Programming Challenges 2

4. Create a digital version of the board game Mastermind

The code is set to be 4 colours. The possible colours are red, blue, green, purple, yellow and white. You are allowed to repeat colours as many times as you wish.

The player has 12 chances to guess the code. After each guess, the player will be told how many of the parts were in the correct position and how many colours were correct but in the wrong position. The player wins if they guess all 4 colours correct, in the correct location within the designated number of guesses.

5. The numbers round in the TV show Countdown uses an arithmetic combination of **up to** 6 numbers to get a predefined 3 digit solution. Contestants must use the operators +, -, ×,÷ and () to combine some or all of the 6 numbers to reach the target solution. For example:

Numbers: 75, 10, 8, 3, 2, 8

Target number: 550

Can be achieved by evaluating the expression (75×8)-((3+2)×10)

Write a program that will take 6 possible integers from the array [1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,25,50,75,100] and return 10 unique 3 digit numbers which can be created by valid combinations of the digits with +, -, ×,÷ and (). For each 3 digit number also print the solution to achieve the target number. Only positive integers can be used in the intermediate stages, for example, it is invalid to have (5÷2) +10 because (5÷2) is not an integer.

6. Write a Program to solve the GCHQ 2016 Christmas puzzle: https://www.gchq.gov.uk/news-article/christmas-card-cryptographic-twist-charity

(Skeleton code available on QOL – feel free to modify and chance as required).

7. ROUTE PLANNING EXERCISE COMING SOON! –There has been a revision and this problem will be released in the near future!