

CIIC 4030/ICOM 3046 Programming Languages

Assignment #2

The goal of this assignment is to implement a parser in Python to determine if code written in a functional language named CICOM is syntactically correct. Submit the assignment via Moodle. A testing file is provided. The CICOM grammar is defined as follows:

CICOM Definition

Tokens

```
Character ::= a-z | A-Z | ? | _
Digit     ::= 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9
Delimiter ::= ( | ) | [ | ] | , | ;
Operator  ::= "+" | - | ~ | "*" | / | = | != | < | > | <= |
>= | & | "|" | :=
```

Grammar

```
Exp      ::= Term { Binop Exp }
          | if Exp then Exp else Exp
          | let Def+ in Exp
          | map IdList to Exp
Term     ::= Unop Term
          | Factor { ( ExpList ) }
          | Empty
          | Int
          | Bool
Factor   ::= ( Exp ) | Prim | Id
ExpList  ::= { PropExpList }
PropExpList ::= Exp | Exp , PropExpList
IdList   ::= { PropIdList }
PropIdList ::= Id | Id , PropIdList
Def ::= Id := Exp ;
Empty   ::= empty
Bool    ::= true | false
Unop    ::= Sign | ~
Sign    ::= "+" | -
Binop   ::= Sign | "*" | / | = | != | < | > | <= | >= | & |
          "|"
Prim    ::= number? | function? | list? | empty? | cons? |
cons | first | rest | arity
Id ::= Character {Character | Digit}*
Int ::= Digit+
```