Grammar # nonTerminalNum # nonTerminals # terminalNum # terminals # rulesNum # rules # startSymbol # firstSet + Grammar() + isNonterminal() + findRulesScope() + getAllFirstSet() + getFirstSet() + calFirstSet() GrammarLR1 - itemsSetFamily - gotoTable - isl R1 - root + GrammarLR1() + printACTION() + printGOTO() + printItemsFamily() + parser() + DFS() + printAST()

buildGrammarAnalysisTree()makeItemsSetFamily()