```
>- AGoal
    |- AStatementCommands
    |   `- AImportStatement
    |       `- AImportImportStatement
    |           |- import
    |           `- AModule
    |               `- AIdentifier
    |                   `- os
    |- AStatementCommands
    |   `- AImportStatement
    |       `- AFromImportStatement
    |           |- from
    |           |- AModule
    |           |   `- AIdentifier
    |           |       `- datetime
    |           |- import
    |           `- AIdentifier
    |               `- date
    |- AFunctionCommands
    |   `- AFunction
    |       |- def
    |       |- AIdentifier
    |       |   `- fib
    |       |- (
    |       |- AArgument
    |       |   `- AIdentifier
    |       |       `- n
    |       |- )
    |       |- :
    |       `- AAssignmentsStatement
    |           |- AIdentifier
    |           |   `- a
    |           |- AAssignAssignmentOperators
    |           |   `- =
    |           `- ARule1Arithmetics
    |               `- AExprMultdivexpr
    |                   `- AExprExpexpr
    |                       `- AElementExpression
    |                           `- AValueElement
    |                               `- ANumberValue
    |                                   `- 0
    |- AStatementCommands
    |   `- AAssignmentsStatement
    |       |- AIdentifier
    |       |   `- b
    |       |- AAssignAssignmentOperators
    |       |   `- =
    |       `- ARule1Arithmetics
    |           `- AExprMultdivexpr
    |               `- AExprExpexpr
    |                   `- AElementExpression
    |                       `- AValueElement
    |                           `- ANumberValue
    |                               `- 1
    |- AStatementCommands
    |   `- AIfStatement
    |       |- if
    |       |- ALvl3ComparisonLvlFour
    |       |   `- AAndComparisonLvlThree
    |       |       |- ALvl2ComparisonLvlThree
    |       |       |   `- ANotComparisonLvlTwo
 >- |       |       |       |- not
    |       |       |       `- ALvl1ComparisonLvlTwo
```

```
|       |       |               `- ARule1Comparison
|       |       |                   |- ARule1Arithmetics
|       |       |                   |   `- AExprMultdivexpr
|       |       |                   |       `- AExprExpexpr
|       |       |                   |           `- AElementExpression
|       |       |                   |               `- AIdentifierElement
|       |       |                   |                   `- AIdentifier
|       |       |                   |                       `- a
|       |       |                   |- ALessComparisonOperators
|       |       |                   |   `- <
|       |       |                   `- ARule1Arithmetics
|       |       |                       `- AExprMultdivexpr
|       |       |                           `- AExprExpexpr
|       |       |                               `- AElementExpression
|       |       |                                   `- AIdentifierElement
|       |       |                                       `- AIdentifier
|       |       |                                           `- b
|       |       |- and
|       |       `- ALvl1ComparisonLvlTwo
|       |           `- ARule2Comparison
|       |               `- True
|       |- :
|       `- APrintStatement
|           |- print
|           `- ARule1Arithmetics
|               `- AExprMultdivexpr
|                   `- AExprExpexpr
|                       `- AElementExpression
|                           `- AValueElement
|                               `- ANumberValue
|                                   `- 0
- AStatementCommands
|   `- AWhileStatement
|       |- while
|       |- ALvl3ComparisonLvlFour
|       |   `- ALvl2ComparisonLvlThree
|       |       `- ALvl1ComparisonLvlTwo
|       |           `- ARule3Comparison
|       |               `- False
|       |- :
|       `- APrintStatement
|           |- print
|           `- ARule1Arithmetics
|               `- AExprMultdivexpr
|                   `- AExprExpexpr
|                       `- AElementExpression
|                           `- AIdentifierElement
|                               `- AIdentifier
|                                   `- a
- AStatementCommands
|   `- AAssignmentsStatement
|       |- AIdentifier
|       |   `- a
|       |- AAssignAssignmentOperators
|       |   `- =
|       `- ARule1Arithmetics
|           `- AExprMultdivexpr
|               `- AExprExpexpr
|                   `- AElementExpression
|                       `- AIdentifierElement
|                           `- AIdentifier
|                               `- b
- AStatementCommands
|   `- AAssignmentsStatement
```

```
        |- AIdentifier
        |  `- b
        |- AAssignAssignmentOperators
        |  `- =
