Relatório de entrega etapa 6

Guilherme Domingos Santana - 00301388

Programa Sample

Código:

```
\\ UFRGS - Compiladores - Marcelo Johann - 2023/1

char c='x';
char d=100;
int a.a='A';
int i=1;
int v[10] 'a' 0'b'0 0 0 0 0 0 0;
int matrix[100];
real f=2.5;
bool b = 0;

\\\
Este eh um comentario
de multiplas
linhas
///

int main ()
  {
  a.a = 0;
  d = d - i;
  d = 5;
  v[d] = 55;
  output v[5];
  output d;
  i = 2;

  output "Digite um numero: \n";
  d = input(int);
  output "Digite mais um numero: \n";

  if (i<10) loop
    {
    i = incn(i,1);
    d = incn(d,d);
```

```
        }

    output "Incrementado algumas vezes a fica ",(2+x),a,"\n";

    if (a==15)
        {
        a = a + 1;
        output "A era=15\n";
        }

    if (i==100)
        {
        output "Nao tem como isso...\n";
        }
    else
        output "OK!\n";
    {{}} {}
    }

int incn (int x, int n )
    {
    return x + n;
    }

\\ end of file
```

Resultado:

```
555Digite um numero:
3
Digite mais um numero:
4
Incrementado algumas vezes a fica 24
OK!
```

Log:

```
gdsantana@DESKTOP-IF73HRM:/mnt/e/Area de
Trabalho/INF01147-Compiladores/Etapa6$ make clean && make && ./etapa6
tests/teste_sample.txt output.txt && gcc tests/teste_sample.s && ./a.out
rm lex.yy.c y.tab.c y.tab.h *.o etapa6
```

```
gcc -c -g main.c
yacc -d parser.y
parser.y: warning: 1 shift/reduce conflict [-Wconflicts-sr]
parser.y: warning: 2 reduce/reduce conflict [-Wconflicts-rr]
lex scanner.l
gcc -c -g  lex.yy.c
gcc -c -g  y.tab.c
gcc -c -g  hash.c
gcc -c -g  ast.c
gcc -c -g tacs.c
gcc -c -g  asm.c
gcc main.o lex.yy.o y.tab.o hash.o ast.o tacs.o asm.o -g -o etapa6



AST_PROGRAM
  AST_LIST
    AST_ELEMENT
      AST_GLOBAL_VAR
        AST_KW_CHAR
        AST_SYMBOL
    AST_LIST
      AST_ELEMENT
        AST_GLOBAL_VAR
          AST_KW_CHAR
          AST_SYMBOL
      AST_LIST
        AST_ELEMENT
          AST_GLOBAL_VAR
            AST_KW_INT
            AST_SYMBOL
        AST_LIST
          AST_ELEMENT
            AST_GLOBAL_VAR
              AST_KW_INT
              AST_SYMBOL
          AST_LIST
            AST_ELEMENT
              AST_GLOBAL_VAR_ARRAY
                AST_KW_INT
                AST_SYMBOL
                AST_ARRAY
                  AST_SYMBOL
```

```
                    AST_ARRAY
                  AST_SYMBOL
                  AST_ARRAY
                    AST_SYMBOL
                    AST_ARRAY
                      AST_SYMBOL
                      AST_ARRAY
                        AST_SYMBOL
                        AST_SYMBOL
        AST_LIST
          AST_ELEMENT
            AST_GLOBAL_VAR_ARRAY
              AST_KW_INT
              AST_SYMBOL
          AST_LIST
            AST_ELEMENT
              AST_GLOBAL_VAR
                AST_KW_REAL
                AST_SYMBOL
            AST_LIST
              AST_ELEMENT
                AST_GLOBAL_VAR
                  AST_KW_BOOL
                  AST_SYMBOL
              AST_LIST
                AST_ELEMENT
                  AST_FUNC
                    AST_HEADER
                      AST_KW_INT
                    AST_BLOCK
                      AST_COMMAND_LIST
                        AST_ATTR
                          AST_SYMBOL
                        AST_COMMAND_LIST
