Laboratório MIPS

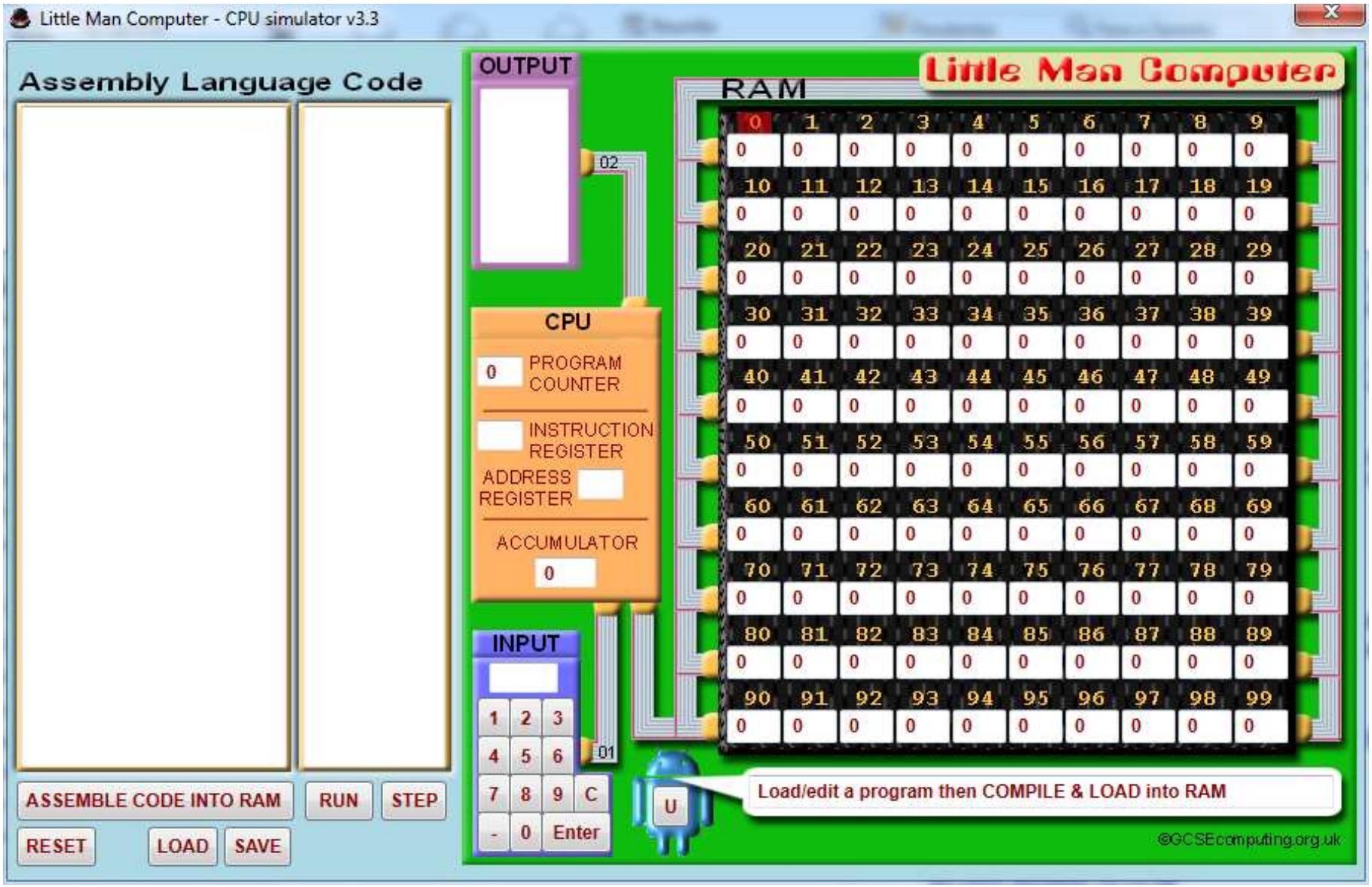
