

## P06 - MATH GAME

This program will be implementing a math game in which the player is presented with a list of numbers and a target goal number. The player will choose one of these numbers along with an operator: addition (+), subtraction (-), multiplication (x), division (/), or concatenation (&). The chosen number will then be combined with the number following it in the list using the specified operator, so that two list elements become one. Before these nodes are combined, a new randomly chosen value is added to the end of the list, so that the final length of the list remains the same. The player makes repeated choices like this, until the target number appears as one of the values within the list.

The goals of this project include further developing the experience working with object-oriented design code, and specifically working with data organized in a linked list.

Note that when the number selected appears more than once, the earliest (left-most) occurrence of this number is modified.

An example of the program running (the user's input is highlighted in bold orange text):

Goal: 50 Moves Taken: 0

Puzzle: 8 -> 2 -> 2 -> 1 -> 8 -> 4 -> 3 -> END

Number and Operation [+, -, x, /, &] to Apply: **2+**

Goal: 50 Moves Taken: 1

Puzzle: 8 -> 4 -> 1 -> 8 -> 4 -> 3 -> 8 -> END

Number and Operation [+, -, x, /, &] to Apply: **8x**

Goal: 50 Moves Taken: 2

Puzzle: 32 -> 1 -> 8 -> 4 -> 3 -> 8 -> 2 -> END

Number and Operation [+, -, x, /, &] to Apply: **1&**

Goal: 50 Moves Taken: 3

Puzzle: 32 -> 18 -> 4 -> 3 -> 8 -> 2 -> 8 -> END

Number and Operation [+, -, x, /, &] to Apply: **32+**

Congratulations, you won in 4 moves.

Solution: 50 -> 4 -> 3 -> 8 -> 2 -> 8 -> 6 -> END