ASSIGNMENT 1: Design

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Introduction:

According to assignment two, the Rshell C++ program is a Terminal tool to let user simply their computer instruction process. It requires three functionality to the program.
1. Capture user input "$" sign from the user and the Linux instruction.
2. Getline of instructions and separated by space. Capture special characters ";" "||" "&&"
3. Run the Linux instructions such as fork, execvp, and waitpid

For each process:
1. Inside the main function. Promote the "$" sign.
2. Create an Interface class. One for separate the input instruction string and one for special characters to do instructions. (";" "||" "&&")
3. Create Rshell.cpp Base.h, command.h, linker.h. For checking successful instructions.

UML:
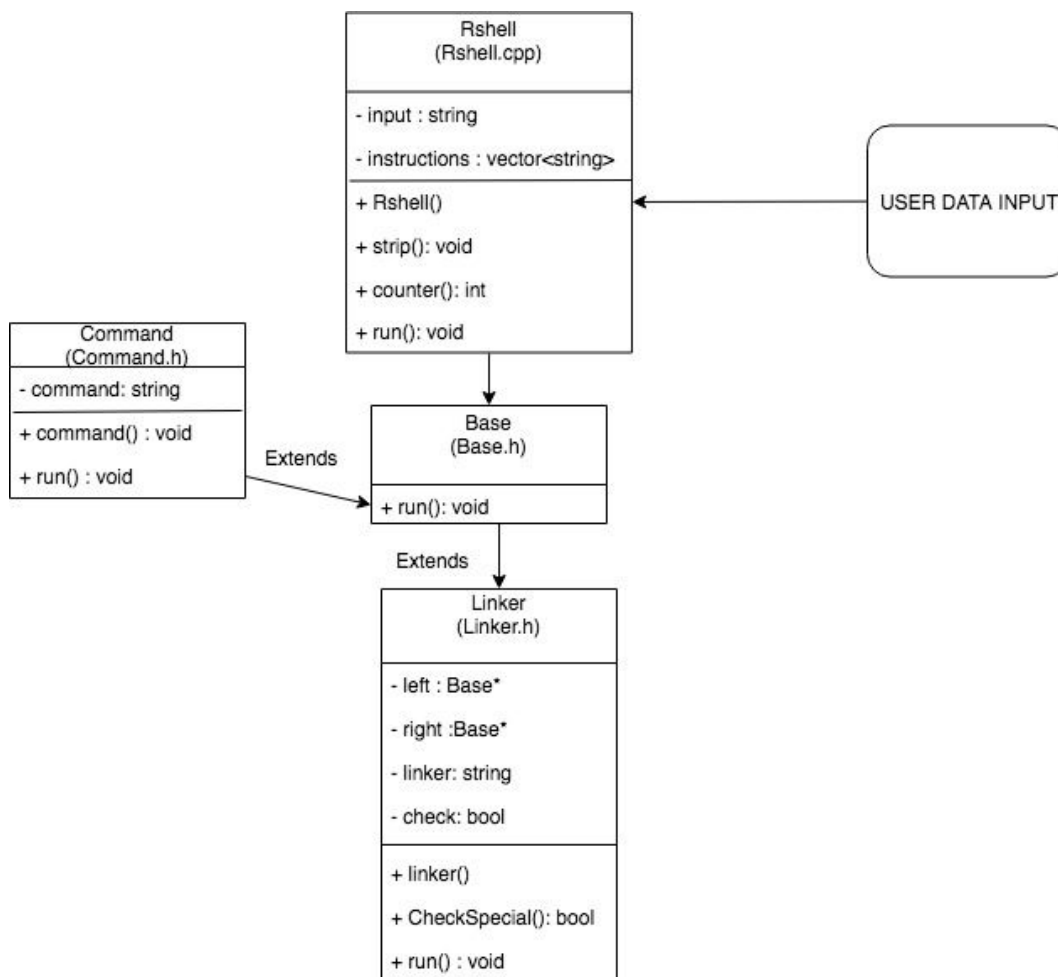
Classes Groups:

Rshell: Rshell class is the main function getting user data and split into different instructions.
1. This class has a string container. Getting user input
2. Rshell() default constructor the function is used to deal with a different command from linker and pass the reference to run() to execute.
3. counter() is to count the instructions.
4. strip() function is to detect which instruction is runnable and which instructions need to run.

Base: is the container to getting the run() instructions for Linux machines.

Command: getting the input string value and core instruction process class
1. command () function is to handle input -> command variable to real instructions to Linux machine.
2. run() is the inheritance from Base class to execute the instructions

Linker: core function to detect special character "||", "&&"and ";"
1. Making like composite pattern to the left - top - right node to construct the program.
2. Constructor of linker(). Has the checking function to check
3. CheckSpcial() is the special character checker
4. And pass all successful instructions to run() function.

Coding Strategy:

Coding will be split into two parts. Xia Hua will responsible for the part taking user input and other will be constructing the instructions.

The major tasks are:
1. Getting user input. Checking the valid input.
2. run() function is to promote instructions to the terminal. Also getting all valid instructions to run altogether.
3. The tree composite pattern that will process left - top - right to the instructions with special characters. Also, instructions must all valid at this time.
4. Coding the correct return boolean(CheckSpecial() Check) value to check the correct data.

Coding will majorly be doing at weekends. Also before the Lab time will start the discussion about the coding problems. Also. we have the run the all unit test before we push to the main branch of the GitHub.

Roadblocks:

Timing Problem:
We know we all have different class time. Therefore we choose the weekend to do the major coding process. Also, we prefer working in the evening because those time we should always at home.

Communication Problem:
Because working remotely we might have some communicating problems. So we choose the Lab time to meet each other.

Coding Problem:
Some programmer is transfer students and some of the students doesn't require them to study C++. I know C++, therefore, I will become the main programmer. The problem will be solved as long as we build up a great communication. Also, we are different levels of programmer. However, we can always help each other out on Lab and weekends.