Little Minion Computer Instruction Set

Mnemonic	op code	Description
ADD	1xx	Add
SUB	2xx	Subtract
STO	3xx	Store
LDA	5xx	Load
BR	6xx	Branch
BRZ	7xx	Branch on zero
BRP	8xx	Branch on positive
IN	901	Input
OUT	902	Output
HLT	000	Halt or Stop
DAT		Data storage location

ADD – op code 1

go to the mailbox address specified, read the 3-digit number at that address, then go to the calculator and add the number to the number already on the calculator.

SUBTRACT – op code 2

go to the mailbox address specified, read the 3-digit number at that address, then go to the calculator and subtract the number from the number already on the calculator.
Note: the mailboxes will still contain the same 3-digit messages as before, but the calculator will have changed. If the subtracted number is larger than the value already in the calculator (i.e. the subtraction ends with a negative value), then the **negative flag is set/activated** and the value in the calculator cannot be trusted to be right.

STORE – op code 3

go to the calculator and note the 3-digit number displayed, then go to mailbox address specified and enter that number on a new slip of paper.
Note: the calculator will still contain the same 3-digits as before, but the mailbox will have whatever was there before discarded.

LOAD – op code 5

go to the mailbox address specified, read the 3-digit number at that address, then go to the calculator and enter that number in.

BRANCH – op code 6

set the counter to the 2-digits specified in the address.
Note: The next instruction the minion reads is the one in the mailbox address specified.

BRANCH on ZERO – op code 7

go to the calculator and read the 3-digit number. If it is zero, set the counter to the 2-digits specified in the address, otherwise do nothing.

BRANCH on POSITIVE – op code 8

go to the calculator and check the negative flag. If it is not activated, set the counter to the 2-digits specified in the address, otherwise do nothing.

INPUT/OUTPUT – op code 9

INPUT or READ op code 9 address 01
go to the IN tray, read the 3-digit number there, then go to the calculator and enter the number in.
Note: The slip of paper in the IN tray with the 3-digits is removed. If there are several slips in the IN tray, the little minion takes the first one that was put there only, the others remain for future visits.
OUTPUT or PRINT op code 9 address 02
go to the calculator, read the 3-digit number there, then go to the OUT tray and leave a slip of paper with that number on it.

BREAK – op code 0

The little minion stops and has a rest.