

Write a simple shell program, myshell, which incorporates the following features:

- a. *Piping between two commands*: If two UNIX commands are separated by the @ character, pass the output from the command on the left to the input of the command on the right. This feature can be implemented by making stdout of the command on the left equal to stdin of the command on the right. For example, in the following command lines, *some_command_1* pipes its standard output to the standard input of the *some_command_2*.

```
myshell[1]% some_command_1 @ some_command_2
```

- b. *Input re-direction*: If a file name in a UNIX command is preceded by the [character, input to the command should be obtained from the specified file name. For example, in the following command lines, *some_command* obtains its input from *some_input_file*.

```
myshell[1]% some_command [ some_input_file
```

- c. *Output re-direction*: If a file name in a UNIX command is preceded by the] character, output from the command should be sent to the specified file name. For example, in the following command lines, the *some_command* sends its output to *some_output_file*.

```
myshell[1]% some_command ] some_output_file
```

- d. *Additionally*: You will need to be able to handle commands that obtain both input and output through a combination of re-direction and piping. For example, consider the following command lines that could be entered at the shell command prompt (i.e., myshell%).

```
myshell[1]% some_command [ some_input_file ] some_output_file
```

```
myshell[2]% some_command ] some_output_file [ some_input_file
```

```
myshell[3]% some_command_1 [ some_input_file @ some_command_2
```

```
myshell[4]% some_command_1 @ some_command_2 ] some_output_file
```

```
myshell[5]% some_command_1 [ some_input_file @ some_command_2 ]
some_output_file
```

Hint: Consider what properties commands have based upon their position in the pipeline.

- e. *Finally*: Your program should handle the following built-in command:
- a. *exit*: Will terminate your program.