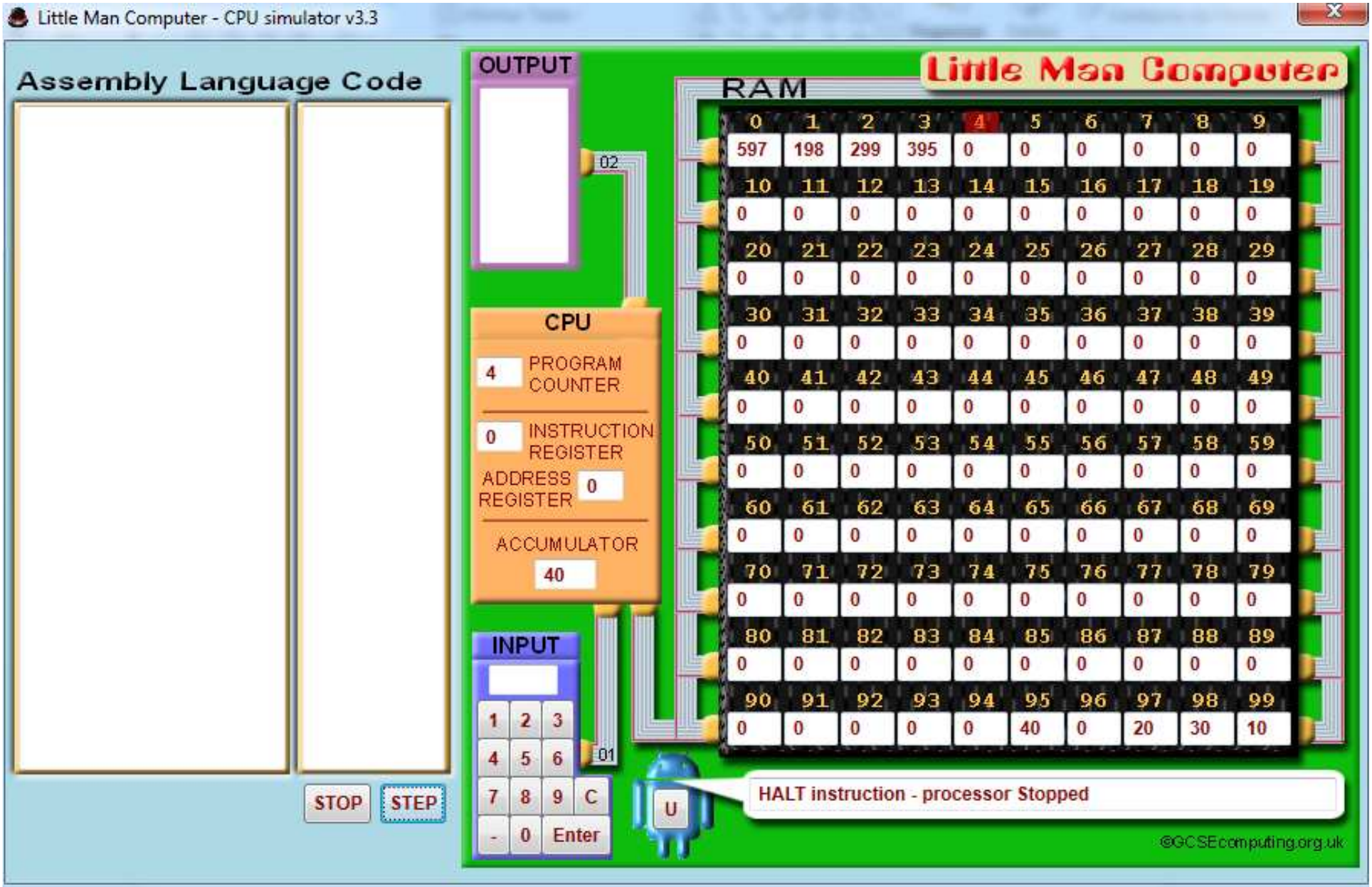