        `- ARule1Arithmetics
           `- AMultdivMultdivexpr
              |- AMultdivMultdivexpr
              |  |- AExprMultdivexpr
              |  |  `- AExprExpexpr
              |  |     `- AElementExpression
              |  |        `- AParsElement
              |  |           |- (
              |  |           |- ARule2Arithmetics
              |  |           |  |- ARule1Arithmetics
              |  |           |  |  `- AExprMultdivexpr
              |  |           |  |     `- AExprExpexpr
              |  |           |  |        `- AElementExpression
              |  |           |  |           `- AIdentifierElement
              |  |           |  |              `- AIdentifier
              |  |           |  |                 `- a
              |  |           |  |- AMinusPlusminus
              |  |           |  |  `- -
              |  |           |  `- AExprMultdivexpr
              |  |           |     `- AExprExpexpr
              |  |           |        `- AElementExpression
              |  |           |           `- AIdentifierElement
              |  |           |              `- AIdentifier
              |  |           |                 `- b
              |  |           `- )
              |  |- AMultMultdiv
              |  |  `- *
              |  `- AExprExpexpr
              |     `- AElementExpression
              |        `- AParsElement
              |           |- (
              |           |- ARule2Arithmetics
              |           |  |- ARule1Arithmetics
              |           |  |  `- AExprMultdivexpr
              |           |  |     `- AExprExpexpr
              |           |  |        `- AElementExpression
              |           |  |           `- AIdentifierElement
              |           |  |              `- AIdentifier
              |           |  |                 `- a
              |           |  |- APlusPlusminus
              |           |  |  `- +
              |           |  `- AExprMultdivexpr
              |           |     `- AExprExpexpr
              |           |        `- AElementExpression
              |           |           `- AIdentifierElement
              |           |              `- AIdentifier
              |           |                 `- b
              |           `- )
              |- ADivMultdiv
              |  `- /
              `- AMultdivExpexpr
                 |- AExprExpexpr
                 |  `- AElementExpression
                 |     `- AIdentifierElement
                 |        `- AIdentifier
                 |           `- b
                 |- **
                 `- AElementExpression
                    `- AParsElement
                       |- (
```

```
                        |- ARule1Arithmetics
                        |   `- AMultdivMultdivexpr
                        |       |- AExprMultdivexpr
                        |       |   `- AExprExpexpr
                        |       |       `- AElementExpression
                        |       |           `- AIdentifierElement
                        |       |               `- AIdentifier
                        |       |                   `- a
                        |       |- ADivMultdiv
                        |       |   `- /
                        |       `- AExprExpexpr
                        |           `- AElementExpression
                        |               `- AIdentifierElement
                        |                   `- AIdentifier
                        |                       `- b
                        `- )
|- AStatementCommands
|   `- AAssignmentsStatement
|       |- AIdentifier
|       |   `- a
|       |- AAssignAssignmentOperators
|       |   `- =
|       `- ARule1Arithmetics
|           `- AExprMultdivexpr
|               `- AExprExpexpr
|                   `- AMmExpression
|                       |- AMaxMaxmin
|                       |   `- max
|                       |- (
|                       |- ARule1Arithmetics
|                       |   `- AExprMultdivexpr
|                       |       `- AExprExpexpr
|                       |           `- AElementExpression
|                       |               `- AIdentifierElement
|                       |                   `- AIdentifier
|                       |                       `- a
|                       |- ACommaExpr
|                       |   |- ,
|                       |   `- ARule1Arithmetics
|                       |       `- AExprMultdivexpr
|                       |           `- AExprExpexpr
|                       |               `- AElementExpression
|                       |                   `- AIdentifierElement
|                       |                       `- AIdentifier
|                       |                           `- b
