ACSL

2009 - 2010 **American Computer Science League** **Contest #4**

Senior Division

ACSL STACKS AND QUEUES

PROBLEM: Since ACSL stacks and queues are not implemented on any platform, they have some non-standard operations defined on them.

POP x	Delete x items using LIFO in a stack or FIFO in a queue
PSH n	Add n to the stack or queue
DUP x	Duplicate the first x items that remain and then push them
SWP x	Swap x items from the popped with x items from the opposite end
SWH	Switch the structure from a stack to a queue or from a queue to a stack
CRC x	Circulate the next x items to be popped to the other end of the structure
INS x, n	Insert n into the x^{th} location starting at the popped end.
PIN n	Insert an item at opposite end of the structure than the PSH command
SRT a	Sort the structure in ascending order
SRT d	Sort the structure in descending order
PRT x	Print the first x items in the structure at the popped end

INPUT: The structure will always initially have the items A, B, C, D, E in this order. The input items will also be the letters above. Each of the 5 input five lines will contain a S or a Q telling that the structure starts as a stack or a queue. This will be followed by a list of commands in the format described in the table above. Always start with the original list of items. Each line will end with the PRT command.

OUTPUT: Print the items required by the PRT command.

SAMPLE INPUT	SAMPLE OUTPUT
1. S, POP 1, PSH A, PRT 2	1. D, A
2. Q, PSH C, POP 3, DUP 1, SRT a, PRT 3	2. C, D, D
3. S, CRC 3, PIN D, INS 3, A, PRT 4	3. E, A, A, B
4. S, SWP 2, POP 1, PSH A, SWH, POP 2, INS 2, E, PRT 3	4. C, E, A
5. Q, PSH C, CRC 2, SWH, SRT d, PSH A, POP 1, PRT 2	5. B, A