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INF1340 – Programming for Data Science
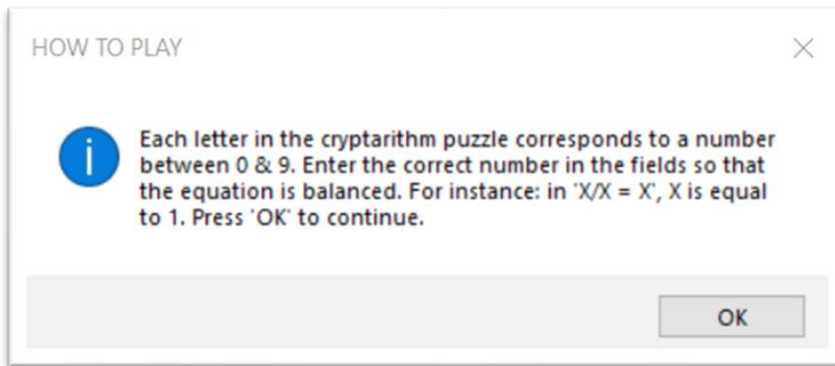Thursday, November 18th, 2021

READ.ME – Cryptarithm Solver & Checker

HOW TO PLAY   ✕

ⓘ   Each letter in the cryptarithm puzzle corresponds to a number
    between 0 & 9. Enter the correct number in the fields so that
    the equation is balanced. For instance: in 'X/X = X', X is equal
    to 1. Press 'OK' to continue.

                                              OK

Fig 1. The opening dialogue box

Overview

Cryptarithms is an algebraic /cryptographic puzzle that involves substituting letters for numbers to solve equations. Numbers of base k are encoded as letters, need to be between 0 and 9, and cannot have trailing zeroes (Kendall et al., 2008.)

Instructions

To play, users simply open the file (no installation required) and are given a randomly selected puzzle to solve. The program solves the cryptarithm first so as to verify the user's answer, and this can take a few seconds depending on the length of the puzzle. When the user thinks they have solved it, they enter the number in the box of the corresponding letter and click "Check Answer" to see if their numbers match the numbers of the program. Numbers have to be in the single digits, entered in full, and cannot contain leading or trailing spaces. A future version could include a function to refresh the program so the user can play again with another puzzle.
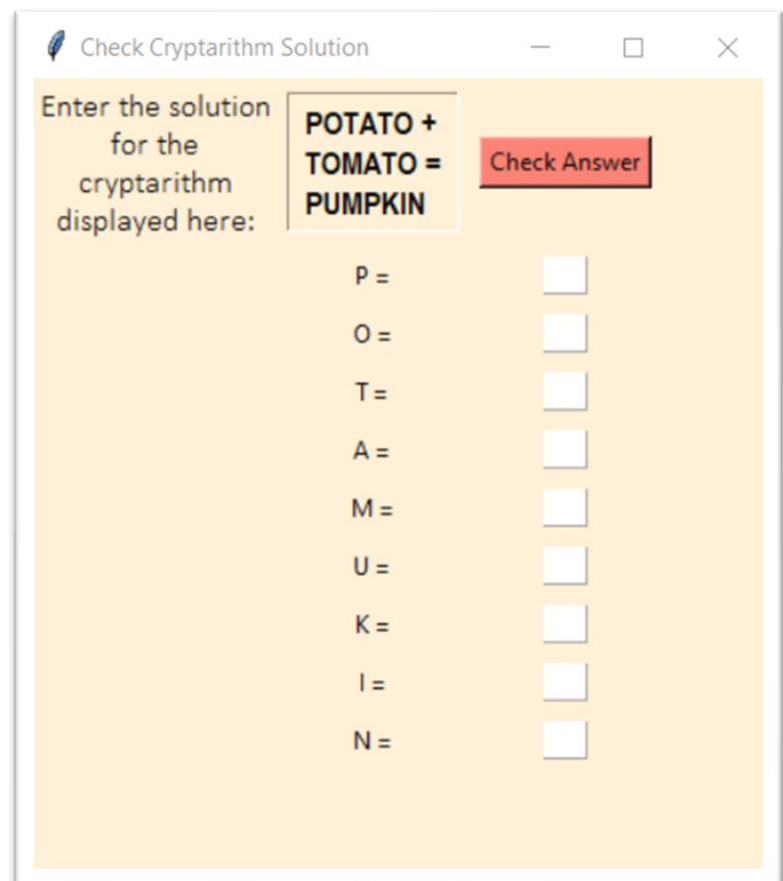

