

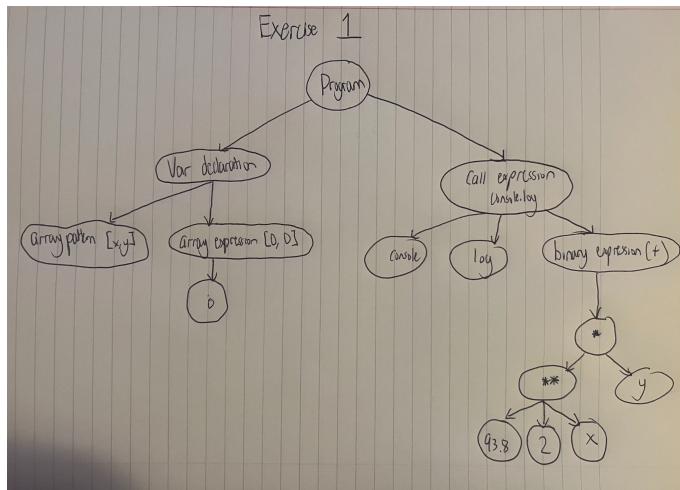
# CMSI 3802: Languages & Automata II

Homework #1 due January 31, 2025

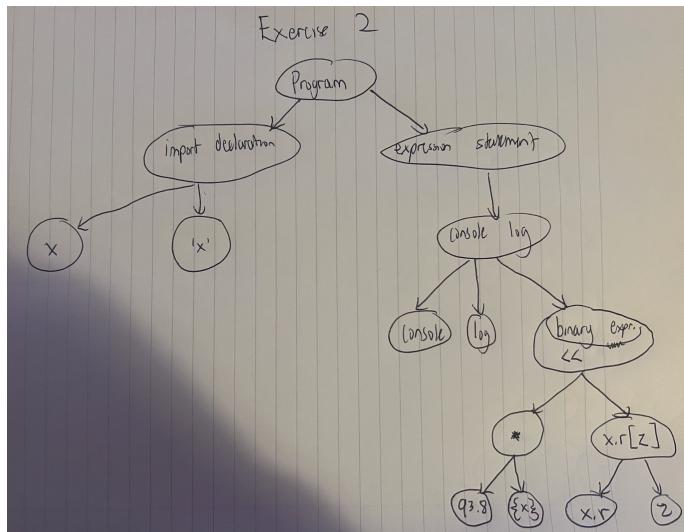
**Students:** Patrick King, Thomas Powell

