Unit Technologies

Team Name: iBelieve
Team Members:

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5. Zao Lou(zlou)

Data Structures and Algorithms:

- Qt framework (Zewen Wang):

  Qt is used to implement the user interface for our application. It can add different modules to the display, such as buttons, menus, text editor window, and console window, etc. It also provide API's for system file operations (open, close, read, write to a file).

- Linked list (Yihui Wang):

  Linked list is used to store the contents of user's source code files. Every line of code will be a node in the linked list. Therefore user's modifications such as (insertion, deletion) will only affect one node at a time.

- Hash map (Zao Lou):

  Hash map is used to store the individual words in the source code file. There will be several hash maps for different types of keywords (such as variable types, function names, etc.). The program will display words from each hash map with different colors to achieve the appearance of common IDE's editors.

- Parsing algorithm (Ximing Li):

  The parsing algorithm checks for local basic Java syntax on the client side, and will detect basic syntax errors such as mismatching parentheses, missing/duplicated semicolons, and invalid operators, etc.

- Network programming (Fangcheng Zhu):

  Network programming takes care of the communication between the client-side application and the remote server. It is responsible for sending user's source code to the server, waiting for compilation on server, and then pushing the output back to the user.

External Libraries:

- Platform: Qt 5.6
- Development environment: Qt Creator
- Download link: https://www.qt.io/download/
- Qt will be used as the main framework for the GUI of our application. By utilizing Qt framework, we will be able to easily implement low-level functionalities such as buttons and menus, and thus spend more time on developing the algorithm aspect of the project. Furthermore, Qt also helps create a cleaner user interface that makes our application resemble a consumer-level product.

Introduction to Qt:

Qt is used for developing multi-platform applications and graphical user interfaces (GUIs). Qt uses standard C++ with extensions including signals and slots that simplify handling of events, and this helps in development of both GUI and server applications which receive their own set of event information and should process them accordingly.

During these weeks, we have discussed and defined the main structure of this program. Our Superlime should realize the functions of prevailing IDE such as Eclipse, VS and Sublime.

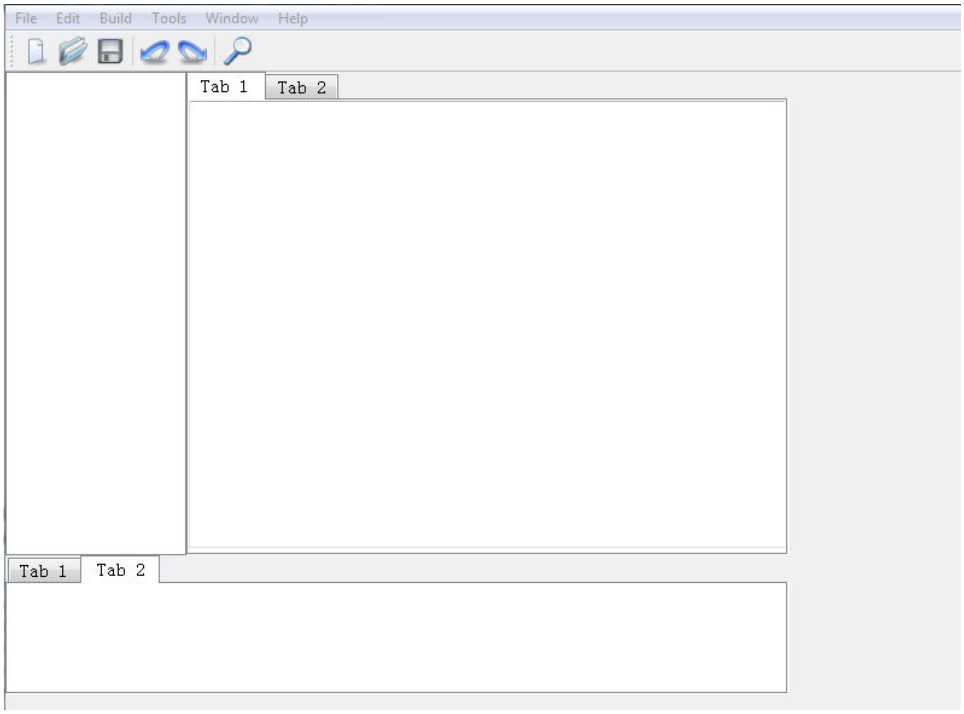

Figure 1-1 Concept design of Suplime UI

At the upper part, there exist menu and toolbar. User can easily access some basic functions, for example, open/close files, find/replace keyword, show the version info and help, etc. On the center-left user is supposed to see a directory tree of project. On the right there is an area showing multiple files with different name tags. At the bottom, results and error trace are shown.