                          AST_ATTR
                            AST_SUB
                              AST_SYMBOL
                              AST_SYMBOL
                          AST_COMMAND_LIST
                            AST_ATTR
                              AST_SYMBOL
                            AST_COMMAND_LIST
```

```
AST_ATTR_ARRAY
  AST_ARRAY_ELEMENT
    AST_SYMBOL
  AST_SYMBOL
AST_COMMAND_LIST
  AST_OUTPUT
    AST_ARRAY_ELEMENT
      AST_SYMBOL
  AST_COMMAND_LIST
    AST_OUTPUT
      AST_SYMBOL
    AST_COMMAND_LIST
      AST_ATTR
        AST_SYMBOL
      AST_COMMAND_LIST
        AST_LOOP
          AST_LT
            AST_SYMBOL
            AST_SYMBOL
          AST_BLOCK
            AST_COMMAND_LIST
              AST_ATTR
                AST_FUNC_CALL
                  AST_LIST_ARGS
                    AST_SYMBOL
                    AST_SYMBOL
              AST_ATTR
                AST_FUNC_CALL
                  AST_LIST_ARGS
                    AST_SYMBOL
                    AST_SYMBOL
        AST_COMMAND_LIST
          AST_OUTPUT
            AST_SYMBOL
          AST_COMMAND_LIST
            AST_ATTR_INPUT
              AST_INPUT
                AST_KW_INT
            AST_COMMAND_LIST
              AST_OUTPUT
                AST_SYMBOL
              AST_COMMAND_LIST
```

```
AST_LOOP
  AST_LT
    AST_SYMBOL
    AST_SYMBOL
  AST_BLOCK
    AST_COMMAND_LIST
      AST_ATTR
        AST_FUNC_CALL
          AST_LIST_ARGS
            AST_SYMBOL
            AST_SYMBOL
      AST_ATTR
        AST_FUNC_CALL
          AST_LIST_ARGS
            AST_SYMBOL
            AST_SYMBOL
  AST_COMMAND_LIST
    AST_OUTPUT
      AST_LIST_ELEMENTS
        AST_SYMBOL
        AST_LIST_ELEMENTS
          AST_EXPRESSION_BLOCK
            AST_ADD
              AST_SYMBOL
              AST_SYMBOL
          AST_LIST_ELEMENTS
            AST_SYMBOL
            AST_SYMBOL
  AST_COMMAND_LIST
    AST_IF
      AST_EQ
        AST_SYMBOL
        AST_SYMBOL
      AST_BLOCK
        AST_COMMAND_LIST
          AST_ATTR
            AST_ADD
              AST_SYMBOL
              AST_SYMBOL
          AST_OUTPUT
            AST_SYMBOL
  AST_COMMAND_LIST
```

```
                                                                AST_IF
                                                                  AST_EQ
                                                                    AST_SYMBOL
                                                                    AST_SYMBOL
                                                                  AST_BLOCK
                                                                    AST_OUTPUT
                                                                      AST_SYMBOL
                                                                  AST_OUTPUT
                                                                    AST_SYMBOL
                                                                AST_COMMAND_LIST
                                                                  AST_BLOCK
                                                                    AST_BLOCK
                                                                  AST_BLOCK
                          AST_LIST
                            AST_ELEMENT