**Affidavit:** I, Patrick King, and Thomas Powell confirm that each of the readings and watchings were completed.

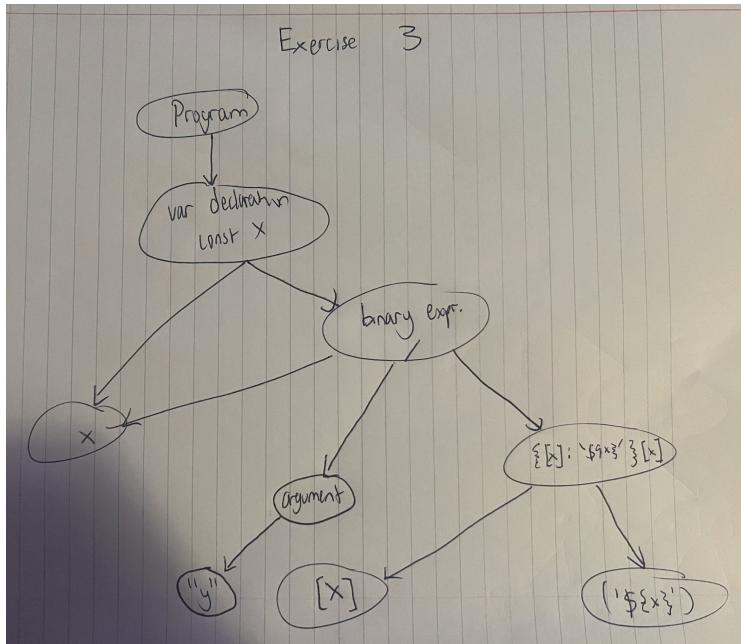
## Exercises #1



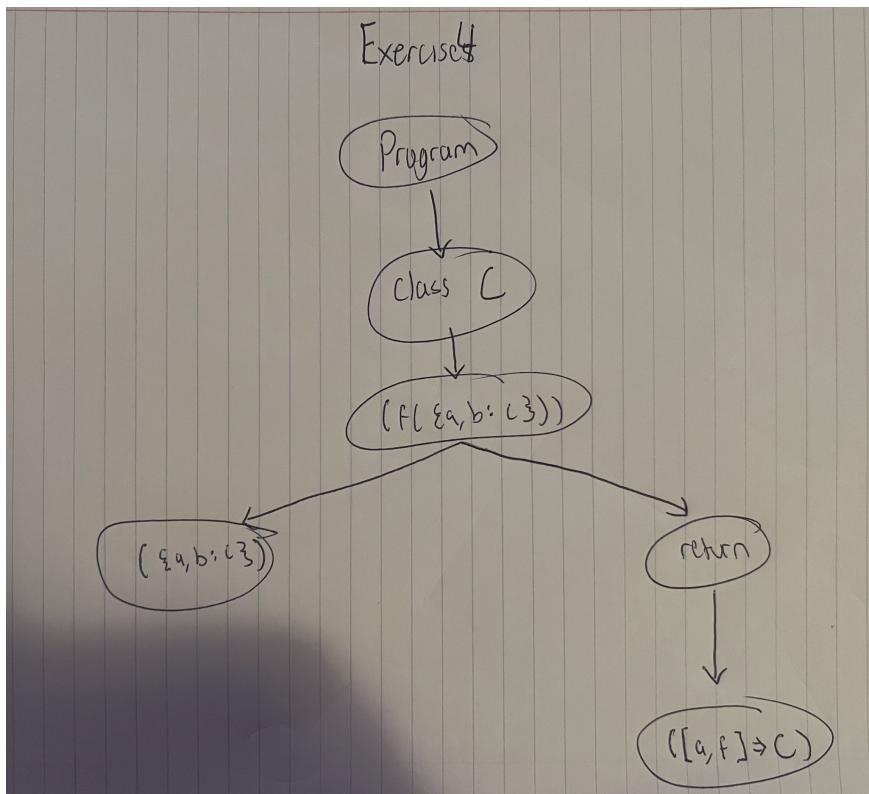
## Exercise #2



### Exercise #3



### Exercise #4



### Exercise #5a

```
Exp      = Term
Term     = Factor "*" Term
        | Factor
Factor   = "-" Factor
        | Primary
Primary  = number
        | "(" Exp ")"
number   = digit+
```

### Exercise #5b

```
Exp      = Term
Term     = "-" Term
        | Factor "*" Term
        | Factor
Factor   = Primary
Primary  = number
        | "(" Exp ")"
number   = digit+
```

### Exercise #5c

```
Exp      = Term
Term     = Factor "*" Term
        | Factor
Factor   = "-" Primary
        | Primary
Primary  = "(" Exp ")"
        | number
number   = digit+
```

### Exercise #6

```
AstroPP {
    Program      = Statement+
    Statement
        = IfStmt
        | WhileStmt
        | BreakStmt
        | Assignment
        | Exp ";"
```

```

= "if" Exp Block ("else" (Block | IfStmt))?

WhileStmt
= "while" Exp Block

BreakStmt
= "break" ;"

Assignment
= id "=" Exp ;"

Block
= "{" Statement* "}"

Exp
= OrExp

OrExp
= AndExp ("||" AndExp)*

AndExp
= RelExp ("&&" RelExp)*

RelExp
= Primary (RelOp Primary)? 

RelOp
= "==" | "!=" | ">" | "<" | ">=" | "<="

Primary
= id
| number
| "(" Exp ")"

id      = letter+
number  = digit+
space   +=("//" (~"\n" any)*)*
}

```

## Project Repository:

<https://github.com/patrickgking03/cloudscribe>