Tutorial Levels

**Level 1: Ins and Outs**

**Problem:**

There is a single item in the input box. Please transfer it to the output box.

**Available Instructions:**

INPUT

OUTPUT

**Level 2: Ins and Outs Pt. 2**

**Problem:**

There are 5 items in the input box. Please transfer all of them it to the output box.

**Available Instructions:**

INPUT

OUTPUT

**Level 3: Hip Hop**

**Problem:**

There are an arbitrary items in the input box. Please transfer all of them it to the output box.

**Available Instructions:**

INPUT

OUTPUT

JUMP

JUMP IF NULL

**Level 4: Move Semantics**

**Problem:**

There are 2 items in the input box. Place them in the outbox in reverse order

|  |  |
| --- | --- |
| **Available Instructions:**  INPUT  OUTPUT  MOVETO X  MOVEFROM X | **Available Cards:**  2x Register Cards |

**Level 5: Flip Flop Hop**

**Problem:**

There are arbitrary number of pairs in the input box. For each pair, place them in the outbox in reverse order.

|  |  |
| --- | --- |
| **Available Instructions:**  INPUT  OUTPUT  JUMP  JUMP IF NULL  MOVETO X  MOVEFROM X | **Available Cards:**  2x Register Cards |

**Level 6: Triceraflops**

**Problem:**

There are 3 items in the input box. Place them in the output box in reverse order.

|  |  |
| --- | --- |
| **Available Instructions:**  INPUT  OUTPUT  JUMP  JUMP IF NULL  MOVETO X  MOVEFROM X | **Available Cards:**  4x Register Cards |

**Level 7: Triceraflops Hops**

**Problem:**

There are an arbitrary number of triplets in the input box. For each set of three, place them in the output box in reverse order.

|  |  |
| --- | --- |
| **Available Instructions:**  INPUT  OUTPUT  JUMP  JUMP IF NULL  MOVETO X  MOVEFROM X | **Available Cards:**  4x Register Cards |

**Level 8: Fat Stacks**

**Problem:**

There are a lot of items in the input box. Place all of them in the output box in reverse order.

|  |  |
| --- | --- |
| **Available Instructions:**  INPUT  OUTPUT  JUMP  JUMP IF NULL  MOVETO X  MOVEFROM X | **Available Cards:**  4x Register Cards  1x Stack |

**Level 9: Comparatron**

**Problem:**

The input box has some items in it. For each pair, output only the greater of the two.

|  |  |
| --- | --- |
| **Available Instructions:**  INPUT  OUTPUT  JUMP  JUMP IF NULL  JUMP IF LESS  JUMP IF GREATER  MOVETO X  MOVEFROM X | **Available Cards:**  2x Register Cards |

**Level 10: Big Fish**

**Problem:**

The input box has some items in it. Output only the greatest number in the input

|  |  |
| --- | --- |
| **Available Instructions:**  INPUT  OUTPUT  JUMP  JUMP IF NULL  JUMP IF LESS  JUMP IF GREATER  MOVETO X  MOVEFROM X | **Available Cards:**  2x Register Cards |

**Level 11: Two Fish**

**Problem:**

The input box has some items in it. Output only the two biggest numbers in the input

|  |  |
| --- | --- |
| **Available Instructions:**  INPUT  OUTPUT  JUMP  JUMP IF NULL  JUMP IF LESS  JUMP IF GREATER  MOVETO X  MOVEFROM X | **Available Cards:**  4x Register Cards |

**Level 12: Red Fish**

**Problem:**

The input box has some items in it. Output only the three biggest numbers in the input

|  |  |
| --- | --- |
| **Available Instructions:**  INPUT  OUTPUT  JUMP  JUMP IF NULL  JUMP IF LESS  JUMP IF GREATER  MOVETO X  MOVEFROM X | **Available Cards:**  4x Register Cards |

**Level 13: You Fish**

**Problem:**

The input box has some items in it. Output all the numbers in descending order.

|  |  |
| --- | --- |
| **Available Instructions:**  INPUT  OUTPUT  JUMP  JUMP IF NULL  JUMP IF LESS  JUMP IF GREATER  MOVETO X  MOVEFROM X | **Available Cards:**  4x Register Cards  1x Max Heap |

**Level 14: Sad Fish**

**Problem:**

The input box has some items in it. Output all the numbers in increasing order.

|  |  |
| --- | --- |
| **Available Instructions:**  INPUT  OUTPUT  JUMP  JUMP IF NULL  JUMP IF LESS  JUMP IF GREATER  MOVETO X  MOVEFROM X | **Available Cards:**  2x Register Cards  1x Max Heap  1x Stack |

**Level 15: Copy Constructor**

**Problem:**

The input box has a single item in it. Output that number twice.

|  |  |
| --- | --- |
| **Available Instructions:**  INPUT  OUTPUT  MOVETO X  MOVEFROM X  COPYTO X  COPYFROM X | **Available Cards:**  2x Register Cards |

**Level 16: ALU**

**Problem:**

For each item in the input box, output that number times 2.

|  |  |
| --- | --- |
| **Available Instructions:**  INPUT  OUTPUT  JUMP  JUMP IF NULL  JUMP IF LESS  JUMP IF GREATER  MOVETO X  MOVEFROM X  COPYTO X  COPYFROM X  ADD X | **Available Cards:**  3x Register Cards |

**Level 17: MegaMultiplier**

**Problem:**

For each item in the input box, output that number times 4.

|  |  |
| --- | --- |
| **Available Instructions:**  INPUT  OUTPUT  JUMP  JUMP IF NULL  JUMP IF LESS  JUMP IF GREATER  MOVETO X  MOVEFROM X  COPYTO X  COPYFROM X  ADD X | **Available Cards:**  3x Register Cards |

**Level 17: UltraMultiplier**

**Problem:**

For each item in the input box, output that number times 16.

|  |  |
| --- | --- |
| **Available Instructions:**  INPUT  OUTPUT  JUMP  JUMP IF NULL  JUMP IF LESS  JUMP IF GREATER  MOVETO X  MOVEFROM X  COPYTO X  COPYFROM X  ADD X | **Available Cards:**  6x Register Cards |

**Level 18: Mister Negative**

**Problem:**

For each item in the input box, output its negation.

|  |  |
| --- | --- |
| **Available Instructions:**  INPUT  OUTPUT  JUMP  JUMP IF NULL  JUMP IF LESS  JUMP IF GREATER  MOVETO X  MOVEFROM X  COPYTO X  COPYFROM X  ADD X  SUBTRACT X | **Available Cards:**  3x Register Cards |