                              AST_FUNC
                                AST_HEADER
                                  AST_KW_INT
                                  AST_PARAMS
                                    AST_PARAM
                                      AST_KW_INT
                                    AST_PARAM
                                      AST_KW_INT
                                AST_BLOCK
                                  AST_RETURN
                                    AST_ADD
                                      AST_SYMBOL
                                      AST_SYMBOL


hash after tacGenerateCode

_TMP_LABEL_0Table[23]    has main           type 259         dataType 1
dataValue 0     dataString (null)
Table[24]        has _TMP_VAR_11          type 1607       dataType 5
dataValue 0     dataString \n
Table[36]        has _TMP_VAR_4           type 1607       dataType 0
dataValue 0     dataString (null)
Table[43]        has +            type 269         dataType 0       dataValue 0
dataString (null)
Table[47]        has /            type 272         dataType 0       dataValue 0
dataString (null)
Table[48]        has 0            type 262         dataType 1       dataValue 0
```

dataString (null)
Table[49]   has 1   type 262   dataType 1   dataValue 1
dataString (null)
Table[50]   has _TMP_LABEL_1   type 265   dataType 0
dataValue 0   dataString (null)
Table[50]   has 2   type 262   dataType 1   dataValue 2
dataString (null)
Table[51]   has 3   type 262   dataType 1   dataValue 3
dataString (null)
Table[53]   has 5   type 262   dataType 1   dataValue 5
dataString (null)
Table[60]   has <   type 274   dataType 0   dataValue 0
dataString (null)
Table[62]   has >   type 276   dataType 0   dataValue 0
dataString (null)
Table[87]   has _TMP_VAR_15   type 1607   dataType 5
dataValue 0   dataString A era=15\n
Table[97]   has a   type 258   dataType 1   dataValue 0
dataString (null)
Table[99]   has _TMP_VAR_20   type 1607   dataType 0
dataValue 0   dataString (null)
Table[99]   has c   type 258   dataType 2   dataValue 120
dataString 'x'
Table[100]   has d   type 258   dataType 2   dataValue 48
dataString 100
Table[102]   has f   type 258   dataType 3   dataValue 2
dataString 3
Table[105]   has i   type 258   dataType 1   dataValue 1
dataString (null)
Table[110]   has n   type 260   dataType 1   dataValue 0
dataString (null)
Table[112]   has _TMP_VAR_3   type 1607   dataType 0
dataValue 0   dataString (null)
Table[118]   has v   type 261   dataType 10   dataValue 10
dataString (null)
Table[120]   has x   type 260   dataType 1   dataValue 0
dataString (null)
Table[150]   has _TMP_VAR_19   type 1607   dataType 0
dataValue 0   dataString (null)
Table[171]   has matrix   type 261   dataType 10   dataValue 100
dataString (null)
Table[188]   has _TMP_VAR_2   type 1607   dataType 5

```
dataValue 0      dataString Digite um numero: \n
Table[260]      has \n           type 264      dataType 5      dataValue 0
dataString (null)
Table[264]      has _TMP_VAR_1           type 1607      dataType 0
dataValue 0      dataString (null)
Table[289]      has _TMP_VAR_12          type 1607      dataType 5
dataValue 0      dataString Incrementado algumas vezes a fica
