

# CMPE 322 - Project 1

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Before starting the project, i designed a BNF in a similar manner that we used in one of the Cmpe230 projects. Here is my BNF for myshell:

```
<root> -> alias <alias_name> "=" "<command>" | alias <alias_name> "=" "<command>" "&" | <command>
<command> -> <command_name> <lists> "&" | <command_name> <lists> | <command_name> "&" | <command_name>
<lists> -> <arguments> | <redirect> | <arguments> <redirect>
<redirect> -> ">" <filename> | ">>" <filename> | ">>>" <filename>
<arguments> -> <argument> | <argument> <arguments>
<argument> -> "-"<identifier> | <identifier>
<filename> -> <identifier>
<command_name> -> <identifier> | <alias_name>
<alias_name> -> <identifier>
<identifier> -> <letter> | <identifier> <letter> | <identifier> <digit>
```

After creating this BNF, i implemented a data structure called Token to store value and type of each token. Later, i passed the input from a lexer analysis, then it returned me an array of tokens. Then i send it to parser, which is actually executor. It will read the tokens and act the command accordingly whether it is an alias command or a command to execute, a foreground or background command, etc.

## Difficulties encountered:

Dealing with strings in C.

Malloc/calloc, segmentation faults.

Most difficult part was >>>. I thought a lot about it. I first tried to do it using pipe, but later i changed, i added another process between and created a temporary file to write to it. Then, my actual process read from it and reversed what it read.