|                       `- )
|- AStatementCommands
|   `- AAssertStatement
|       |- assert
|       `- ARule2Arithmetics
|           |- ARule1Arithmetics
|           |   `- AExprMultdivexpr
|           |       `- AExprExpexpr
|           |           `- AElementExpression
|           |               `- AValueElement
|           |                   `- ANumberValue
|           |                       `- 0
|           |- APlusPlusminus
|           |   `- +
|           `- AExprMultdivexpr
|               `- AExprExpexpr
|                   `- AElementExpression
|                       `- AValueElement
|                           `- ANumberValue
```

```
|                              `- 1
|- AStatementCommands
|  `- AAssertStatement
|       |- assert
|       |- ARule2Arithmetics
|       |  |- ARule1Arithmetics
|       |  |  `- AExprMultdivexpr
|       |  |     `- AExprExpexpr
|       |  |        `- AElementExpression
|       |  |           `- AValueElement
|       |  |              `- ANumberValue
|       |  |                 `- 1
|       |  |- AMinusPlusminus
|       |  |  `- -
|       |  `- AExprMultdivexpr
|       |     `- AExprExpexpr
|       |        `- AElementExpression
|       |           `- AValueElement
|       |              `- ANumberValue
|       |                 `- 0
|       `- ACommaExpr
|          |- ,
|          `- ARule1Arithmetics
|             `- AExprMultdivexpr
|                `- AExprExpexpr
|                   `- AElementExpression
|                      `- AValueElement
|                         `- AStrlitValue
|                            `- "pog"
|- AStatementCommands
|  `- AAssignmentsStatement
|       |- AIdentifier
|       |  `- l
|       |- AAssignAssignmentOperators
|       |  `- =
|       `- ARule1Arithmetics
|          `- AExprMultdivexpr
|             `- AExprExpexpr
|                `- AListExpression
|                   |- [
|                   |- AArgList
|                   |  |- ARule1Arithmetics
|                   |  |  `- AExprMultdivexpr
|                   |  |     `- AExprExpexpr
|                   |  |        `- AElementExpression
|                   |  |           `- AValueElement
|                   |  |              `- ANumberValue
|                   |  |                 `- 1
|                   |  |- ACommaExpr
|                   |  |  |- ,
|                   |  |  `- ARule1Arithmetics
|                   |  |     `- AExprMultdivexpr
|                   |  |        `- AExprExpexpr
|                   |  |           `- AElementExpression
|                   |  |              `- AValueElement
|                   |  |                 `- ANumberValue
|                   |  |                    `- 2
|                   |  `- ACommaExpr
|                   |     |- ,
|                   |     `- ARule1Arithmetics
|                   |        `- AExprMultdivexpr
|                   |           `- AExprExpexpr
|                   |              `- AElementExpression
|                   |                 `- AValueElement
```

```
|                     |                              `- ANumberValue
|                     |                                   `- 3
|                     `- ]
|- AStatementCommands
|   `- AListassignmentStatement
|       |- AIdentifier
|       |   `- l
|       |- [
|       |- ARule1Arithmetics
|       |   `- AExprMultdivexpr
|       |       `- AExprExpexpr
|       |           `- AElementExpression
|       |               `- AValueElement
|       |                   `- ANumberValue
|       |                       `- 2
|       |- ]
|       |- =
|       `- ARule2Arithmetics
|           |- ARule1Arithmetics
|           |   `- AExprMultdivexpr
|           |       `- AExprExpexpr
|           |           `- AElementExpression
|           |               `- AIdentifierElement
|           |                   `- AIdentifier
|           |                       `- b
|           |- AMinusPlusminus
|           |   `- -
|           `- AExprMultdivexpr
|               `- AExprExpexpr
|                   `- AElementExpression
|                       `- AValueElement
|                           `- ANumberValue
|                               `- 1
|- AStatementCommands
|   `- APrintStatement
|       |- print
|       |- ARule1Arithmetics
|       |   `- AExprMultdivexpr
|       |       `- AExprExpexpr
|       |           `- AListcallExpression
|       |               |- AIdentifier
|       |               |   `- l
|       |               |- [
|       |               |- ARule1Arithmetics
|       |               |   `- AExprMultdivexpr
|       |               |       `- AExprExpexpr
|       |               |           `- AElementExpression
|       |               |               `- AValueElement
|       |               |                   `- ANumberValue
