

#### 4. Formalny opis gramatyki

**program** = { function };

**function** = signature parameters code\_block;

**signature** = data\_type id;

**parameters** = '(' [ signature { ',' signature }\* ] ')';

**code\_block** = '{' statement [ statement ]\* '}';

**statement** = function\_call | declaration | if\_statement | while\_statement |  
return\_statement | assign\_statement | print\_statement | amount\_statement;

**declaration** = data\_type id [ '=' expression ] [ ',' id [ '=' expression ] ]\*;

**expression** = priority\_operation [ low\_priority\_operator priority\_operation ]\*;

**priority\_operation** = base\_expression [ high\_priority\_operator base\_expression ]\*;

**base\_expression** = value\_instance | higher\_expression;

**higher\_expression** = '(' expression ')';

**low\_priority\_operator** = '+' | '-' ;

**high\_priority\_operator** = '\*' | '/';

**value\_instance** = id | value | function\_call;

**if\_statement** = 'if' '(' condition ')' single\_or\_block;

**while\_statement** = 'while' '(' condition ')' single\_or\_block;

**single\_or\_block** = statement ';' | code\_block;

**condition** = condition\_operation [ condition\_linker condition\_operation ]\*;

**condition\_operation** = (expression condition\_operator expression) | bool\_value |  
expression;

**condition\_operator** = '==' | '!=' | '<' | '>' | '<=' | '>=';

**condition\_linker** = '&&' | '||';

**function\_call** = id '(' call\_elements ')';

**call\_elements** = expression [ ',' expression ]\*;

**data\_type** = 'int' | 'double' | 'bool' | 'PLN' | 'USD' | 'EUR' | 'GBP' | 'CHF' | 'RUB' |  
user\_currency;

**user\_currency** = upper\_case\_letter upper\_case\_letter upper\_case\_letter;

**bool\_value** = 'true' | 'false';

**value** = number | 'true' | 'false';

**number** = not\_zero\_digit [digit];

**not\_zero\_digit** = '1' | '2' | '3' | '4' | '5' | '6' | '7' | '8' | '9';

**digit** = '0' | '1' | '2' | '3' | '4' | '5' | '6' | '7' | '8' | '9';

**id** = letter { digit | letter };

**letter** = upper\_case\_letter | lower\_case\_letter;

**upper\_case\_letter** = | 'A' | 'B' | 'C' | 'D' | 'E' | 'F' | 'G' | 'H' | 'I' | 'J' | 'K' | 'L' | 'M' |  
'N' | 'O' | 'P' | 'R' | 'S' | 'T' | 'U' | 'V' | 'W' | 'X' | 'Y' | 'Z';

**lower\_case\_letter** = 'a' | 'b' | 'c' | 'd' | 'e' | 'f' | 'g' | 'h' | 'i' | 'j' | 'k' | 'l' | 'm' | 'n' |  
'o' | 'p' | 'r' | 's' | 't' | 'u' | 'v' | 'w' | 'x' | 'y' | 'z';