Writing Assignment 1

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Programmers work more frequently with each other nowadays, and it is inevitable for them to understand the code from other members in order to integrate their work and connect every component together. In many software companies, a project can be too much work for a single developer that is why in most cases, it is divided within a group. During this process, it is not realistic for other members to walk you through their work, therefore, developers need to read the code by themselves and try to understand them. For a company such as Google or Facebook, the workload of a project is usually magnificent, sometimes it can be millions of lines of _____ .

Under this circumstance, it is not only time consuming considering the size of the project, but also a waste of time if the code from other members is poor. I believe everyone has run into challenges while working with code from others, and it can be really frustrating, but imagine there is a program that a developer can run the code base on, and it will return the pseudocode as well as the simple description for the source code. This would no doubt, make the code base much easier to read and therefore accelerate the process of working as a team. In fact, this is exactly the project we are working on. Beside the functionality mentioned above, this program can also provide an execution trace for developers to get a better understanding of the source code which is really helpful when trying to understand the logic behind the code. Last but not least, the program can present a visualization by organizing it into an intuitive diagram.

This program is called Codenser, and we believe it will make a great contribution for the Computer Science industry for the following reasons. First of all, it can save a remarkable amount of time for every developer as well as the entire team. Take one of the classes in our school as an example: we had an operating system project in junior year, and the goal was to build a file system server. Although each of us had a clear goal on the part that we were responsible for, we had a really hard time integrating each component together because the code had thousands of lines. In the end we had to explain to other group members about the part that each of us was working on and that was extremely time consuming. This was just an experience of working on a project in school, there is no doubt that projects in industry will be much harder and more complicated than those in college, therefore, time wasting would be a much bigger issue that no one can ignore any more. Based on research conducted on team projects, the average time developers spent on integration take up to almost 40 percent. This is when Codenser can be extremely useful, by giving a simple description of the source code, developers can save most of the time reading the code from others. In addition, it can provide information on what functions are running in what order by showing the execution of trace. With these functionalities, Codenser can greatly increase the project efficiency and make it more convenient for developers.

However, there will be some technical challenges when we develop Codenser. For example, summarizing the source code to pseudocode is already very difficult, not to mention our final goal is to give a brief description in English sentences. In addition, can the execution trace provide valuable information when there are hundred of functions? Last but not least, what if the source code has bugs? Can Codenser still give useful summary of the code? Questions

like these make the development process really challenging, but we believe that our team will solve these problems and Codenser will be a success.