Social Network Data Analysis Project Description

After analyzing the properties and libraries of different social networks, we want to make a framework, which fetch the user data from the DataPlugin, providing these data to the AnalysisPlugin to do various data analysis and visualizations.

Design Discussion

The framework class is in charge of connecting the data flow from DataPlugin to AnalysisPlugin. It also constructs a GUI to achieve visualization of the analysis results for AnalysisPlugin.

With the strategy pattern, the two interfaces DataPlugin and AnalysisPlugin are provided to implement different social network APIs and data analysis methods, achieving appropriate information hiding and extensibility of the framework.

The DataPlugin is basically adaptors for social network APIs. It has the method getData() to return a Data class, which contains information from the social network libraries. And then, the framework can store the different data classes from various DataPluginImpls, sending the data to AnalysisPlugin to do data analysis with the method analyzeData(). To achieve extensibility and flexibility, the output of the AnalysisPlugin is a JPanel instead of original data analysis results, which can make the developers to choose their own data visualizations.

Workflow and Framework Features

Firstly, The main function creates instances of framework and plugins when the application start to run. Then, we add the DataPlugins and AnalysisPlugins into the framework. After this, the GUI start to show the interface of the main menu for the framework.

Secondly, coming to the main menu of the framework, the user can specify the social network platforms (Facebook, Twitter, etc) and type the user name to get the data details. After clicking “Get Data” button, the framework triggers the method getData() of the DataPlugin, storing the Data classes into the dataInfo in the framework. Thus, the framework will prepare for the user data for the AnalysisPlugins.

Thirdly, there are several buttons, which stand for different data analysis plugins, the user can choose the needed analysis plugins to analyze the data or choose analyze all. And then, the framework will call the method runAnalysis() or runAllAnalysis(), collecting the data from the framework and calculating the data results. After harvesting the given data, the AnalysisPlugin will output a JPanel to the framework to present the results on GUI.