The Personal Software Process is unnecessary if you have access to a high quality Integrated Development Environment

1. Introduction
   With the developing of software more and more tools are coming up to helping the software programming process. These tools can help software developer in different phase in their programming process, such as spell checking, debugging, repository search, sources management and so on [4]. After these tools are provides, there is another kind of tool invented. These tools are called Integrated Development Environment (IDE). These kind of tools combines all the function that other tools can do and provide the software developers a visual working space that they can have a clear view of the software project. It is obviously that IDE can help software developers saving a lot of time and make the whole software processing more easily [4]. But along with the powerful tools providing to the software developers, there are disadvantages that these tools bring to them [1].
2. What is an Integrated Development Environment (IDE)?
   Generally, IDE is a software developing facility that combine a lot of functions and tools together to help software developer make software development more easily [2]. There are lot of IDE such as Eclipse, MyEclipse, IntelliJ IDEA, Microsoft Visual Studio and so on. Use Eclipse as an example, it has an editor for coding, an auto-build tools to help compiling, a debugger to find out the error and it is a Plug-in Development Environment to support more functions such as support for Apache Subversion (SVN) [2]. At the left side and right-down side of Eclipse User Interface (UI) there are several tabbed panes. These tabbed panes can help to view the structure of the whole project, what classes, variables, methods are defined in the current files [2]. At the top of the Eclipse UI there are lot of icons helps to compile the whole project by one click [2]. At the downside of the UI, there are some windows which can shows the result after running the program, where the errors that cause the program crashed are and more [2]. In the middle is the code editor, the code editor can show the line number of the code, the wrong spell, the wrong variable and complete the code intelligently [2]. The different kind of things in the program will show in different color, such as the key system word will show in deep red, such as “class”.
3. The advantage of Integrated Development Environment (IDE)
   A lot of things software developers doing in Personal Software Process (PSP) will do by the IDE instead. There are a lot of advantages that IDE have but there are only a few that are list here.
   3.1 Spell check
   One of the function that the software developers most used is the spell check. According to the research done by Gail C. Murphy, Mik Kersten, and Leah Findlater, Rename is the command that almost all the developers used [4]. What I more the intelligent code completion also helps improve the productive of the developers and

in the same time reduce of the spelling mistake made by them. [2].

3.2 Project structure

With the help of the tabbed paned developer can have a visual view of the project and don't need to have remember the structure in their own mind and these reduce the time spend on checking on if the project is in the right structure as the design defined [2]. When this comes to the variable, it is the same, with an IDE such as Eclipse there is a windows shows all the variable show defined in the file and when you click on a variable, all the same variable used in the current file will show in highlight [4]. This function helping developers find out the variable more quickly in a lot of situation such as find mistake [2].

3.3 Compiling and debugging

When compiling the program, IDE will give a general warning to tell you what kind of bugs are there in the program if the compiling has failed [2]. The debugging mode is also a big help to the developers since there will always be some bugs in a software project. With the help of debugging mode, software developer can track the variables and run the program step by step to check where the problems are [4].

4. The disadvantage of Integrated Development Environment (IDE)

   The advantages list before is not just advantage, in some situation it will become some kind of poison to the software developers. Abrahamsson, P., Kautz, K., Sieppi, H., & Lappalainen, J state in their research that after student have study the SPI course the compiling part have significant improvement [5]. The compiling part is failed is most cause by wrong spelling [5]. But with the spelling check function in the IDE, student will lose the learning process of how to reduce wrong spelling and rely on IDE to check for them instead of not making it [3]. And when software developer relies on one specific IDE, it is bad for the future of himself. The software project in the industry have different development environment, after the developer addicted to one IDE, he will have difficulty when changing into another development environment [1]. With the visual view of the structure in the IDE, software developer doesn't have a project structure in their mind and this will cause some trouble when they want to check if the code fulfills the design [1]. With the help on the compiling and debugging, software developers will have less chance in thinking about the algorithm and when there are some algorithm problems that the IDE can't check out, they will take a long time to figure out where the problem is.

5. Conclusion

   Integrated Development Environment can help software developer make them more productive and make the software process more easy for them. But using these IDEs will not improve their Personal Software Process skills. When they change into a new project with another IDE, they may face some difficulties. What is more, if the software developers addicted to one of the IDEs they will lost their ability to check the code and structure by themselves and this may cause some design fault and will make them in trouble when some problems that IDEs can't find out.