|       |               |                       `- 0
|       |               `- ]
|       `- ACommaExpr
|           |- ,
|           `- ARule1Arithmetics
|               `- AExprMultdivexpr
|                   `- AExprExpexpr
|                       `- ALenExpression
|                           |- len
|                           |- (
|                           |- ARule1Arithmetics
|                           |   `- AExprMultdivexpr
|                           |       `- AExprExpexpr
|                           |           `- AElementExpression
|                           |               `- AIdentifierElement
```

```
|         |                |                     `- AIdentifier
|         :                |                        `- l
|                          `- )
|- AStatementCommands
|    `- AForStatement
|         |- for
|         |- AIdentifier
|         |    `- i
|         |- in
|         |- AIdentifier
|         |    `- l
|         |- :
|         `- APrintStatement
|              |- print
|              `- ARule1Arithmetics
|                   `- AExprMultdivexpr
|                        `- AExprExpexpr
|                             `- AElementExpression
|                                  `- AIdentifierElement
|                                       `- AIdentifier
|                                            `- i
|- AStatementCommands
|    `- AAssignmentsStatement
|         |- AIdentifier
|         |    `- b
|         |- AMinusassignAssignmentOperators
|         |    `- -=
|         `- ARule1Arithmetics
|              `- AExprMultdivexpr
|                   `- AExprExpexpr
|                        `- AElementExpression
|                             `- AIdentifierElement
|                                  `- AIdentifier
|                                       `- a
|- AStatementCommands
|    `- AReturnStatement
|         |- return
|         `- ARule1Arithmetics
|              `- AExprMultdivexpr
|                   `- AExprExpexpr
|                        `- AElementExpression
|                             `- AIdentifierElement
|                                  `- AIdentifier
|                                       `- b
|- AFunctionCommands
|    `- AFunction
|         |- def
|         |- AIdentifier
|         |    `- funcwithdef
|         |- (
|         |- AArgument
|         |    |- AIdentifier
|         |    |    `- name
|         |    `- AMoreAssignments
|         |         |- ,
|         |         |- AIdentifier
|         |         |    `- university
|         |         `- AAssignValue
|         |              |- =
|         |              `- AStrlitValue
|         |                   `- "aueb"
|         |- )
|         |- :
|         `- APrintStatement
```

```
|           |- print
|           |- ARule1Arithmetics
|           |   `- AExprMultdivexpr
|           |       `- AExprExpexpr
|           |           `- AElementExpression
|           |               `- AIdentifierElement
|           |                   `- AIdentifier
|           |                       `- name
|           |- ACommaExpr
|           |   |- ,
|           |   `- ARule1Arithmetics
|           |       `- AExprMultdivexpr
|           |           `- AExprExpexpr
|           |               `- AElementExpression
|           |                   `- AValueElement
|           |                       `- AStrlitValue
|           |                           `- " studies in "
|           `- ACommaExpr
|               |- ,
|               `- ARule1Arithmetics
|                   `- AExprMultdivexpr
|                       `- AExprExpexpr
|                           `- AElementExpression
|                               `- AIdentifierElement
|                                   `- AIdentifier
|                                       `- university
`- AStatementCommands
    `- APrintStatement
        |- print
        `- ARule1Arithmetics
            `- AExprMultdivexpr
                `- AExprExpexpr
                    `- AElementExpression
                        `- AFunctionElement
                            `- AFunctionCall
                                |- AIdentifier
                                |   `- fib
                                |- (
                                |- AArgList
                                |   `- ARule1Arithmetics
                                |       `- AExprMultdivexpr
                                |           `- AExprExpexpr
                                |               `- AElementExpression
                                |                   `- AValueElement
                                |                       `- ANumberValue
                                |                           `- 3
                                `- )
```