**LFTC - Partea intai (C++) - EBNF**

1.

<litera> ::= "a" | "b" | ... | "z" | "A" | "B" | ... | "Z"

<cifra> ::= "0" | "1" | ... | "9"

<cifra\_nenula> ::= "1" | "2" | .... | "9"

<simbol> ::= "\_"

<ID> ::= <litera> {( <litera> | <cifra> | <simbol>)} \{0, 249\}

<numar> ::= ("+" | "-")? cifra\_nenula { cifra } | "0"

<operator\_unar> ::= "!"

<operator\_binar> ::= "+" | "-" | "\*" | "/" | "!=" | "<" | "<=" | "==" | ">=" | "%"

<operator> ::= <operator\_binar> | "=" | <operator\_unar>

<separator> ::= "[" | "]" | "{" | "}" | ";" | space

<caracter> ::= " ' " (litera | cifra | simbol) " ' "

<const> ::= <numar> | <caracter> | <const\_string> | <const\_bool> | <const\_float>

<const\_string> ::= \"<string>\"

<string> ::= {(<litera> | <cifra> | <simbol> | "\n") }\{1, \}

<const\_bool> ::= "true" | "false"

<const\_float> ::= <numar> "." {<cifra>}\{1, \}

<program> ::= <antet> <lista\_instr> "}"

<antet> ::= "#include <iostream> using namespace std; int main(){"

<lista\_instr> ::= {<instr>} \{1, \}

<instr> ::= <instr\_simpla> | <instr\_compusa>

<instr\_simpla> ::= (<atribuire> | <declarare> | <intrare\_iesire>) ";"

<instr\_compusa> ::= <conditionala> | <ciclare>

<element> ::= <ID> | <ID> "=" <cons>t

<declarare> ::= <tip> <element> {("," <element>)}

<expr> ::= <operator\_unar> <expr> | <ID> | <expr> <operator\_ binar> <expr> | <const> | "(" <expr> ")"

<atribuire> ::= <ID> "="<expr>

<intrare\_iesire> ::= ("cin>>"ID)|(" cout<<" <expr>)

<conditionala> ::= if (<expr>) "{" <lista\_instr >"}"

<ciclare> ::= while (<expr>) "{" <lista\_instr> "}"

<tip> ::= <tip\_simplu> | <vector>

<tip\_simplu> ::= "bool" | "char" | "int" | "string" | "float"

<vector> ::= <tip\_simplu>"[" <cifra\_nenula> { <cifra> }"]"

2.

• Calculeaza perimetrul si aria cercului de o raza data

#include <iostream>

using namespace std;

int main(){

int p, a, r;

cin>>r;

p = 2 \* 3.14 \* r;

a = 3.14 \* r \* r;

cout<<p;

cout<<a;

}

• Determina cmmdc a 2 nr naturale

#include <iostream>

using namespace std;

int main(){

int n, m, r;

cin>> n;

cin>> m;

while (m != 0)

{

r = n % m;

n = m;

m = r;

}

cout<<n;

}

• Calculeaza suma a n numere citite de la tastatura

#include <iostream>

using namespace std;

int main(){

int n, nr, s;

s = 0;

cin>>n;

while (n != 0)

{

cin>>nr;

s = s + nr;

n = n-1;

}

cout<<s;

}

3.

int p, a, r

cin> r

p = 2 \* 3.14 \* r

a = 3.14 \* r \* 2

cout<< p

cout<< a

int p=0, a, r;

cin>> r;

p += 2 \* 3.14 \* r;

a = 3.14 \* r \* 2;

cout<< p << a;