Ministry of Education, Culture and Research

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Report

Laboratory work Nr.1

Lexer of a programming language

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*Chisinau 2020*

**Grammar**

<basic symbol>::= <letter> | <digit> | <logical value> | <special symbol> | <delimiter>

<letter> ::= A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | Y | W | X | Y | Z| a | b | c | d | e | f | g | h | i | j | k | l | m | n | o | p | q | r | s | t | u | y | w | x | y | z

<digit> ::= 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

<logical value> ::= TRUE | FALSE

<special symbol> ::= <any symbol in CDC 64-charaeter set>

*data\_type : <number> , <float> , <logical> , <String>.*

*Number:<Number>[digit]*

*Float::=<Number>[.Number]*

*String::=<String>[letter|digit|sp. Simbol|epsilon]*

*Block=<LeftBracket>[statement]\*<RightBracket>*

<arithmetic operator> ::= + | - | \* | /

<relational operator> ::= < | <= | == | >= | > | ~=

*logical\_operator : and|or|not.*

*delimiter ::=< , > |<operator>|<bracket>*

<operator> ::= <arithmetic operator> | <relational operator> | <logical operator

<delimiter> ::= <operator> | <separator> | <bracket>

*asignment\_operator::= < = >*

*var\_decl ::=data\_type identifier [= value];*

<bracket> ::= ) | ( | ] | [ | } | {

<identifier> ::= <letter> | <identifier><letter> | < identifier><digit>

*function declaration data\_type function\_name({data\_type parameter}\*)*

*function\_declaration ::= <fun>*

*function\_name ::= <identifier>*

*main function : < main(#arg )>*

*<for(<identifier><asign><Number>,<Number>,<Number>){block}>*

*<while(condition) {block}>.*

*If statement::=< if (statement){block}>[<else {block}>]*

**Syntax**

fun double media\_aritmetica ( double num1 , double num2, #arg)

{

double result=num1+num2;

for item in #arg

{

result+=item;

}

result/=arg.len+2;

return result;

}

main(#arg){

print(media\_aritmetica(1 , 2 , 3 , 4 , 5 , 6.5 , 8.3));

}