Table[340]      has _TMP_VAR_0           type 1607      dataType 0
dataValue 0      dataString (null)
Table[352]      has _TMP_VAR_16          type 1607      dataType 0
dataValue 0      dataString (null)
Table[364]      has label__dash__x       type 265      dataType 0
dataValue 0      dataString (null)
Table[401]      has _TMP_LABEL_6         type 265      dataType 0
dataValue 0      dataString (null)
Table[406]      has 10           type 262      dataType 1      dataValue 10
dataString (null)
Table[460]      has _TMP_LABEL_4         type 265      dataType 0
dataValue 0      dataString (null)
Table[510]      has incn          type 259      dataType 1      dataValue 0
dataString (null)
Table[519]      has _TMP_LABEL_2         type 265      dataType 265
dataValue 0      dataString label__dash__x
Table[554]      has _TMP_VAR_13          type 1607      dataType 0
dataValue 0      dataString (null)
Table[578]      has _TMP_LABEL_0         type 265      dataType 0
dataValue 0      dataString (null)
Table[592]      has OK!\n          type 264      dataType 5      dataValue 0
dataString (null)
Table[593]      has 100           type 262      dataType 1      dataValue 100
dataString (null)
Table[617]      has _TMP_VAR_17          type 1607      dataType 5
dataValue 0      dataString Nao tem como isso....\n
Table[653]      has _TMP_VAR_9           type 1607      dataType 0
dataValue 0      dataString (null)
Table[656]      has 15           type 262      dataType 1      dataValue 15
dataString (null)
Table[705]      has Digite um numero: \n        type 264      dataType 5
dataValue 0      dataString (null)
Table[729]      has _TMP_VAR_8           type 1607      dataType 0
dataValue 0      dataString (null)
Table[742]      has 'A'           type 263      dataType 2      dataValue 0
```

```
dataString (null)
Table[756]        has _TMP_VAR_10        type 1607        dataType 0
dataValue 0      dataString (null)
Table[779]         has Nao tem como isso....\n        type 264
dataType 5        dataValue 0      dataString (null)
Table[781]         has Incrementado algumas vezes a fica        type 264
dataType 5        dataValue 0      dataString (null)
Table[791]        has ==        type 277        dataType 0      dataValue 0
dataString (null)
Table[800]        has 'x'        type 263        dataType 2      dataValue 0
dataString (null)
Table[805]        has _TMP_VAR_7        type 1607        dataType 0
dataValue 0      dataString (null)
Table[812]        has 'a'        type 281        dataType 0      dataValue 0
dataString (null)
Table[814]        has __dash__        type 270        dataType 0
dataValue 0      dataString (null)
Table[819]        has _TMP_VAR_14        type 1607        dataType 0
dataValue 0      dataString (null)
Table[855]        has A era=15\n        type 264        dataType 5
dataValue 0      dataString (null)
Table[868]        has 55        type 262        dataType 1      dataValue 55
dataString (null)
Table[881]        has _TMP_VAR_6        type 1607        dataType 0
dataValue 0      dataString (null)
Table[882]        has _TMP_VAR_18        type 1607        dataType 5
dataValue 0      dataString OK!\n
Table[929]        has _TMP_LABEL_5        type 265        dataType 0