Little Man Computer - CPU simulator v3.3
Assembly Language Code
OUTPUT
02
CPU
0
PROGRAM COUNTER
INSTRUCTION REGISTER
ADDRESS REGISTER
ACCUMULATOR
0
INPUT
1 2 3
4 5 6
7 8 9 C
- 0 Enter
01
RAM
Little Man Computer
0 1 2 3 4 5 6 7 8 9
10 11 12 13 14 15 16 17 18 19
20 21 22 23 24 25 26 27 28 29
30 31 32 33 34 35 36 37 38 39
40 41 42 43 44 45 46 47 48 49
50 51 52 53 54 55 56 57 58 59
60 61 62 63 64 65 66 67 68 69
70 71 72 73 74 75 76 77 78 79
80 81 82 83 84 85 86 87 88 89
90 91 92 93 94 95 96 97 98 99
U
Load/edit a program then COMPILE & LOAD into RAM
ASSEMBLE CODE INTO RAM
RUN
STEP
RESET
LOAD
SAVE
©GCSEcomputing.org.uk

TABELA II

CONJUNTO DE INSTRUÇÕES USADO NO PARADIGMA LMC

Tipo	Mnemónica	Código	Descrição
Movimentação de Dados	LDA	5XX	Calculadora←[*mailbox* XX]
	STO	3XX	[*mailbox* XX]←calculadora
Cálculos	ADD	1XX	Calculadora←calculadora+ [*mailbox* XX]
	SUB	2XX	Calculadora←calculadora– [*mailbox* XX]
Entrada/Saída de Dados	IN	901	Calculadora←Valor entrada
	OUT	902	Valor saída←Calculadora
Parar	COB/HLT	000	Pausa no programa
Controlo de Fluxo do programa	BR	6XX	Salta para a instrução XX
	BRZ	7XX	SE calculadora=0 ENTÃO salta para a instrução XX SENÃO continua na instrução seguinte
	BRP	8XX	Se calculadora>=0 ENTÃO salta para a instrução XX SENÃO continua na instrução seguinte

