*G* = (*VN, VT, P, S*)

*VN* - finite set of non-terminal symbols.

*VT* - finite set of terminal symbols.

*P* - finite production rules.

*S* - start symbol.

*S* = { <program> }

*VN* = { <program>, <statement>, <size\_statement>, <color\_statement>, <angle\_statement>, <iterations\_statement>, <shape\_statement>, <move\_statement>, <scale\_statement>

<rotate\_statement>, <mirror\_statement>, <axis>, <draw\_statement>, <save\_statement>, <filename> }

*VT* = { **repeat**, **times**, **start**, **with**, **shape**, **circle**, **square**, **triangle**, **polygon,**  **color**, **background**, **scale**, **rotate**, **save**, **as**, **PNG**, **JPG**, **[A-Z]**, **[a-z]**, **[0-9]**,=, **.**, **,**, **[**, **]** }

*P* = {    <program> → <statement> | <statement> <program>

<statement> → <size\_statement> | <color\_statement> | <angle\_statement> | <iterations\_statement> | <shape\_statement> | <move\_statement> | <scale\_statement> | <rotate\_statement> | <mirror\_statement> | <draw\_statement> | <save\_statement>

<size\_statement> → **size** <value>

<color\_statement> → **color** <value>

<angle\_statement> → **angle** <value>

<iterations\_statement> → **iterations** <value>

<shape\_statement> → **shape** <shape>

<move\_statement> → **move** <value> <value>

<scale\_statement> → **scale** <value>

<rotate\_statement> → **rotate** <value>

<mirror\_statement> → **mirror** <axis>

<axis> → **x** | **y**

<draw\_statement> → **draw**

<save\_statement> → **save** <filename>

<filename> → <string>

<shape> → **circle** | **square** | **triangle** | **polygon**

<value> → <digit> | <digit> <value> | <string>

<digit> → **0** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9**

<string> → <char> | <char> <string>

<char> → [**A-Z**] | [**a-z**] | [**0-9**] | **=** | **.** | **,** | **[** | **]** | '' | '\_'

}