dataValue 0      dataString (null)
Table[957]        has _TMP_VAR_5        type 1607        dataType 0
dataValue 0      dataString (null)
Table[988]        has _TMP_LABEL_3        type 265        dataType 0
dataValue 0      dataString (null)


TAC(TAC_GLOBAL_VAR_CHAR, c, 'x', 0);
TAC(TAC_GLOBAL_VAR_CHAR, d, 100, 0);
TAC(TAC_GLOBAL_VAR_INT, a, 'A', 0);
TAC(TAC_GLOBAL_VAR_INT, i, 1, 0);
TAC(TAC_GLOBAL_VAR_ARR, v, 'a', 10);
TAC(TAC_GLOBAL_VAR_ARR, v, 0, 10);
TAC(TAC_GLOBAL_VAR_ARR, v, 0, 10);
```

```
TAC(TAC_GLOBAL_VAR_ARR, v, 0, 10);
TAC(TAC_GLOBAL_VAR_ARR, v, 0, 10);
TAC(TAC_GLOBAL_VAR_ARR, v, 0, 10);
TAC(TAC_GLOBAL_VAR_ARR, v, 0, 10);
TAC(TAC_GLOBAL_VAR_ARR, v, 0, 10);
TAC(TAC_GLOBAL_VAR_ARR, v, 0, 10);
TAC(TAC_GLOBAL_VAR_ARR, v, 0, 10);
TAC(TAC_GLOBAL_VAR_ARR, matrix, 0, 100);
TAC(TAC_GLOBAL_VAR_REAL, f, 2, 3);
TAC(TAC_BEGINFUN, main, _TMP_LABEL_6, 0);
TAC(TAC_MOVE, a, 0, 0);
TAC(TAC_SUB, _TMP_VAR_0, a, i);
TAC(TAC_MOVE, a, _TMP_VAR_0, 0);
TAC(TAC_MOVE, a, 5, 0);
TAC(TAC_ARR_SET_ELEMENT, v, a, 55);
TAC(TAC_ARR_GET_ELEMENT, _TMP_VAR_1, v, 5);
TAC(TAC_OUTPUT_INT, _TMP_VAR_1, 0, 0);
TAC(TAC_OUTPUT, _TMP_VAR_1, 0, 0);
TAC(TAC_OUTPUT_INT, a, 0, 0);
TAC(TAC_OUTPUT, a, 0, 0);
TAC(TAC_MOVE, i, 2, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_2, 0, 0);
TAC(TAC_OUTPUT, _TMP_VAR_2, 0, 0);
TAC(TAC_INPUT, _TMP_VAR_3, 0, 0);
TAC(TAC_MOVE, a, _TMP_VAR_3, 0);
TAC(TAC_LABEL, _TMP_LABEL_0, 0, 0);
TAC(TAC_LT, _TMP_VAR_4, i, 10);
TAC(TAC_JMPZ, _TMP_LABEL_1, _TMP_VAR_4, 0);
TAC(TAC_FUNC_CALL_ARGS, _TMP_VAR_5, 1, 0);
TAC(TAC_FUNC_CALL_ARGS, _TMP_VAR_6, i, _TMP_VAR_5);
TAC(TAC_FUN_CALL, _TMP_VAR_7, incn, 0);
TAC(TAC_MOVE, i, _TMP_VAR_7, 0);
TAC(TAC_FUNC_CALL_ARGS, _TMP_VAR_8, 1, 0);
TAC(TAC_FUNC_CALL_ARGS, _TMP_VAR_9, a, _TMP_VAR_8);
TAC(TAC_FUN_CALL, _TMP_VAR_10, incn, 0);
TAC(TAC_MOVE, a, _TMP_VAR_10, 0);
TAC(TAC_JMP, _TMP_LABEL_0, 0, 0);
TAC(TAC_LABEL, _TMP_LABEL_1, 0, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_12, 0, 0);
TAC(TAC_OUTPUT_INT, a, 0, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_11, 0, 0);
TAC(TAC_OUTPUT, _TMP_VAR_11, 0, 0);
```

```
TAC(TAC_EQ, _TMP_VAR_13, a, 15);
TAC(TAC_JMPZ, _TMP_LABEL_3, _TMP_VAR_13, 0);
TAC(TAC_LABEL, _TMP_LABEL_2, label__dash__x, 0);
TAC(TAC_SUB, _TMP_VAR_14, a, 1);
TAC(TAC_MOVE, a, _TMP_VAR_14, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_15, 0, 0);
TAC(TAC_OUTPUT, _TMP_VAR_15, 0, 0);
TAC(TAC_LABEL, _TMP_LABEL_3, 0, 0);
TAC(TAC_EQ, _TMP_VAR_16, i, 100);
TAC(TAC_JMPZ, _TMP_LABEL_4, _TMP_VAR_16, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_17, 0, 0);
TAC(TAC_OUTPUT, _TMP_VAR_17, 0, 0);
TAC(TAC_JMP, _TMP_LABEL_5, 0, 0);
TAC(TAC_LABEL, _TMP_LABEL_4, 0, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_18, 0, 0);
TAC(TAC_OUTPUT, _TMP_VAR_18, 0, 0);
TAC(TAC_LABEL, _TMP_LABEL_5, 0, 0);
TAC(TAC_GT, _TMP_VAR_19, a, 0);
TAC(TAC_JMPZ, _TMP_LABEL_6, _TMP_VAR_19, 0);
TAC(TAC_LABEL, _TMP_LABEL_6, 0, 0);
TAC(TAC_ENDFUN, main, 0, 0);
TAC(TAC_DEC_FUNC_ARGS, n, 0, 0);
TAC(TAC_DEC_FUNC_ARGS, x, n, 0);
TAC(TAC_BEGINFUN, incn, _TMP_VAR_20, 0);
TAC(TAC_ADD, _TMP_VAR_20, x, n);
TAC(TAC_RETURN, _TMP_VAR_20, 0, 0);
TAC(TAC_ENDFUN, incn, x, 0);


.Numero de linhas: 63.
555Digite um numero:
3
Digite mais um numero:
4
Incrementado algumas vezes a fica 24
OK!

