Project 2 Write Up:

Source Files:

Shell.cpp

Makefile

Description of Solution:

The input to the command line following the execution of the shell program is parsed until exit is passed as an input or the job is killed. The input is parsed by delimiting the string by either pipe or redirection tokens to token groups and inserted into a vector of strings. The pipe and redirection tokens are inserted into the vector as well. While token groups are inserted into the vector, they are checked insure that they are valid. Next, token groups are executed by converting the token groups into pointers of char arrays and passing the pointers into execvp function calls. Piping functionality is implemented by calling POSIX function pipe, and forking the process, modifying the file descriptors accordingly with the POSIX function dup2 to the correct corresponding pipe and passing the commands to the execvp function. Lastly, file redirection functionality is implemented by using the same dup2 function described above to modify the file descriptors to the appropriate input and output files and passing the command(s) to the execvp function.