**UNIVERSIDADE ESTADUAL DE SANTA CRUZ**

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**Projeto 1 d – Balanced expression to Pcode**

Ilhéus – BA

2016

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**Projeto 1 d – Balanced expression to Pcode**

Tentativa de implementação, em linguagem C, que converte uma expressão aritmética corretamente balanceada em instruções pcode.

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# Compilação

gcc -o teste pcode.c rpn2pci.c btree2rpn.c pushdown.c main.c

# Entrada

O programa recebe como entrada uma expressão aritmética corretamente balanceada com valores 1 e 2. (Evitar operações com 0)

# Execução

./teste “expressão”

# Exemplo

Run: ./teste ((1\*(1-2))+((2\*1)/2))

Input: ((1\*(1-2))+((2\*1)/2))

Pushdown Automata

|  |  |  |  |
| --- | --- | --- | --- |
| Step | .w | Stack | P |
| 0 | ((1\*(1-2))+((2\*1)/2)) |  | - |
| 1 | ((1\*(1-2))+((2\*1)/2)) | E | - |
| 2 | ( | (EAEB | P4 |
| 3 | ( | EAEB | - |
| 4 | ( | (EAEBAEB | P4 |
| 5 | ( | EAEBAEB | - |
| 6 | 1 | 1AEBAEB | P0 |
| 7 | 1 | AEBAEB | - |
| 8 | \* | \*EBAEB | P7 |
| 9 | \* | EBAEB | - |
| 10 | ( | (EAEBBAEB | P4 |
| 11 | ( | EAEBBAEB | - |
| 12 | 1 | 1AEBBAEB | P0 |
| 13 | 1 | AEBBAEB | - |
| 14 | - | -EBBAEB | P6 |
| 15 | - | EBBAEB | - |
| 16 | 2 | 2BBAEB | P1 |
| 17 | 2 | BBAEB | - |
| 18 | ) | )BAEB | P9 |
| 19 | ) | BAEB | - |
| 20 | ) | )AEB | P9 |
| 21 | ) | AEB | - |
| 22 | + | +EB | P5 |
| 23 | + | EB | - |
| 24 | ( | (EAEBB | P4 |
| 25 | ( | EAEBB | - |
| 26 | ( | (EAEBAEBB | P4 |
| 27 | ( | EAEBAEBB | - |
| 28 | 2 | 2AEBAEBB | P1 |
| 29 | 2 | AEBAEBB | - |
| 30 | \* | \*EBAEBB | P7 |
| 31 | 1 | EBAEBB | - |
| 32 | 1 | 1BAEBB | P0 |
| 33 | ) | BAEBB | - |
| 34 | ) | )AEBB | P9 |
| 35 | / | AEBB | - |
| 36 | / | /EBB | P8 |
| 37 | 2 | EBB | - |
| 38 | 2 | 2BB | P1 |
| 39 | ) | BB | - |
| 40 | ) | )B | P9 |
| 41 | ) | B | - |
| 42 | ) | ) | P9 |
| 43 | accept |  | - |

Reverse polish notation: 1 1 2 - \* 2 1 \* 2 / +

Output:

Inst Level Arg Top PC B Stack

INT 0 21 21 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

LIT 0 1 22 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1

STO 0 0 21 3 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

LIT 0 1 22 4 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1

STO 0 1 21 5 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

LIT 0 2 22 6 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2

STO 0 2 21 7 1 1 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

LOD 0 2 22 8 1 1 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2

LOD 0 1 23 9 1 1 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2 1

OPR 0 3 22 10 1 1 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1

STO 0 3 21 11 1 1 1 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

LOD 0 3 22 12 1 1 1 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1

LOD 0 2 23 13 1 1 1 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 2

OPR 0 4 22 14 1 1 1 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2

STO 0 4 21 15 1 1 1 2 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

LIT 0 2 22 16 1 1 1 2 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2

STO 0 5 21 17 1 1 1 2 1 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

LIT 0 1 22 18 1 1 1 2 1 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1

STO 0 6 21 19 1 1 1 2 1 2 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0

LOD 0 6 22 20 1 1 1 2 1 2 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1

LOD 0 5 23 21 1 1 1 2 1 2 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 2

OPR 0 4 22 22 1 1 1 2 1 2 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2

STO 0 7 21 23 1 1 1 2 1 2 2 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0

LIT 0 2 22 24 1 1 1 2 1 2 2 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 2

STO 0 8 21 25 1 1 1 2 1 2 2 1 2 2 0 0 0 0 0 0 0 0 0 0 0 0

LOD 0 8 22 26 1 1 1 2 1 2 2 1 2 2 0 0 0 0 0 0 0 0 0 0 0 0 2

LOD 0 7 23 27 1 1 1 2 1 2 2 1 2 2 0 0 0 0 0 0 0 0 0 0 0 0 2 2

OPR 0 5 22 28 1 1 1 2 1 2 2 1 2 2 0 0 0 0 0 0 0 0 0 0 0 0 1

STO 0 9 21 29 1 1 1 2 1 2 2 1 2 2 1 0 0 0 0 0 0 0 0 0 0 0

LOD 0 9 22 30 1 1 1 2 1 2 2 1 2 2 1 0 0 0 0 0 0 0 0 0 0 0 1

LOD 0 8 23 31 1 1 1 2 1 2 2 1 2 2 1 0 0 0 0 0 0 0 0 0 0 0 1 2

OPR 0 2 22 32 1 1 1 2 1 2 2 1 2 2 1 0 0 0 0 0 0 0 0 0 0 0 3

STO 0 10 21 33 1 1 1 2 1 2 2 1 2 2 1 3 0 0 0 0 0 0 0 0 0 0

OPR 0 0 0 2 1

# Download

https://github.com/gbfragoso/Expr2pci