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Gr 931

2 simple data types and a user-defined type:

* Int
* Char
* Array

Statements:

* Assignment: =
* Input/ output: cin << ; cout>>
* Conditional: if else
* Loop: for

some conditions will be imposed on the way the identifiers and constants can be formed:

1. Identifiers: no more than 256 characters, can start with #, a letter and \_
2. constants: corresponding to your types

Lexic.txt

Alphabet:

1. Upper (A - Z) and lower case letters (a-z) of the English alphabet
2. Underline character ‘\_’
3. Hash sign ‘#’
4. Decimal digits ( 0 – 9 )

Lexic:

1. Special tokens:
   1. Operators: + - \* / = <= == >= < > >> << != ++
   2. Separator: [] () {} . space
   3. Reserved words: int char if else not and or cout cin for
2. Identifiers:
   1. A sequence of letters and digits that can also start with # or \_

Letter = “A” | “B” | … | “Z” | “a” | … | “z”

Digit = “0” | … | “9”

Identifier = [“#” | “\_”] letter {letter | digit}

1. Constants:
   1. Integer :

Nonzero = “1” | … | “9”

Int = “0” | [“-”] nonzero {“0” | nonzero}

* 1. Char:

SpecialCharacter = “?” | “!” | “@” | “\n”

Char = letter | digit | specialCharacter

Syntax:

Program = declarationList “.” cmpstmt

declarationList = declaration | declaration “.” declarationList

declaration = type (identifier | arrayDeclaration)

type = “int” | “char”

naturalNr = nonzero { “0” | nonzero }

arrayDeclaration = identifier “(“ naturalNr “)”

cmpstmt = stmt | stmt “.” cmpstmt “.”

stmt = simplstmt | structstmt

simplstmt = assignstmt | iostmt

assignstmt = identifier "=" expression

mathOperators = “+” | “-” | “\*” | “/”

expression = expression mathOperators term | term

term = "(" expression ")" | identifier

iostmt = "cin >>" | "cout <<" identifier

structstmt = cmpdstmt | ifstmt | forstmt

ifstmt = "if [" condition "] {" cmpstmt “}” [ “else {" cmpstmt “}”]

forstmt = "for [" forLoop "] {" cmpstmt “}”

condition = expression RELATION expression

RELATION = "<" | "<=" | "=" | "!=" | ">=" | ">"

forRelation = "<" | "<=" | ">=" | ">"

forLoop = “int” identifier “ = ” digit “.” identifier forRelation naturalNr “.” Identifier “++”