TaskMate Milestone 1

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Abstract: Task management within software development environments often lacks integration, leading to inefficiencies and increased cognitive load on developers. TaskMate proposes a VSCode extension that centralizes task management by compiling all TODO comments into a central, navigable list, integrating with tools like JIRA for enhanced workflow continuity. This solution aims to streamline development processes, reduce errors, and improve productivity.

1. TaskMate Overview

1.1 Introduction

Today, managing tasks within a software development environment proves to be challenging and tedious. Fragmented and scattered code is common, often leaving developers to write *TODO and FIXME* comments across project files and code bases. A non-coherent and convoluted workflow can cause workplace problems such as bad and inefficient code. To address this, a developer productivity tool is needed. Our solution is to develop an extension for IDEs (assimilated with other tools as well) that compiles and organizes task-related comments so that developers can easily track and lay out tasks to measure progress and efficiency.
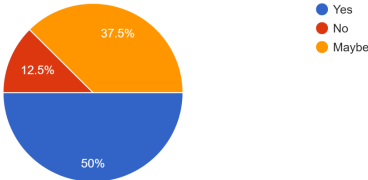
1.2 Related Work

Task management within integrated development environments (IDEs) has seen various implementations aimed at minimizing the disruption of developers' workflow. The Todo Tree extension for VSCode, for instance, offers a straightforward method of managing TODO comments directly within the IDE, representing them in a tree view to simplify navigation and prioritization [1]. Despite its utility, Todo Tree primarily focuses on individual task tracking and lacks comprehensive project management features found in more robust tools.

In contrast, external platforms like Asana and Trello provide extensive task management functionalities, including detailed task categorization, progress tracking, and integration with other business tools, but they require developers to switch between applications, leading to a potential loss of concentration and productivity. The need for a more seamlessly integrated solution within IDEs like VSCode is evident, as such integration can significantly reduce cognitive load and maintain developers in their coding 'zone,' thereby enhancing overall productivity [1].
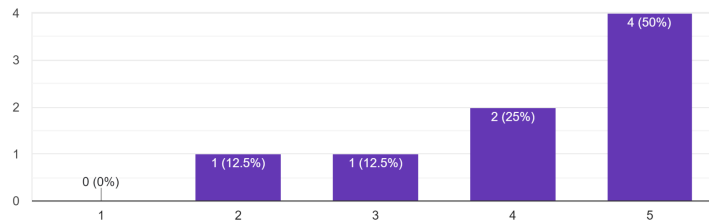
1.3 Survey Results

Do you find working on large projects daunting or intricate?
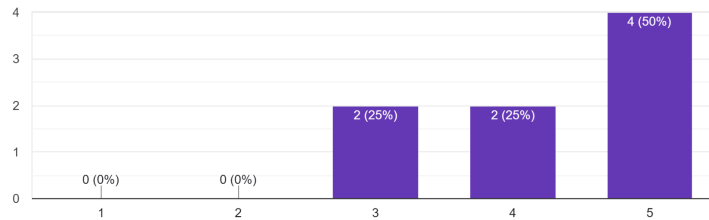8 responses

On a scale of 1-5, how easy is it for you to get lost while working on large projects?
8 responses

On a scale of 1-5, how often do you use TODO/FIXME comments in your code?
8 responses

From our survey, we found that 50% of respondents find working on large projects daunting or intricate, while 37.5% expressed uncertainty, and only 12.5% do not feel this way. Additionally, half of the respondents rated a 5 on a scale of 1-5 regarding how easy it is to get lost while working on large projects, indicating that most developers face significant challenges in maintaining focus. Furthermore, 50% of participants use TODO/FIXME comments frequently, reinforcing the need for a centralized task management solution to streamline workflows and reduce task-tracking inefficiencies. These results highlight the importance of tools like TaskMate, which can help developers manage tasks efficiently and mitigate the challenges posed by large, complex projects, ultimately improving productivity and reducing cognitive load.

1.4 Proposed Software Engineering Process

In developing TaskMate, our team decided to use the Agile software development methodology, specifically utilizing Scrum practices. Agile methodologies are particularly well-suited for projects that require flexibility and rapid iteration. Agile's emphasis on flexibility and adaptability allows for accommodating changes rapidly which works well with our project. This is because we plan to have ways for our users to request new features and report issues as we are developing the app. By leveraging Scrum, we can break down the project into manageable sprints, delivering functional components of TaskMate incrementally. This approach enables early user feedback and continuous improvement to help with the development of our project.

Scrum practices enhance collaboration through regular communication, including daily stand-ups and sprint retrospectives. These meetings foster teamwork and ensure that all team members are aligned with the project goals. Moreover, continuous integration and testing will help us identify and resolve issues promptly, thereby improving the overall quality of the software. We plan to organize the development process into two-week sprints, starting each sprint with a planning meeting to define the goals and backlog items.

2. References

[1] "Todo Tree - Visual Studio Marketplace," Marketplace,
https://marketplace.visualstudio.com/items?itemName=Gruntfuggly.todo-tree (accessed Sep. 27, 2024).