**CPU Simulator (Phrase IV)**

**Notes to Phase-4**

Phase-4 includes the files below:

* A User guide to run our Simulator
* The design notes of the our project
* Assembly files of the Program-1, Program-2 and Program-3 (a new program which shows our pipelining are working)
* Commented version of the Program-1 and Program-2
* Jar file to run our simulator
* Source codes

The enchantments and new features to our CPU Simulator for Phase-4 is summarized below:

1. We upgraded our visual keyboard to work with the actual keyboard. Both visual and actual keyboard can be used in our simulator. After user runs the program, when he typed a key from keyboard, the ASCII value of the key is sent to input buffer. (Please see User Guide for more information to work with actual keyboard)
2. We developed Program-2 in assembly and run it in our simulator successfully. This program gets 10 words from the user. Then, it sorts the words alphabetically. After sorting, it asks user to provide a search keyword. If keyword is on the user list, program prints out the keyword and terminates. If it is not there, program terminates. (Please see user guide for more information).
3. We implemented all floating point instructions.
4. We upgraded GUI to execute all programs from the Control Panel. The radio buttons on the top of the panel allows user to select the program he wants to run.
5. We added a new class for pipelining. This class allows our instructions to work in pipeline. Pipelining steps of the each instruction is showed in Field Engineering Console (Please see Design notes for the detail of this class) Program 3 shows how pipelining is working.