

## CS315 PROJECT PART 2

### BNF GRAMMAR FOR THE GRAPH DEFINITION LANGUAGE

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Group 5

```
entry:
    MAIN LPARAN RPARAN LBRACKET functionbody RBRACKET
    ;

functionbody:
    stmt functionbody
    |stmt
    ;

stmt:
    graph_definition
    ;

graph_definition:
    DIRECTED VARIABLE LBRACKET component_list RBRACKET
    |UNDIRECTED VARIABLE LBRACKET component_list RBRACKET
    ;

component_list:
    component component_list
    |component
    ;

component:
    vertex_declaration end
    |edge_declaration end
    |graph_object_declaration end
    |methodcall end
    |assignment end
    |conditional
    |loop
    |COMMENT
    ;

vertex_declaration:
    VERTEX VARIABLE
    ;
```

```

edge_declaration:
    EDGE VARIABLE
    ;

graph_object_declaration:
    property
    ;

property:
    PROPERTY VARIABLE ASSIGNMENT LPARAN property_stmt RPARAN
    ;

methodcall:
    VARIABLE DOT INCLUDEPROPERTY LPARAN property_stmt RPARAN
    |CONNECT LPARAN VARIABLE COMMA VARIABLE COMMA VARIABLE RPARAN
    ;

assignment:
    |VARIABLE ASSIGNMENT element
    ;

conditional:
    if_cond | ifelse_cond
    ;

if_cond:
    IFSTATEMENT LPARAN cond RPARAN LBRACKET component_list RBRACKET
    ;

ifelse_cond:
    IFSTATEMENT LPARAN cond RPARAN LBRACKET component_list RBRACKET
    ELSESTATEMENT LBRACKET component_list RBRACKET
    ;

cond:
    |BOOLEAN
    |VARIABLE booleanopr element
    |element booleanopr VARIABLE
    |VARIABLE booleanopr VARIABLE
    ;

booleanopr:
    ISEQUAL
    |GREATER
    |LESS
    |GREATEREQUAL
    |LESSEQUAL
    |NOTEQUAL
    ;

loop:

```

```

    for
    |while
    ;

for:
    FOR LPARAN assignment SEMICOLON cond SEMICOLON assignment RPARAN
    LBRACKET component_list RBRACKET
    ;

while:
    WHILE LPARAN cond RPARAN LBRACKET component_list RBRACKET
    ;

property_stmt:
    element COMMA element
    | VARIABLE
    ;

map:
    LBRACKET mapbody RBRACKET
    ;

set:
    SLBRACKET setbody SRBRACKET
    ;

mapbody:
    map_tail COMMA mapbody
    |map_tail
    ;

map_tail:
    STRING COLON element
    ;

setbody:
    element tail2
    |
    ;

tail2:
    COMMA setbody;
    |
    ;

element:
    INTEGER|FLOAT|STRING|map|set
    ;

end:
    SEMICOLON
    ;

```