Sadowski, 2016). Creating a to-do list reduces stress but organizing that to-do list can reduce stress even more.

Within the TaskBuddy app, users will have the ability to prioritize tasks and move them around. We have a general to-do list, an “in-progress” list, and a “completed” list. The tasks within the general and in-progress list can be moved around to express importance and urgency.

**Todoist**

Todoist is a competitor task completion app. It has offline availability, functionality for collaboration between different users, and syncing across devices and platforms. Some of its basic features include creating tasks, setting priority levels, organizing tasks into different groups, and assigning due dates.

Todoist offers multiple subscriptions relating to a free, pro, or business account. The free subscription allows the creation, organization, and prioritization of tasks. It allows the user to share projects with up to 5 people. It, however, hinders the number of projects available to the user, and has less flexibility. It also does not allow much integration with other services. The pro subscription adds functionality for filtering and labeling tasks, adding reminders, allows more projects to be shared, allows integration with other services, and allows for more templates and themes to allow the users to be able to customize their tasks further. Most importantly, the user can have more active tasks and projects. The Business subscription allows unlimited sharing, centralized billing, role assignment with specific permissions, progress tracking, and even higher availability for many tasks. The free subscription is free, the pro subscription is five dollars a month or 48 dollars per year, and the business tier is eight dollars a month or 96 dollars per year.



ADAPTIVE SOFTWARE DEVELOPMENT

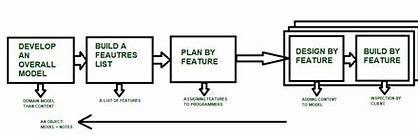
Adaptive Software Development (ASD) is an agile software engineering process that focuses on collaboration and team organization. This agile method emphasizes speculation, collaboration, and learning within the team. The team will begin with an adaptive cycle planning including their mission statement, project constraints, and basic requirements. Next, the requirements will be gathered in depth. Then, the team will implement and test various components of the project while focusing on group feedback. Lastly, with each software increment there will be a soft release of the program.

This method will enable the team to focus on group feedback and continuous learning. In addition, it enables all the constraints and requirements to be discussed in the beginning, as well as change as iterations of the project occur. Lastly, for the course, it may be required for versions of the project to be released prior to completion. Thus, the Adaptive Software Development Process will enable the release of project iterations before full completion. Therefore, we believe that the Adaptive Software Development process is the most beneficial software engineering process for our team to implement.

**HIGH-LEVEL DESIGN DECISIONS AND IMPLEMENTATION PROCESSES**

When designing this project, event-based architecture was used. There are a lot of different system states in the task app, and the event-based architecture allows the task app to respond and adapt to those different system states. When a user creates a new task, all the task components like lists, calendars, and more will update accordingly. Tasks can also trigger notifications and reminders which cause a change in the system state. Through this architecture all the components can be updated and adapted when one part of the system is updated. This allows the system to work together, and it makes features come together to a full application.

To implement the task app, it was divided into different features like the task creation, calendar, to do lists, reminders, and priority tag. Those features are developed through feature-driven development. The first step in that development is to prioritize these features. The first feature to develop is task creation because the other features build off that. The next features are the calendar and to do list because those mediums are where the tasks are created. Then the reminders and priority tags are not required for the functionality of the app, but they are nice features to have. That is why they are placed at the lowest priority.



**TESTING**

To test these features, our app used black-box testing. For each feature, inputs were divided into groups and the test cases were chosen for each group. The test cases made sure that the correct output was created for each input. If a task is created, the test case makes sure that the correct visuals are outputted on the screen and that the task is added to the database. Testing the application makes it more robust and allowed us to find and debug the errors in the application so it could be maintained.

**MAINTENANCE AND DEPLOYMENT**

For the maintenance and deployment plan of TaskBuddy, we'll implement an automated continuous development pipeline through Jenkins. This will ensure that any changes or updates to the codebase are integrated and deployed, reducing manual errors and speeding up the deployment process. Additionally, we'll focus on corrective maintenance by squashing bugs as they arise. This will help us ensure that our users have a smooth experience and that we maintain our app's reliability.

In terms of preventative maintenance, we'll prioritize updating the app regularly to improve security measures. This proactive approach will help mitigate potential vulnerabilities and safeguard user data. Furthermore, perfective maintenance will involve continuously adding new features and functionalities based on user feedback. This will keep our app competitive, evolving to user needs. Additionally, we'll employ adaptive maintenance strategies to ensure compatibility with various devices and operating systems, enhancing accessibility for all users.

To monitor the app's performance, we'll set up alerts for any instances of poor performance, allowing us to quickly address and resolve issues. Continuous testing and code reviewing will also be fundamental to maintaining our app's stability and efficiency. Finally, we'll establish a feedback system for users to provide input and suggestions, fostering a collaborative relationship and driving ongoing improvements to the app.

**CONCLUSION**

In conclusion, TaskBuddy is a solution designed to improve productivity for people that are struggling with their busy lifestyle. By integrating features such as prioritized tasks, adaptive notification and an intuitive user interface, TaskBuddy will not only help to manage tasks efficiently, but also will help to relieve stress of busy schedules. By using adaptive software, the application will be responsive to our users’ needs through their feedback and our application will be improved based off that. TaskBuddy will give users a custom tool that will improve as it is used from the feedback as it is a user centered design. As our users evolve, TaskBuddy will evolve with them by adapting to their needs and playing its part in their mission to increase productivity and lead an organized lifestyle.

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