Implementation details

User Interfaces Structure

Interfaces of this software is designed to show the graph and data directly, all the operation is contained in the menu. Left panel is called plot panel, which shows the connections between dots. Right panel is called information panel, which contains the number of connection and dots. Frequent used operations will be added to the information panel.

Menu of Lightning should include the following functionalities:

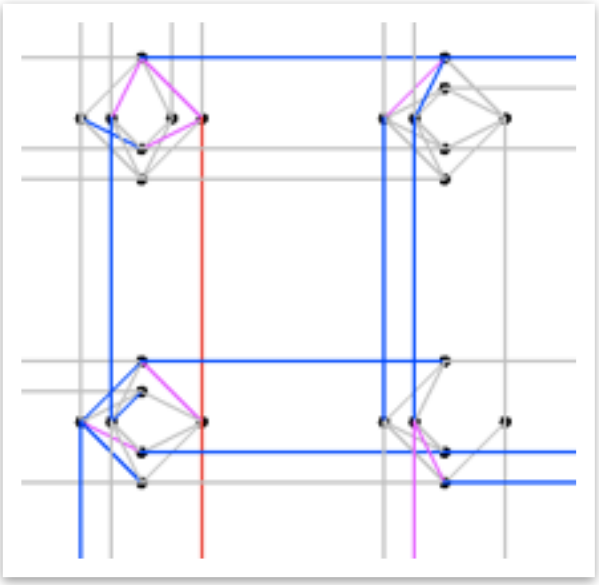
i. Load a text file or XML file and display the useful information to corresponding panel.
ii. Save current graph into a XML file
iii. Exit the program and clear all caches
iv. Show the version and license information about this software
v. Report bug to developer

Figure shows the layouts of panels, the left panel plots all the vertices and connects them with lines in a group size of 8. The information panel on the right shows some text and it will be replaced by information extract from file. These two panels are fitted into a split panel, which the relative size of two panels can be adjust in a reasonable range.

Considerations behind this design is to provide client a clear interface that contains the necessary information only, and increase the flexibility of interface. There are some spaces left for further development, and the designed menus are flexible as well.

Figure shows the colors choose for different types of edged. To maximize the diversity between lines, the colors is chose after several times of experiments. The color of lines and respective meaning is listed below:

Light grey lines: the available edges existed in D-wave quantum computer
Blue lines: The active edges that connect the actual physic qubits to form a logic qubit
Green lines: The edges that connect logic qubits
Red lines: The edges that has been clicked by user and all the edges to form a logic qubit is turned to be red after click.



Program structure

Based on interface, the structure of code is divided into two parts. I am working on left panel which involves the data extract process and dot connection functions. Bill is working on the menu and right panel which including all the information extracted from diagram.

In PlotPanel we created a data set connection to hold all the edges between the vertices. Vertices is hold by an array list in PlotPanel and each vertices presents a Point object.

InfoPanel will contains several label and text field objects to display the information.

Figure below shows brief program structure, complete program structure diagram is attached in the resources folder as structure.jpg file