Check Cryptarithm Solution   —   ☐   ✕

Enter the solution   POTATO +
for the   TOMATO =   Check Answer
cryptarithm   PUMPKIN
displayed here:

P =   ☐

O =   ☐

T =   ☐

A =   ☐

M =   ☐

U =   ☐

K =   ☐

I =   ☐

N =   ☐

Fig 2. Initial instance of program, with random puzzle selected

Kendall, G., Parkes, A., & Spoerer, K. (2008). A survey of NP-complete puzzles. *ICGA Journal*, 31(1) pp. 13-34. DOI: 10.3233/ICG-2008-31103
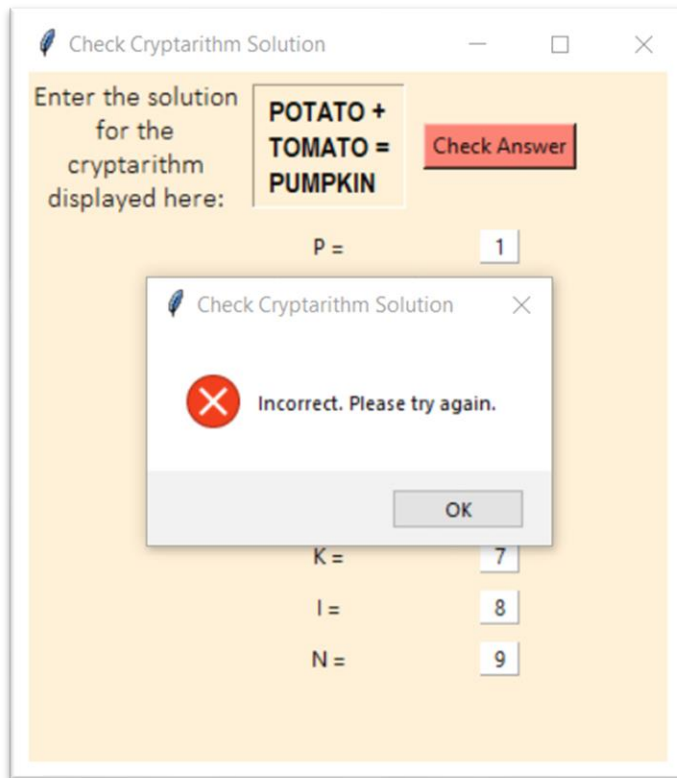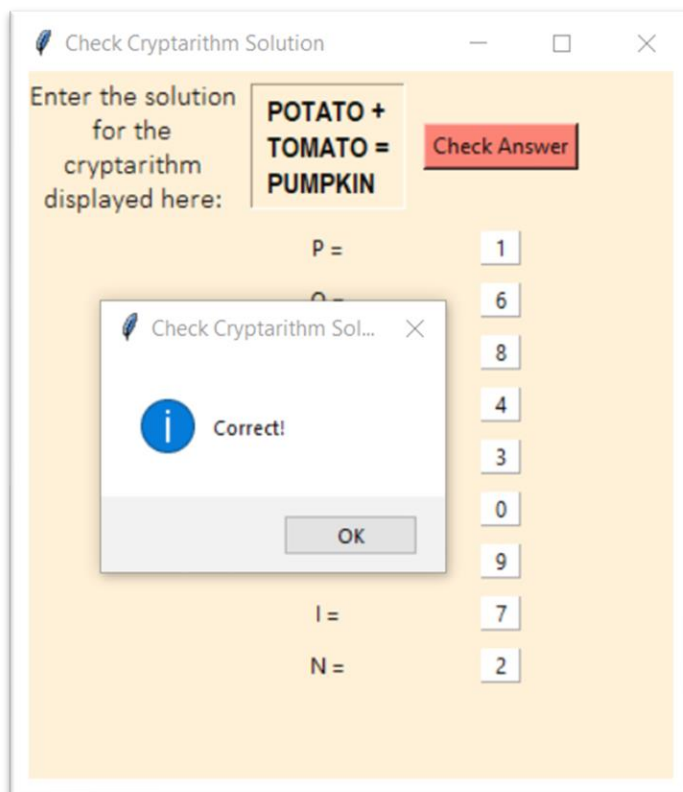
Fig 3. Incorrect solution entered

Fig 4. Correct solution entered

See API Documentation for explanation of code. | All code written in Python 3.10 using Visual Studio Code. | License: GNU GPL.