Table[13] has __LABEL[2]
Table[23] has main
Table[43] has +
Table[45] has -
Table[48] has 0
```

```
Table[49] has 1
Table[50] has 2
Table[53] has 5
Table[60] has <
Table[97] has a
Table[98] has b
Table[99] has c
Table[100] has d
Table[102] has _TMP-VAR_[15]
Table[102] has f
Table[105] has i
Table[110] has n
Table[118] has v
Table[120] has x
Table[171] has matrix
Table[206] has __LABEL[6]
Table[214] has __LABEL[1]
Table[233] has _TMP-VAR_[11]
Table[253] has _TMP-VAR_[18]
Table[260] has \n
Table[273] has Nao tem como isso...\n
Table[384] has _TMP-VAR_[14]
Table[406] has 10
Table[407] has __LABEL[5]
Table[407] has Digite mais um numero: \n
Table[415] has __LABEL[0]
Table[491] has _TMP-VAR_[9]
Table[510] has incn
Table[515] has _TMP-VAR_[10]
Table[519] has _TMP-VAR_[8]
Table[535] has _TMP-VAR_[17]
Table[537] has 0 0
Table[547] has _TMP-VAR_[7]
Table[575] has _TMP-VAR_[6]
Table[592] has OK!\n
Table[593] has 100
Table[603] has _TMP-VAR_[5]
Table[608] has __LABEL[4]
Table[631] has _TMP-VAR_[4]
Table[656] has 15
Table[659] has _TMP-VAR_[3]
Table[666] has _TMP-VAR_[13]
```

```
Table[687] has _TMP-VAR_[2]
Table[687] has a.a
Table[705] has Digite um numero: \n
Table[715] has _TMP-VAR_[1]
Table[742] has 'A'
Table[743] has _TMP-VAR_[0]
Table[763] has 2.5
Table[781] has Incrementado algumas vezes a fica
Table[791] has ==
Table[800] has 'x'
Table[809] has __LABEL[3]
Table[812] has 'a'
Table[817] has _TMP-VAR_[16]
Table[855] has A era=15\n
Table[868] has 55
Table[948] has _TMP-VAR_[12]
Table[968] has _TMP-VAR_[19]
```

Programa teste 1:
Código:

```
int a = 0;
int b = 0;
int result = 0;

int main() {
    output "Teste 1:";

    output "Atribuições e operações aritmeticas com impressão:
[input, +, -, *, /] \n";

    output "\n", "Enter the first value: ";
    a = input(int);
    output "Enter the second value: ";
    b = input(int);

    output "\n", "input1 + input2 = ", a + b;
    output "\n", "input1 - input2 = ", a - b;
    output "\n", "input1 * input2 = ", a * b;
    output "\n", "input1 / input2 = ", a / b, "\n";
}
```

Resultado:

```
Teste 1:Atribuições e operações aritmeticas com impressão:  [read, +, -, *,
/]

Enter the first value: 36
Enter the second value: 4

input1 + input2 = 40
input1 - input2 = 32
input1 * input2 = 144
input1 / input2 = 9
```

Logs:

```
gdsantana@DESKTOP-IF73HRM:/mnt/e/Area de
Trabalho/INF01147-Compiladores/Etapa6$ make clean && make && ./etapa6
tests/teste_1.txt output.txt && gcc tests/teste_1.s && ./a.out
rm lex.yy.c y.tab.c y.tab.h *.o etapa6
gcc -c -g main.c
yacc -d parser.y
parser.y: warning: 1 shift/reduce conflict [-Wconflicts-sr]
parser.y: warning: 2 reduce/reduce conflict [-Wconflicts-rr]
lex scanner.l
```

```
gcc -c -g  lex.yy.c
gcc -c -g  y.tab.c
gcc -c -g  hash.c
gcc -c -g  ast.c
gcc -c -g tacs.c
gcc -c -g  asm.c
gcc main.o lex.yy.o y.tab.o hash.o ast.o semantic.o tacs.o asm.o -g -o etapa6


AST_PROGRAM
  AST_LIST
    AST_ELEMENT
      AST_GLOBAL_VAR
        AST_KW_INT
        AST_SYMBOL
    AST_LIST
      AST_ELEMENT
        AST_GLOBAL_VAR
          AST_KW_INT
          AST_SYMBOL
      AST_LIST
        AST_ELEMENT
          AST_GLOBAL_VAR
            AST_KW_INT
            AST_SYMBOL
        AST_LIST
          AST_ELEMENT
            AST_FUNC
              AST_HEADER
                AST_KW_INT
              AST_BLOCK
                AST_COMMAND_LIST
                  AST_OUTPUT
                    AST_SYMBOL
                  AST_COMMAND_LIST
                    AST_OUTPUT
                      AST_SYMBOL
                    AST_COMMAND_LIST
                      AST_OUTPUT
                        AST_LIST_ELEMENTS
                          AST_SYMBOL
                          AST_SYMBOL
```

```
                    AST_COMMAND_LIST
                AST_ATTR_INPUT
                  AST_INPUT
                    AST_KW_INT
                AST_COMMAND_LIST
                  AST_OUTPUT
                    AST_SYMBOL
                  AST_COMMAND_LIST
                    AST_ATTR_INPUT
                      AST_INPUT