X = 20 + 30 – 10

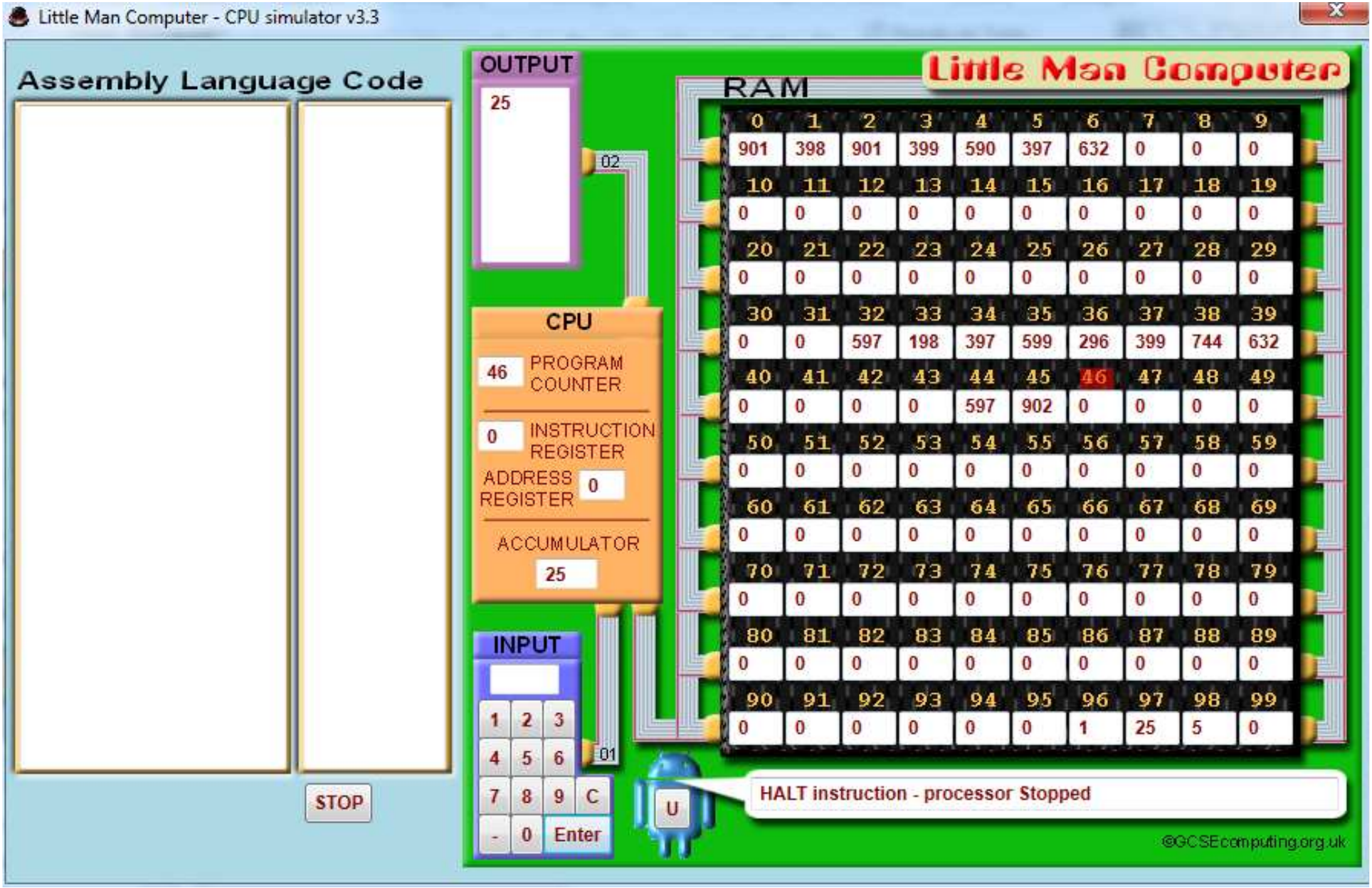

Little Man Computer - CPU simulator v3.3
Assembly Language Code
OUTPUT
02
CPU
4
PROGRAM COUNTER
0
INSTRUCTION REGISTER
ADDRESS REGISTER
0
ACCUMULATOR
40
INPUT
1 2 3
4 5 6
7 8 9 C
- 0 Enter
01
STOP
STEP
RAM
Little Man Computer
0 1 2 3 4 5 6 7 8 9
597 198 299 395 0 0 0 0 0 0
10 11 12 13 14 15 16 17 18 19
0 0 0 0 0 0 0 0 0 0
20 21 22 23 24 25 26 27 28 29
0 0 0 0 0 0 0 0 0 0
30 31 32 33 34 35 36 37 38 39
0 0 0 0 0 0 0 0 0 0
40 41 42 43 44 45 46 47 48 49
0 0 0 0 0 0 0 0 0 0
50 51 52 53 54 55 56 57 58 59
0 0 0 0 0 0 0 0 0 0
60 61 62 63 64 65 66 67 68 69
0 0 0 0 0 0 0 0 0 0
70 71 72 73 74 75 76 77 78 79
0 0 0 0 0 0 0 0 0 0
80 81 82 83 84 85 86 87 88 89
0 0 0 0 0 0 0 0 0 0
90 91 92 93 94 95 96 97 98 99
0 0 0 0 0 40 0 20 30 10
U
HALT instruction - processor Stopped
©GCSEcomputing.org.uk

$X = (20 + 30) – (10 + 10)$

$X = 10 + (30 - 20)$

Desafio.

$X = 20 * 5$


Little Man Computer - CPU simulator v3.3
Assembly Language Code
STOP
OUTPUT
25
02
CPU
46
PROGRAM COUNTER
0
INSTRUCTION REGISTER
ADDRESS REGISTER
0
ACCUMULATOR
25
INPUT
1 2 3
4 5 6
7 8 9 C
- 0 Enter
01
U
RAM
Little Man Computer
0 1 2 3 4 5 6 7 8 9
901 398 901 399 590 397 632 0 0 0
10 11 12 13 14 15 16 17 18 19
0 0 0 0 0 0 0 0 0 0
20 21 22 23 24 25 26 27 28 29
0 0 0 0 0 0 0 0 0 0
30 31 32 33 34 35 36 37 38 39
0 0 597 198 397 599 296 399 744 632
40 41 42 43 44 45 46 47 48 49
0 0 0 0 597 902 0 0 0 0
50 51 52 53 54 55 56 57 58 59
0 0 0 0 0 0 0 0 0 0
60 61 62 63 64 65 66 67 68 69
0 0 0 0 0 0 0 0 0 0
70 71 72 73 74 75 76 77 78 79
0 0 0 0 0 0 0 0 0 0
80 81 82 83 84 85 86 87 88 89
0 0 0 0 0 0 0 0 0 0
90 91 92 93 94 95 96 97 98 99
0 0 0 0 0 0 1 25 5 0
HALT instruction - processor Stopped
©GCSEcomputing.org.uk