Description on Labs

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Task

Lab1: Lexical Analyzer Programming

Lab2: Syntax Parser Programming

Notices: 1)The programming language is not limited (better C or Java).

2)You can finish the labs in any method in the suggested optional methods.

3)The complexity of lexical and syntactic definitions is decided by yourself.

Requirements on Lab1
词法分析程序

1)Input

   Stream of characters

   REs(The number of REs is decided by yourself)

2)Output

   Sequence of tokens

3)Classes of words are defined by yourself

4)Error handling may be included

Optional Implementing Methods on Lab1

1)Programming based on FA
  a)Define some REs by yourself
  b)Convert REs into NFAs
  c)Merge these NFAs into a single NFA
  d)Convert the NFA into a DFA° with minimum states
  e)Programming based on the DFA°
2)Generating programs based on your own Lex
  a)Design your own Lex
    (ⅰ)Define .l file
    (ⅱ)Programming your own Lex
  b)Generating programs based on your own Lex

Requirements on Lab2

1)Input

Stream of characters

CFG(Combination of CFGs of some classes of sentences)

2)Output

Sequence of derivations if top-down syntax analyzing methods are used.

Sequence of reductions if bottom-up syntax analyzing methods are used.

3)Classes of sentences are defined by yourself

4)Error handling may be included

Optional Implementing Methods on Lab2

1)LL(1)

a)Construct LL(1) parsing table based on the CFG

b)Design the program using LL(1) paring table

2)LR(1)

a)Construct LR(1) parsing table based on the CFG

b)Design the program using LR(1) paring table

3) Generating programs based on your own YACC

Lab Document Requirements

1)Reports on labs

   a)Motivation/Aim

   b)Content description

   c)Ideas/Methods

   d)Assumptions

   e)Related FA descriptions

   f)Description of important Data Structures

   g)Description of core Algorithms

   h)Use cases on running

   i)Problems occurred and related solutions

  j) Your feelings and comments

2)Needed files:

     Input file, Output file, Source program files, Report file, Other related files

Q/A?