                        AST_KW_INT
                    AST_COMMAND_LIST
                      AST_OUTPUT
                        AST_LIST_ELEMENTS
                          AST_SYMBOL
                          AST_LIST_ELEMENTS
                            AST_SYMBOL
                            AST_ADD
                              AST_SYMBOL
                              AST_SYMBOL
                      AST_COMMAND_LIST
                        AST_OUTPUT
                          AST_LIST_ELEMENTS
                            AST_SYMBOL
                            AST_LIST_ELEMENTS
                              AST_SYMBOL
                              AST_SUB
                                AST_SYMBOL
                                AST_SYMBOL
                        AST_COMMAND_LIST
                          AST_OUTPUT
                            AST_LIST_ELEMENTS
                              AST_SYMBOL
                              AST_LIST_ELEMENTS
                                AST_SYMBOL
                                AST_MULT
                                  AST_SYMBOL
                                  AST_SYMBOL
                          AST_OUTPUT
                            AST_LIST_ELEMENTS
                              AST_SYMBOL
                              AST_LIST_ELEMENTS
```

```
                                        AST_SYMBOL
                                   AST_LIST_ELEMENTS
                                      AST_DIV
                                        AST_SYMBOL
                                        AST_SYMBOL
                                      AST_SYMBOL


hash after tacGenerateCode


Table[0]          has input1 * input2 =              type 264          dataType 5
dataValue 0      dataString (null)
Table[23]         has main          type 259          dataType 1      dataValue 0
dataString (null)
Table[24]          has _TMP_VAR_11          type 1607          dataType 5
dataValue 0      dataString input1 __dash__ input2 =
Table[36]          has _TMP_VAR_4          type 1607          dataType 0
dataValue 0      dataString (null)
Table[37]          has Enter the first value:              type 264
dataType 5      dataValue 0      dataString (null)
Table[42]          has *              type 271          dataType 0      dataValue 0
dataString (null)
Table[43]          has +              type 269          dataType 0      dataValue 0
dataString (null)
Table[47]          has /              type 272          dataType 0      dataValue 0
dataString (null)
Table[48]          has 0              type 262          dataType 1      dataValue 0
dataString (null)
Table[75]          has Teste 1:          type 264          dataType 5
dataValue 0      dataString (null)
Table[87]          has _TMP_VAR_15          type 1607          dataType 5
dataValue 0      dataString \n
Table[112]         has _TMP_VAR_3          type 1607          dataType 5
dataValue 0      dataString \n
Table[150]         has _TMP_VAR_19          type 1607          dataType 5
dataValue 0      dataString \n
Table[154]         has input__dash__one              type 258          dataType 1
dataValue 0      dataString (null)
Table[188]         has _TMP_VAR_2          type 1607          dataType 5
dataValue 0      dataString Enter the first value:
Table[208]         has input1 / input2 =              type 264          dataType 5
dataValue 0      dataString (null)
Table[241]         has input1 + input2 =              type 264          dataType 5
```

```
dataValue 0      dataString (null)
Table[260]       has \n             type 264       dataType 5      dataValue 0
dataString (null)
Table[264]       has _TMP_VAR_1          type 1607       dataType 5
dataValue 0      dataString Atribuições e operações aritmeticas com impressão:
[read, +, __dash__, *, /] \n
Table[289]       has _TMP_VAR_12         type 1607       dataType 5
dataValue 0      dataString \n
Table[340]       has _TMP_VAR_0          type 1607       dataType 5
dataValue 0      dataString Teste 1:
Table[352]       has _TMP_VAR_16         type 1607       dataType 0
dataValue 0      dataString (null)
Table[554]       has _TMP_VAR_13         type 1607       dataType 0
dataValue 0      dataString (null)
Table[617]       has _TMP_VAR_17         type 1607       dataType 5
dataValue 0      dataString \n
Table[653]       has _TMP_VAR_9          type 1607       dataType 5
dataValue 0      dataString \n
Table[686]       has input__dash__two          type 258       dataType 1
dataValue 0      dataString (null)
Table[717]       has Enter the second value:          type 264
dataType 5      dataValue 0      dataString (null)
Table[729]       has _TMP_VAR_8          type 1607       dataType 5
dataValue 0      dataString input1 + input2 =
Table[748]       has result      type 258       dataType 1      dataValue 0
dataString (null)
Table[756]       has _TMP_VAR_10         type 1607       dataType 0
dataValue 0      dataString (null)
Table[805]       has _TMP_VAR_7          type 1607       dataType 0
dataValue 0      dataString (null)
Table[814]       has __dash__            type 270       dataType 0
dataValue 0      dataString (null)
Table[819]       has _TMP_VAR_14         type 1607       dataType 5
dataValue 0      dataString input1 * input2 =
Table[876]       has input1 __dash__ input2 =          type 264
dataType 5      dataValue 0      dataString (null)
Table[881]       has _TMP_VAR_6          type 1607       dataType 0
dataValue 0      dataString (null)
Table[882]       has _TMP_VAR_18         type 1607       dataType 5
dataValue 0      dataString input1 / input2 =
Table[943]       has Atribuições e operações aritmeticas com impressão:
[read, +, __dash__, *, /] \n             type 264       dataType 5
```

```
dataValue 0      dataString (null)
Table[957]        has _TMP_VAR_5          type 1607       dataType 5
dataValue 0      dataString Enter the second value:


TAC(TAC_GLOBAL_VAR_INT, input__dash__one, 0, 0);
TAC(TAC_GLOBAL_VAR_INT, input__dash__two, 0, 0);
TAC(TAC_GLOBAL_VAR_INT, result, 0, 0);
TAC(TAC_BEGINFUN, main, _TMP_VAR_17, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_0, 0, 0);
TAC(TAC_OUTPUT, _TMP_VAR_0, 0, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_1, 0, 0);
TAC(TAC_OUTPUT, _TMP_VAR_1, 0, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_3, 0, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_2, 0, 0);
TAC(TAC_OUTPUT, _TMP_VAR_2, 0, 0);
TAC(TAC_INPUT, _TMP_VAR_4, 0, 0);
TAC(TAC_MOVE, input__dash__one, _TMP_VAR_4, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_5, 0, 0);
TAC(TAC_OUTPUT, _TMP_VAR_5, 0, 0);
TAC(TAC_INPUT, _TMP_VAR_6, 0, 0);
TAC(TAC_MOVE, input__dash__two, _TMP_VAR_6, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_9, 0, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_8, 0, 0);
TAC(TAC_ADD, _TMP_VAR_7, input__dash__one, input__dash__two);
TAC(TAC_OUTPUT_INT, _TMP_VAR_7, 0, 0);
TAC(TAC_OUTPUT, _TMP_VAR_7, 0, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_12, 0, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_11, 0, 0);
TAC(TAC_SUB, _TMP_VAR_10, input__dash__one, input__dash__two);
TAC(TAC_OUTPUT_INT, _TMP_VAR_10, 0, 0);
TAC(TAC_OUTPUT, _TMP_VAR_10, 0, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_15, 0, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_14, 0, 0);
TAC(TAC_MULT, _TMP_VAR_13, input__dash__one, input__dash__two);
TAC(TAC_OUTPUT_INT, _TMP_VAR_13, 0, 0);
TAC(TAC_OUTPUT, _TMP_VAR_13, 0, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_19, 0, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_18, 0, 0);
TAC(TAC_DIV, _TMP_VAR_16, input__dash__one, input__dash__two);
TAC(TAC_OUTPUT_INT, _TMP_VAR_16, 0, 0);
TAC(TAC_OUTPUT_STRING, _TMP_VAR_17, 0, 0);
```

```
TAC(TAC_OUTPUT, _TMP_VAR_17, 0, 0);
TAC(TAC_ENDFUN, main, 0, 0);
Numero de linhas: 19.
Compilation Success.


Teste 1:Atribuições e operações aritmeticas com impressão:  [read, +, -, *, /]


Enter the first value: 36
Enter the second value: 4


input1 + input2 = 40
input1 - input2 = 32
input1 * input2 = 144
input1 / input2 = 9
```